APPENDIX A

Initial Study, Notice of Preparation, and Comments

INITIAL STUDY

PROJECT TITLE

The Ranch

LEAD AGENCY NAME AND ADDRESS

City of Rancho Cordova
2729 Prospect Park Drive
Rancho Cordova, CA 95670

CONTACT PERSON AND PHONE NUMBER

June Cowles, Senior Planner
City of Rancho Cordova Planning Department
(916) 851-8756

PROJECT SPONSOR'S NAME AND ADDRESS

Olga Sciorelli
K. Hovnanian Homes
3721 Douglas Blvd. # 150
Roseville, CA 95661
(916) 945-5362

PURPOSE OF THE INITIAL STUDY

An Initial Study (IS) is a preliminary analysis which is prepared to determine the relative environmental impacts associated with a proposed project. It is designed as a measuring mechanism to determine if a project will have a significant adverse effect on the environment, thereby triggering the need to prepare an Environmental Impact Report (EIR). It also functions as an evidentiary document containing information which supports conclusions that the project will not have a significant environmental impact or that the impacts can be mitigated to a "Less Than Significant" or "No Impact" level.

This Initial Study has been prepared consistent with the California Environmental Quality Act (CEQA) Guidelines Section 15063, to determine if the proposed Ranch Project (project) may have a significant effect upon the environment. Based upon the findings and mitigation measures contained within this report, environmental impacts are significant enough to warrant the preparation of an EIR.

PROJECT DESCRIPTION

See the Notice of Preparation for a description of the proposed project, including the project location, General Plan designation, zoning, project background, project characteristics, and required approvals.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

X	Aesthetics		Agriculture and Forest Resources	X	Air Quality
X	Biological Resources	X	Cultural Resources	X	Geology and Soils
X	Greenhouse Gasses	X	Hazards and Hazardous Materials	X	Hydrology and Water Quality
X	Land Use and Planning		Mineral Resources	X	Noise
X	Population and Housing	X	Public Services	X	Recreation
X	Transportation and Traffic	X	Tribal Cultural Resources	X	Utilities and Service Systems
X	Mandatory Findings of Significance				

DETERMINATION

On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
X	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature _____ Date _____

EVALUATION OF ENVIRONMENTAL IMPACTS

In each area of potential impact listed in this section, there are one or more questions which assess the degree of potential environmental effect. A response is provided to each question using one of the four impact evaluation criteria described below. A discussion of the response is also included.

- Potentially Significant Impact. This response is appropriate when there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries, upon completion of the Initial Study, an EIR is required.
- Less than Significant With Mitigation Incorporated. This response applies when the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact". The Lead Agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.
- Less than Significant Impact. A less than significant impact is one which is deemed to have little or no adverse effect on the environment. Mitigation measures are, therefore, not necessary, although they may be recommended to further reduce a minor impact.
- No Impact. These issues were either identified as having no impact on the environment, or they are not relevant to the project.

ENVIRONMENTAL CHECKLIST

This section of the Initial Study incorporates the most current Appendix "G" Environmental Checklist Form, contained in the CEQA Guidelines. Impact questions and responses are included in both tabular and narrative formats for each of the 19 environmental topic areas.

I. AESTHETICS -- WOULD THE PROJECT:

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Have a substantial adverse effect on a scenic vista?	X			
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	X			
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a, c, d): It has been determined that the potential impacts on aesthetics caused by the proposed project will require a more detailed analysis in the EIR. As such, the lead agency will examine each of the three potentially significant environmental issues listed in the checklist above in the EIR and will determine whether the proposed project will have a potentially significant impact on scenic vistas, the visual character of the site, and light and glare. At this point, a definitive impact conclusion for each of these environmental topics will not be made; rather, these three issues are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will provide a discussion of viewsheds, proximity to scenic vistas, existing lighting standards, thresholds of significance, a consistency analysis, cumulative impact analysis, and a discussion of feasible mitigation measures that should be implemented to reduce impacts on aesthetics. The EIR will identify applicable General Plan policies that protect the visual values located along public roadways and surrounding land uses, and will also address the potential for the project to substantially impair the visual character of the project vicinity. The analysis will address any proposed design and landscaping plans developed by the applicant and provide a narrative description of the anticipated changes to the visual characteristics of the project site as a result of project implementation and the conversion of the existing on-site land uses. The analysis will also address potential impacts associated with light spillage onto adjacent properties during nighttime activities.

Response b): The project site is not located adjacent to or in the vicinity of a state scenic highway. The project would have no impact related to the potential to substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic

highway. Therefore, this impact would be ***less than significant***. This issue will not be addressed further.

II. AGRICULTURE AND FOREST RESOURCES -- WOULD THE PROJECT:

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?			X	
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?			X	
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined in Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?			X	
d) Result in the loss of forest land or conversion of forest land to non-forest use?			X	
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?			X	

RESPONSES TO CHECKLIST QUESTIONS

Responses a-e) The majority of the project site is depicted on the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) as Grazing Land, with some portions of the site depicted as Urban and Built-Up Land. Grazing Land is suitable for the grazing of livestock and does not qualify as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

As discussed previously, the project site is currently zoned AG-80 by the City. As part of the proposed project, the entire project site would be rezoned from AG-80 to SPA. According to the most recent (2015/2016) Sacramento County Williamson Act Map, the project site is not under a Williamson Act contract. Potential conflicts for future development to conflict with existing zoning for agricultural use were addressed in the Rancho Cordova General Plan EIR under Impact 4.2.2, which identified potential conflicts between urban uses and agricultural uses, as a significant and unavoidable impact and Impact 4.2.4, which identified cumulative impacts associated with conversion of agricultural lands and agricultural/urban interface conflicts as a cumulatively considerable contribution to a significant and unavoidable impact (City of Rancho Cordova General Plan Draft EIR, pages 4.2-20 -4.2-26). The project will be required to implement all applicable mitigation measures, General Plan policies, and General Plan actions identified as measures to reduce environmental effect of Impacts 4.2.2 and 4.2.4.

The project site is not forest land (as defined in Public Resources Code section 1222(g)) or timberland (as defined in Public Resources Code section 4526), and the site is not zoned for forest land. The proposed project would not conflict with existing zoning for, or cause rezoning of, forest land or

timberland. The proposed project would not result in the loss of forest land or conversion of forest land to non-forest use. The proposed project does not involve changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

Therefore, impacts associated with agricultural and forest resources would be ***less than significant***. These issues will not be addressed further.

III. AIR QUALITY -- WOULD THE PROJECT:

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Conflict with or obstruct implementation of the applicable air quality plan?	X			
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	X			
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	X			
d) Expose sensitive receptors to substantial pollutant concentrations?	X			
e) Create objectionable odors affecting a substantial number of people?	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a-e): It has been determined that the potential impacts on air quality caused by the proposed project will require a detailed analysis in the EIR. As such, the lead agency will examine each of the five potentially significant environmental issues listed in the checklist above in the EIR and will determine whether the proposed project has the potential to have a significant impact on air quality. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will include an air quality analysis that presents the methodology, thresholds of significance, an impact analysis, and a discussion of feasible mitigation measures that should be implemented to reduce impacts on air quality. The air quality analysis will address air quality impacts, including the potential for the project to:

- conflict with or obstruct implementation of the applicable air quality plan;
- violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- expose sensitive receptors to substantial pollutant concentrations; and/or
- create objectionable odors affecting a substantial number of people.

IV. BIOLOGICAL RESOURCES -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	X			
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	X			
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	X			
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	X			
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	X			
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a-f): Based on the documented special status species, sensitive natural communities, wetlands, and other biological resources in the region, it has been determined that the potential impacts on biological resources resulting from the proposed project will require a detailed analysis. As such, the lead agency will examine each of the environmental issues listed in the checklist above in the EIR and will determine whether the proposed project has the potential to have a significant impact on biological resources. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will provide a summary of local biological resources, including descriptions and mapping of plant communities, the associated plant and wildlife species, and sensitive biological resources known to occur, or with the potential to occur in the project vicinity. The analysis will will identify applicable thresholds of significance, provide an impact analysis, and, if necessary, discuss feasible mitigation

measures that should be implemented to reduce impacts on biological resources and to ensure compliance with federal and state regulations.

V. CULTURAL RESOURCES -- WOULD THE PROJECT:

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?	X			
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?	X			
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	X			
d) Disturb any human remains, including those interred outside of formal cemeteries?	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a-d): Based on known historical and archaeological resources in the region, and the potential for undocumented underground cultural resources in the region, it has been determined that the potential impacts on cultural resources caused by the proposed project will require analysis in the EIR. As such, the lead agency will examine each of the four environmental issues listed in the checklist above in the EIR and will determine whether the proposed project has the potential to have a significant impact on cultural resources. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will include an overview of the prehistory and history of the area, the potential for surface and subsurface cultural resources to be found in the area, the types of cultural resources that may be expected to be found, a review of existing regulations and policies that protect cultural resources, an impact analysis, and mitigation that should be implemented in order to reduce potential impacts to cultural resources.

VI. GEOLOGY AND SOILS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	X			
ii) Strong seismic ground shaking?	X			
iii) Seismic-related ground failure, including liquefaction?	X			
iv) Landslides?	X			
b) Result in substantial soil erosion or the loss of topsoil?	X			
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	X			
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	X			
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X

RESPONSES TO CHECKLIST QUESTIONS

Responses a)i, a)ii, a)iii, a)iv, b, c, d): It has been determined that the potential impacts from geology and soils will require a detailed analysis in the EIR. As such, the lead agency will examine each of the seven potentially significant environmental issues listed in the checklist above in the EIR and will determine whether the proposed project has the potential to have a significant impact associated with geology and soils. At this point, a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will include a review of existing geotechnical reports, published documents, aerial photos, geologic maps and other geological and geotechnical literature pertaining to the site and surrounding area to aid in evaluating geologic resources and geologic hazards that may be present. The EIR will include a description of the applicable regulatory setting, a description of the existing geologic and soils

conditions on and around the project site, an evaluation of geologic hazards, a description of the nature and general engineering characteristics of the subsurface conditions within the project site. This section of the EIR will identify applicable thresholds of significance, provide an impact analysis, and, if necessary, discuss feasible mitigation measures that should be implemented to reduce impacts associated with geology and soils.

Response e): The proposed project would connect to the municipal sewer system for wastewater disposal. Septic tanks or septic systems are not proposed as part of the project. As such, ***no impact*** would occur. This CEQA topic is not relevant to the proposed project and does not require further analysis.

VII. GREENHOUSE GAS EMISSIONS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	X			
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a), b): Implementation of the proposed project could generate greenhouse gases (GHGs) from a variety of sources, including but not limited to vehicle trips, vehicle idling, electricity consumption, water use, and solid waste generation. It has been determined that the potential impacts from GHG emissions by the proposed project will require a detailed analysis in the EIR. As such, the lead agency will examine each of the environmental issues listed in the checklist above in the EIR and will determine whether the proposed project has the potential to have a significant impact from GHG emissions. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

VIII. HAZARDS AND HAZARDOUS MATERIALS -- WOULD THE PROJECT:

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	X			
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	X			
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	X			
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	X			
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X	
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?			X	
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	X			
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a-d, g-h): It has been determined that the potential impacts from hazards and/or hazardous materials by the proposed project will require a detailed analysis in the EIR. As such, the lead agency will examine each of the six potentially significant environmental issues listed in the checklist above in the EIR and will determine whether the proposed project has the potential to have a significant impact from hazards and/or hazardous materials. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will include a review of existing environmental site assessments and any other relevant studies for the project site to obtain a historical record of environmental conditions. The analysis will also include a review of recent records and aerial photographs. A site reconnaissance will be performed to

observe the site and potential areas of interest. Information on the current and historical use of the properties will be gathered, and the potential for project implementation to introduce hazardous materials to and from the area during construction and operation. This section will identify applicable thresholds of significance, provide an impact analysis, and, if necessary, discuss feasible mitigation measures that should be implemented to reduce impacts associated with hazards and hazardous materials.

Responses e-f): The project site is not located within an airport land use plan, nor within two miles of a public airport or private airstrip. The project site is located approximately four miles from the center of Mather Airport, a major, county-owned facility. Mather Airport is primarily used by air cargo carriers and general aviation (small, private aircraft). Mather Airport is also a major maintenance facility and houses the California Department of Forestry administrative and maintenance facilities. All air traffic arriving and departing Mather Airport is generally routed along a path more than 2.5 miles north of the project area. The proposed project is outside the airport's clear zone, approach-departure zone, and overflight zone, as indicated on the current Comprehensive Land Use Plan (CLUP) for Mather Airport (Airport Land Use Commission, 1997). Therefore, the proposed project would not result in a safety hazard for people residing or working in the area.

Given that the project site is located outside the existing and proposed CLUP boundaries, implementation would not conflict with operations of this airport facility. Therefore, impacts associated with airports and private air strips would be ***less than significant***. As such, these CEQA topics are not relevant to the proposed project and do not require further analysis. These issues will not be addressed further.

IX. HYDROLOGY AND WATER QUALITY -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Violate any water quality standards or waste discharge requirements?	X			
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	X			
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	X			
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	X			
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	X			
f) Otherwise substantially degrade water quality?	X			
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?			X	
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?			X	
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			X	
j) Inundation by seiche, tsunami, or mudflow?			X	

RESPONSES TO CHECKLIST QUESTIONS

Responses a-f): It has been determined that the potential impacts on water quality, groundwater supplies, drainage, and runoff caused by the proposed project will require a detailed analysis in the EIR. As such, the lead agency will examine each of the six potentially significant environmental issues listed in the checklist above in the EIR and will determine whether the proposed project has the potential to have a significant impact on hydrology and water quality. At this point a definitive impact conclusion

for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will evaluate the potential construction and operational impacts of the proposed project on water quality. This section will describe the surface drainage patterns of the project site and adjoining areas, and identify surface water quality in the project site based on existing and available data. This section will identify impaired water bodies, listed pursuant to Section 303(d) of the federal Clean Water Act, in the vicinity of the project site. Conformity of the proposed project to water quality regulations will also be discussed. Mitigation measures will be developed to incorporate best management practices (BMPs), consistent with the requirements of the Central Valley Regional Water Quality Control Board to reduce the potential for site runoff.

This EIR will identify applicable thresholds of significance, provide an impact analysis, and, if necessary, discuss feasible mitigation measures that should be implemented to reduce impacts associated with hydrology and water quality.

Responses g-j): The project site is not located within a 100-year flood hazard area. The project site is located within Flood Zone X, which is not within the 100-year flood zone as shown on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 06067C0240H.

The project site is not located within a dam inundation area. The proposed project would not expose people or structures to a significant risk of loss, injury or death involving flooding as a result of the failure of a levee or dam. The project site is not anticipated to be inundated by a tsunami because it is located elevations ranging between 170 and 210 feet above MSL and is approximately 70 miles away from the Pacific Ocean which is the closest ocean waterbody. The project site is not anticipated to be inundated by a seiche because it is not located in close proximity to a water body capable of creating a seiche.

A mudflow is a category of landslide that is associated with heavy saturation of soils and sometimes is associated with seismicity. Factors such as the geological conditions, drainage, slope, vegetation, and others directly affect the potential for mudflow. The City's General Plan EIR does not identify mudslides as a topic of concern. Additionally, no steep areas that would have the potential to generate mudflows during operation would be created.

Therefore, impacts associated with flooding, dam inundation, and inundation by seiche, tsunami, or mudflow would be ***less than significant***. These issues will not be addressed further.

X. LAND USE AND PLANNING -- WOULD THE PROJECT:

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Physically divide an established community?			X	
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	X			
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	X			

RESPONSES TO CHECKLIST QUESTIONS

Response a): The proposed project includes development of residential, commercial, parks, and open space uses, including a natural resource preserve. The site is currently undeveloped and surrounded by existing and planned residential and other urban uses. The proposed project is consistent with the surrounding uses and would not physically divide an established community. Therefore, impacts associated with division of an established community would be ***less than significant***. This issue will not be addressed further.

Responses b-c): It has been determined that the potential land use and planning impacts caused by the proposed project will require a detailed analysis in the EIR. As such, the lead agency will examine each of the two potentially significant environmental issues in the EIR and will determine whether the proposed project has the potential to have a significant impact. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will include a detailed discussion of the project as it relates to the existing General Plan, Zoning Code, and other local regulations. The local, regional, state, and federal jurisdictions potentially affected by the project will be identified, as well as their respective plans, policies, laws, and regulations, and potentially sensitive land uses. The proposed project will be evaluated for consistency with the City of Rancho Cordova General Plan, the Zoning Ordinance, and other local planning documents. This section of the EIR will identify thresholds of significance, provide an impact analysis, and, if necessary, discuss of feasible mitigation measures that should be implemented to ensure consistency applicable land use plans, policies, and regulations and to address potential conflicts with any applicable habitat conservation plan or natural community conservation plan.

XI. MINERAL RESOURCES -- WOULD THE PROJECT:

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

RESPONSES TO CHECKLIST QUESTIONS

Responses a-b): The California Division of Mines and Geology does not designate the project site or surrounding vicinity as a high quality resource area or a mineral resources zone. The project site is not designated as a locally-important mineral resource recovery site by the City. Given that no known mineral resources are located in the vicinity of the project site, implementation of the proposed project would not result in the loss of availability of a known mineral resource or of a locally-important mineral resource recovery site. Therefore, there would be ***no impact*** regarding mineral resources. These issues will not be addressed further.

XII. NOISE -- WOULD THE PROJECT RESULT IN:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	X			
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	X			
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	X			
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	X			
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			X	
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?			X	

RESPONSES TO CHECKLIST QUESTIONS

Responses a-d): Based on existing and projected noise levels along roadways, and the potential for noise generated during project construction and operational activities, it has been determined that the potential impacts from noise caused by the proposed project will require a detailed analysis in the EIR. As such, the lead agency will examine each of the four potentially significant environmental issues listed in the checklist above in the EIR and will determine whether the proposed project has the potential to have a significant impact from noise. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will identify the noise level standards contained in the City of Rancho Cordova General Plan Noise Element which are applicable to this project, as well as any germane state and federal standards. A noise study will be conducted and will include continuous (24-hour) and short-term noise measurements on the project site and in the project vicinity in order to quantify existing ambient noise levels from existing noise sources. The noise study will provide an estimate of existing traffic noise levels adjacent to the project-area roadways through application of accepted traffic noise prediction methodologies. Any significant noise sources other than local traffic within the project site will be identified and quantified through noise level measurements. The noise study will identify all significant noise impacts due to and upon development of the proposed project. The noise study will determine the land use compatibility of proposed uses as it may affect existing noise sensitive receptors in the project

site. An assessment of construction noise impacts and potential mitigation measures will also be provided. The study will present appropriate and practical recommendations for noise control aimed at reducing any noise impacts. The EIR will identify applicable thresholds of significance, provide an impact analysis, and, if necessary, discuss feasible mitigation measures that should be implemented to reduce impacts associated with noise.

Responses e-f): As discussed previously, the project site is located approximately four miles from the center of Mather Airport. The proposed project is outside all measured noise contours as indicated on the current CLUP for Mather Airport (Airport Land Use Commission, 1997). Additionally, there are no private airstrips within the vicinity of the project site. Therefore, impacts associated with airports and private air strips would be ***less than significant***. These issues will not be addressed further.

XIII. POPULATION AND HOUSING -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	X			
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

RESPONSES TO CHECKLIST QUESTIONS

Response a): It has been determined that the potential population and housing impacts caused by the proposed project will require a detailed analysis in the EIR. As such, the lead agency will examine this environmental issue in the EIR and will determine whether the proposed project has the potential to have a significant impact. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will include a detailed discussion of the project characteristics as they relate to the existing General Plan Housing Element, and other local regulations. The local, regional, state, and federal jurisdictions potentially affected by the project will be identified, as well as their respective plans, policies, laws, and regulations, and potentially sensitive land uses. The proposed project will be evaluated for consistency the City of Rancho Cordova General Plan, the Zoning Ordinance, and other local planning documents. Planned development and housing and population trends in the region will be identified based on currently available plans. The EIR will provide an analysis of the project's potential to induce substantial population growth including the thresholds of significance, an impact analysis, and, if necessary, feasible mitigation measures that should be implemented.

Responses b-c): The project site is currently undeveloped and does not contain housing. The proposed project would not displace housing or people. There is ***no impact***, and these topics will not be further addressed in the EIR.

XIV. PUBLIC SERVICES

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	X			
Police protection?	X			
Schools?	X			
Parks?	X			

RESPONSES TO CHECKLIST QUESTIONS

Response a): Implementation of the proposed project would result in increased demand for police, fire protection, schools, parks, and other public facilities in the area. It has been determined that the potential impacts from increased demands on public services caused by the proposed project will require a detailed analysis in the EIR. As such, the lead agency will examine each of these environmental issues listed in the checklist above in the EIR and will determine whether the proposed project has the potential to have a substantial adverse physical impact associated with public services. At this point, a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

During the preparation of the EIR, the public service providers will be consulted in order to determine existing service levels in the project area. This would include documentation regarding existing staff levels, equipment and facilities, current service capacity, existing service boundaries, and planned service expansions. Master plans from such public service providers and City policies, programs, and standards associated with the provision of public services will be described in the EIR. The EIR analysis will identify the thresholds of significance, provide an impact analysis, and, if necessary, discuss feasible mitigation measures that should be implemented reduce environmental impacts associated with public services.

XV. RECREATION

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	X			
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a-b): Implementation of the proposed project would result in increased demand for parks, and other recreational facilities in the area. It has been determined that the potential impacts from increased demands to recreation facilities caused by the proposed project will require a detailed analysis in the EIR. As such, the lead agency will examine each of these environmental issues listed in the checklist above in the EIR, and will determine whether the proposed project has the potential to have a significant impact on recreational facilities. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

During the preparation of the EIR, the recreational facilities and services will be analyzed to determine existing service levels in the project area. This would include documentation regarding existing and future facility needs, current service capacity, and planned service expansions. City policies, programs, and standards associated with the provision of public services will be presented in the EIR.

The EIR will identify thresholds of significance, provide an impact analysis, and discuss of feasible mitigation measures that should be implemented reduce impacts associated with recreation.

XVI. TRANSPORTATION AND TRAFFIC -- WOULD THE PROJECT:

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	X			
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	X			
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?			X	
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	X			
e) Result in inadequate emergency access?	X			
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a-b, d-f): The proposed project includes the development of uses that will increase traffic on existing and planned roadways. The circulation design includes roadway improvements intended to accommodate traffic patterns in the area. Based on existing and projected traffic volume levels along roadways, it has been determined that the potential traffic impacts caused by the proposed project will require a detailed analysis in the EIR. As such, the EIR will examine each of the five potentially significant environmental issues listed in the checklist above and will determine whether the proposed project has the potential to have a significant impact from traffic. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is conducted in the EIR.

The EIR will describe existing and future traffic conditions and will identify the trips that will be generated by the project and the projected distribution of those trips on the roadway system. The EIR will analyze traffic impacts associated with the project under existing and cumulative conditions. Potential impacts associated with site access and on-site circulation will also be addressed in the EIR. The EIR will identify applicable thresholds of significance, provide an impact analysis, and discuss feasible mitigation measures that should be implemented reduce impacts associated with transportation/traffic.

Responses b-c): The proposed project does not include airport or airstrip facilities and is not located adjacent to an airport or airstrip. As noted previously, the proposed project is outside the airport's clear zone, approach-departure zone, and overflight zone, as indicated on the current CLUP for Mather Airport (Airport Land Use Commission, 1997). The proposed project does not include towers or other elevated structures. The proposed project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. This impact would be ***less than significant***. This issue will not be addressed further.

XVII. TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	X			
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resources to a California Native American tribe.	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a-b): Based on known historical, cultural, tribal, and archaeological resources in the region, and the potential for undocumented underground cultural resources in the region, it has been determined that the potential impacts on tribal cultural resources will require analysis in the EIR. As such, the lead agency will examine the two environmental issues listed in the checklist above in the EIR and will determine whether the proposed project has the potential to have a significant impact on tribal cultural resources. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will include an overview of the prehistory and history of the area, the potential for surface and subsurface tribal cultural resources to be found in the area, the types of tribal cultural resources that may be expected to be found, the results of consultation with Native American tribes, a review of existing regulations and policies that protect tribal cultural resources, an impact analysis, and, if necessary, identification of mitigation that should be implemented in order to reduce potential impacts to tribal cultural resources.

XVIII. UTILITIES AND SERVICE SYSTEMS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	X			
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	X			
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	X			
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	X			
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments?	X			
f) Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?	X			
g) Comply with federal, state, and local statutes and regulations related to solid waste?	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a-g): Implementation of the proposed project would result in increased demands for utilities to serve the project. As such, the EIR will examine each of the seven environmental issues listed in the checklist above and will determine whether the proposed project has the potential to have a significant impact to utilities and service systems. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

The EIR will analyze wastewater, water, and storm drainage infrastructure, as well as other utilities (i.e. solid waste, gas, electric, etc.), that are needed to serve the proposed project. The wastewater assessment will include a discussion of the proposed collection and conveyance system, treatment methods and capacity at the treatment plants, disposal location(s) and methods, and the potential for recycled water use for irrigation. The EIR will analyze the impacts associated with on-site construction of the conveyance system, including temporary impacts associated with the construction phase. The proposed infrastructure will be presented. The EIR will provide a discussion of the wastewater treatment plant that will serve the project, including current demand and capacity at the plant. The

analysis will discuss the proposed wastewater infrastructure, disposal methods and location, including environmental impacts and permit requirements associated with disposal of treated wastewater.

The storm drainage analysis will include a discussion of the proposed drainage collection system including impacts associated with on-site construction of the storm drainage system. The EIR will identify permit requirements and, if necessary, mitigation needed to minimize and/or avoid significant impacts will be described.

The EIR will identify the proposed water supply infrastructure and water demand, identify applicable thresholds of significance and permit requirements, analyze the impacts associated with construction and operation of the water system, and, if necessary, mitigation needed to minimize and/or avoid significant impacts will be described.

The EIR will also address solid waste collection and disposal services for the proposed project. This will include an assessment of the existing landfill capacity, the project's solid waste generation, and whether there is sufficient capacity to meet the project demands. The project's potential to result in impacts associated with solid waste will be analyzed and, if necessary, mitigation needed to minimize and/or avoid significant impacts will be described.

XVIV. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	X			
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	X			
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	X			

RESPONSES TO CHECKLIST QUESTIONS

Responses a, c): It has been determined that the potential for the proposed project to: degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce the number or restrict the range of a rare or endangered plant or animal; eliminate important examples of the major periods of California history or prehistory; or adversely affect human beings will require more detailed analysis in an EIR. As such, the EIR will examine each of these environmental issues and will determine whether the proposed project has the potential to have a significant impact on these environmental issues. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered ***potentially significant*** until a detailed analysis is prepared in the EIR.

Response b): The Draft EIR will address cumulative impacts, including ***potentially significant*** cumulative impacts associated with the following:

- aesthetics;
- air quality;
- biological resources;
- cultural resources;
- geology and soils;
- greenhouse gas emissions;
- hazards and hazardous materials;
- hydrology and water quality;

- land use and planning;
- noise;
- population and housing;
- public services;
- recreation;
- transportation and traffic;
- tribal cultural resources; and
- utilities and service systems.

As discussed previously, implementation of the proposed project would not result in conversion Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, and would not conflict with a Williamson Act contract. The project site is not forest land or timberland. Potential cumulative impacts associated with agricultural and forestry resources were adequately addressed in the Rancho Cordova General Plan EIR as previously described. Cumulative impacts associated with agricultural and forestry resources will not be addressed further.

As discussed previously, implementation of the proposed project would not result in the loss of a high quality resource area or a mineral resources zone and would thus not have a considerable contribution to cumulative impacts associated with mineral resources. Cumulative impacts associated with mineral resources will not be addressed further.

REFERENCES

- City of Rancho Cordova. Rancho Cordova General Plan. Adopted June 26, 2006.
- City of Rancho Cordova. Rancho Cordova General Plan Draft Environmental Impact Report. March 2006.
- Sacramento Area Council of Governments, Airport Land Use Commission. Mather Airport Comprehensive Land Use Plan. May 1997.

NOTICE OF PREPARATION

DATE: **July 6, 2018**

TO: **Responsible Agencies, Organizations and Interested Parties**

LEAD AGENCY: **City of Rancho Cordova**
Contact: June Cowles
2729 Prospect Park Drive
Rancho Cordova, CA 95670

SUBJECT: **Environmental Impact Report for The Ranch Project.**

In discharging its duties under Section 15021 of the California Environmental Quality Act (CEQA) Guidelines, the City of Rancho Cordova (as Lead Agency) intends to prepare an Environmental Impact Report (EIR) for The Ranch Project. The City will be the lead agency for compliance with the California Environmental Quality Act ("CEQA").

In accordance with Section 15082 of the CEQA Guidelines, the City of Rancho Cordova has prepared this Notice of Preparation to provide Responsible Agencies and other interested parties with sufficient information describing the proposal and its potential environmental effects.

The determination to prepare an Environmental Impact Report was made by the City of Rancho Cordova. An Initial Study, attached hereto, has been prepared pursuant to CEQA Guidelines Section 15063, which identifies the anticipated environmental effects of the project. The Initial Study satisfies the City's obligation under CEQA Guidelines Section 15082, subdivision (a)(1)(C), to identify the "probable environmental effects of the project."

As specified by the CEQA Guidelines, the Notice of Preparation will be circulated for a 30-day review period. The City of Rancho Cordova welcomes public input during this review. In the event that no response or request for additional time is received by any Responsible Agency by the end of the review period, the Lead Agency may presume that the Responsible Agency has no response.

PUBLIC MEETING
A Public Scoping Meeting will be held on July 26, 2018 at 5:30 p.m.
in the Rancho Cordova City Hall, American River South Room
2729 Prospect Park Drive, Rancho Cordova

Comments may be submitted in writing during the review period and addressed to:

June Cowles, Senior Planner
City of Rancho Cordova
2729 Prospect Park Drive
Rancho Cordova, CA 95670

The comment period closes on August 6, 2018.

A. PROJECT LOCATION, CURRENT USE, AND SURROUNDING USES

The project site consists of approximately 530 acres located in the City of Rancho Cordova city limits. The project site is bound by existing single-family residential uses and Douglas Road to the north, vacant land and Grant Line Road to the east, vacant land and Kiefer Boulevard to the south, and Rancho Cordova Parkway, single family residential, and vacant land on the west. (See **Figure 1** and **Figure 2**). The project parcel is Sacramento County Assessor's Parcel Number (APN) 067-004-0008.

The project site is currently vacant and has been previously used for agricultural uses (cattle grazing). The topography of the site exhibits low relief topography with elevations ranging between 170 and 210 feet above mean sea level (MSL). The slopes throughout the site range from approximately zero to eight percent. The site is characterized by moderate rolling hills and areas of extensive flatlands, with wetlands, vernal pools, and seasonal drainage courses scattered throughout the site. A headwater tributary of Morrison Creek traverses the project site, entering at the northeast corner and flowing generally to the southwest. A total of 21.53 acres of jurisdictional aquatic resources have been mapped with the project site, including: 2.92 acres of depressional seasonal wetlands, 15.04 acres of vernal pools, 1.66 acres of riverine seasonal wetlands, 0.06 acres of riverine seasonal wet swales, 1.54 acres of intermittent drainages, and 0.30 acres of drainage basin outfalls.

The property is traversed by a 275-foot-wide utility easement occupied by a 230-kV Pacific Gas and Electric (PG&E) transmission line, one 230-kV Sacramento Municipal Utility District (SMUD) transmission line, and one 69-kV SMUD sub-transmission line. No other public utilities (water, sewer, drainage) are located on site.

The project site is bound by the Sunridge Specific Plan to the north, east, and west, and by the SunCreek Specific Plan to the south and east. Land uses anticipated to the east and south of the project site by the Sunridge Specific Plan and the SunCreek Specific Plan include low, medium, and high density residential uses, commercial mixed uses (retail, office, and retail professional), and neighborhood parks. Other land uses located nearby include new elementary, junior and senior high schools. See **Figure 2** and **Figure 3**.

B. PROJECT OBJECTIVES

Consistent with CEQA Guidelines Section 15124(b), a clear statement of objectives and the underlying purpose of the proposed project shall be discussed. The principal objective of the proposed project is the approval and subsequent implementation of The Ranch Project (the proposed project). The quantifiable objectives of the proposed project include development of the approximately 530-acre site with: 1,375 single family residential units, including 689 age restricted single-family units with a club house and other recreational opportunities; dedication of approximately six acres for commercial use; and dedication of approximately five acres for multi-family residential uses in accordance with the City of Rancho Cordova's Affordable Housing Plan.

The proposed project identifies the following objectives:

- Respect the project site's existing natural features through preservation of 198 acres of wetlands, vernal pools, and open space;

- Create a high-quality development that implements the vision of the General Plan, which designates the project site for development with a local town center, a mix of residential densities, and a natural resources preserve;

- Provide a residential development that would assist the City in meeting its housing needs, including a range of housing types to serve the senior population;

- Provide a residential development that would assist the City in meeting its affordability goals providing housing at many price points and attract residents from different areas;

- Create of a unique age-restricted community that provides a mix of housing types and amenities, including a club house and recreation facility,

- Accommodate neighborhood-serving commercial uses as part of the town center; and

- Implement the City's Bicycle and Pedestrian Master Plans through providing an on-site bicycle and pedestrian network that is accessible by the general public and provides opportunities for connectivity with bicycle and pedestrian facilities on adjacent properties.

C. PROJECT CHARACTERISTICS

The project proposes an approximately 530-acre residential community. Development would include approximately 1,375 single family residential units (including 689 age restricted single-family units), up to 120 multifamily units, a six-acre commercial parcel, a community clubhouse, a park and trail system, open space, and supporting infrastructure. **Figure 4** depicts the project characteristics and **Table 1** summarizes the proposed uses.

Table 1: Land Use Summary

PROPOSED USE	GROSS ACRES	NET ACRES	DWELLING UNITS	NON-RESIDENTIAL SQUARE FEET	GROSS DENSITY (UNITS/ACRE)	NET ACREAGE AS PERCENTAGE OF TOTAL
Single Family Residential						
Village 1 (60x105)	18.9	14.87	91	-	4.81	2.8%
Villages 2,11 (50x105)	32.43	24.74	178	-	5.49	4.7%
Villages 3,4 (45x105)	24.11	17.03	137	-	5.68	3.2%
Villages 5,9,10 (45x85)	16.71	10.84	114	-	6.82	2.0%
Villages 6,7,8 (36x70)	17.65	11.86	166	-	9.41	2.2%
	109.8	*79.34*	*686*	-	*6.25*	*15.0%*
Single Family Residential – Age Restricted						
Villages 12,21 (60x105)	29.52	20.78	123	-	4.17	3.9%
Villages 17,19 (50x105)	24.78	18.64	140	-	5.65	3.5%
Villages 14,15,16 (45x105)	42.94	32.01	265	-	6.17	6.0%

Proposed Use	Gross Acres	Net Acres	Dwelling Units	Non-Residential Square Feet	Gross Density (Units/Acre)	Net Acreage as Percentage of Total
Villages 13,20 (52x64)	21.48	14.22	148	-	6.89	2.7%
Village 18 (varying size)	2.29	1.67	13	-	5.68	0.3%
	121.01	*87.32*	*689*	-	*5.69*	*16.2%*
Mixed Use (Residential and Commercial)						
Village 22	13.56	12.7	120	46,000	8.85	2.4%
Subtotal	*13.56*	*12.7*	*120*	*46,000*	*8.85*	*2.4%*
Parks and Community Facilities						
Recreation Center (Lot A)	5.49	5.03	-	20,000 to 27,000	-	1.0%
Park (Lot B)	1.69	1.40	-		-	0.3%
Park (Lot C)	10.42	10.18	-			1.9%
Subtotal	*17.6*	*16.61*	-		-	*3.1%*
Open Space						
Protected Areas (Lots D, E)	225.66	199.76	-	-	-	37.8%
Protected Area / Landscape (Lots F-J)	-	25.11	-	-	-	4.8%
Water Quality / Detention	12.62	9.64	-	-	-	1.8%
Open Space	14.47	13.75	-	-	-	2.6%
Public Landscape Lot (Lots R-MM)	-	6.69	-	-	-	1.3%
Private Landscape Lot (Lots NN-FFF)	-	2.96	-	-	-	0.6%
Subtotal	*252.75*	*257.91*	-	-	-	*48.8%*
Roads						
Private Drive (Lots 1-26)	-	1.01	-	-		0.2%
Private Right-of-Way (Lots 27 & 28)	-	28.16	-	-		5.3%
Minor Right-of-Way	-	31.67	-	-		6.0%
Major Right-of-Way	15.34	15.34	-	-		2.9%
Subtotal	*15.34*	*76.18*	-	-	-	*14.4%*
TOTAL	**530.06**	**530.06**	**1,375 single family and up to 120 multifamily**	**66,000 to 73,000**	**2.82**	**100.0%**

Residential

The project includes three primary residential components: an unrestricted single family community, an age-restricted single family community, and a mixed use development.

Single Family (Unrestricted)

The single family community, comprised of Villages 1 through 11, is located in the northwest area of the project site, abutting residential neighborhoods to the north and Rancho Cordova Parkway to the west. This area would include 686 single family residences within 11 residential neighborhoods. Village 1 would have 91 residential lots with a typical dimension of 60’ by 105’

and a typical size of 6,300 square feet (s.f.). Villages 2 and 11 would have 178 residential lots with a typical dimension of 50' by 105' and a typical size of 5,250 s.f. Villages 3 and 4 would have 137 residential lots with a typical dimension of 45' by 105' and a typical size of 4,725 s.f. Villages 5, 9, and 10 would have 114 residential lots with a typical dimension of 45' by 85' and a typical size of 3,910 s.f. Villages 6, 7, and 8 would have 166 residential lots with a typical dimension of 36' by 70' and a typical size of 2,520 s.f.

Single Family – Four Seasons Age-Restricted

The Four Seasons age-restricted single family community is located in the southeast portion of the project site, and borders the approved Sunridge Specific Plan to the south and east. The Four Seasons community is separated from the unrestricted single family community by the wetlands preserve that traverses the project site from the northeast to the southwest. Villages 12 and 21 would have 123 residential lots with a typical dimension of 60' by 105' and a typical size of 6,300 s.f. Villages 17 and 19 would have 140 residential lots with a typical dimension of 50' by 105' and a typical size of 5,250 s.f. Villages 14, 15, and 16 would have 265 residential lots with a typical dimension of 45' by 105' and a typical size of 4,725 s.f. Villages 13 and 20 would have 148 residential lots with a typical dimension of 52' by 64' and and a typical size of 3,328 s.f. Village 18 would have 13 residential lots with a typical lot size of 5,595 s.f. and varying lot dimensions. Additionally, a 20,000 s.f. to 27,000 s.f. community clubhouse would be developed in this area.

Residential and Commercial Mixed Use

A 13.56-acre residential mixed use parcel is located in the northwest portion of the site, near the entrances to the unrestricted single family community from Rancho Cordova Parkway. This parcel would accommodate approximately 46,000 s.f. of commercial uses and up to 120 multifamily units.

Open Space

The project would preserve approximately 199.76 acres as a nature preserve that would be deeded to a third-party conservation entity. The project includes approximately 14.8 acres of existing aquatic resources, including 1.85 acres of depressional seasonal wetlands, 9.97 acres of vernal pools, 1.15 acres of riverine seasonal wetlands, 1.53 acres of intermittent drainages, and 0.30 acres of drainage basin outfalls. The project applicant would incorporate protections for the preservation of wetland resources within the preserve, including preserve fencing, long-term funding and management of the preserve in perpetuity, and protection of the preserve from drainage and runoff generated from development areas through the construction of several detention basins throughout the site.

Recreation

Park and recreation facilities totaling 16.61 acres would be provided by the project. The project would use a combination of land dedication and in-lieu fees to comply with the requirements of Chapter 22.40 of the City of Rancho Zoning Ordinance.

Approximately 2.14 miles of public trails would be developed throughout the project site, as described below under Pedestrian and Bicycle Connectivity. See **Figure 4**. Trails along the

preserve boundaries would be designed in accordance with the South Sacramento Habitat Conservation Plan (SSHCP) standards.

As part of the 16.61 acres of recreational facilities, a public park (10.18 net acres) would be provided within the single family (unrestricted) community. The utility corridor would be located along the eastern boundary of the park.

Within the age-restricted portion of the project, approximately 6.43 acres would be dedicated for recreational purposes. The recreation center (5.03 acres) would include a clubhouse serving as a recreation, community gathering, activity, and information hub for residents. A separate 1.4-acre community garden would be provided within the age-restricted community. In addition, multiple paseos would be provided throughout the age-restricted community to provide connectivity and off-road walkability.

Circulation

Vehicle Circulation
On-site infrastructure associated with the project would include the construction of internal and external access roads and a network of bicycle and pedestrian trails as shown in **Figure 4**. Primary access would be from Rancho Cordova Parkway. The project would provide for future connections to an extension of Chrysanthy Boulevard east of the project site.

Rancho Cordova Parkway would be constructed as a minor arterial roadway with an exception along existing and proposed nature preserves. Portions of the roadway along existing and proposed nature preserves would be constructed with an attached sidewalk, as is currently constructed at the western side of the road, and an eight-foot-wide divided median landscaped with trees and shrubs. The primary entrance to the project site at the intersection of Chrysanthy Boulevard and Rancho Cordova Parkway would be controlled by a four-way stop or traffic signal. A second right-in, right-out entrance from Rancho Cordova Parkway would be located to the south of the primary entrance.

Chrysanthy Boulevard would be constructed as a minor arterial with 74-foot right-of-way and a 15-foot landscape corridor for landscaping and sidewalks.

North Campus Road, located along the southern boundary of the age-restricted community, would include one travel lane and frontage improvements along the residential portion of the project site.

Interior streets serving the residential communities would have attached sidewalks and rolled curbs along residential frontages.

Two emergency vehicle access points would be located at the southern ends of Streets MM and GG. Access at these locations would provide full access for emergency vehicles, but would be limited to right-out only for residents

Pedestrian and Bicycle Connectivity
A bicycle/pedestrian trail located along the existing utility corridor would connect to an existing trail located north of the site and would provide connections to the two trails located along the preserve. On the northern side of Chrysanthy Boulevard, a preserve trail would extend from the bike/pedestrian trail located within the utility corridor along Chrysanthy Boulevard, then would follow the northern boundary of the age-restricted community to the eastern border of the project site. A southern preserve trail would extend along Rancho Cordova Parkway, south of the entrances to the project site, and would cross the project site south of the unrestricted community, connecting with Chrysanthy Boulevard in two locations, then following the western edge of the age-restricted community to the south.

In addition, the project will include sidewalks, stop signs, standard pedestrian crossing warning signs, lane striping to provide a bicycle lane along applicable roadways, bicycle parking, signs to identify pedestrian and bicycle paths, and pedestrian signal heads. Sidewalks will be constructed as part of the frontage improvements along all new roadway construction for Jaeger Road/Rancho Cordova Parkway and Chrysanthy Boulevard in conformance with applicable design standards.

Infrastructure and Public Services
Water
The project is located within the Sacramento County Water Agency (SCWA) Zone 40 water service area. The project would connect to SCWA existing water supply infrastructure located at the intersection of Rancho Cordova Parkway and Chrysanthy Boulevard. New water distribution pipelines and valves would be provided within the project site, primarily within the roadway right-of-ways, to serve the proposed development.

Sewer
The project is located within the Sacramento Area Sewer District (SASD) and Sacramento Regional County Sanitation District (RegionalSan) service areas. New sewer conveyance pipelines would be provided within the project site, primarily within the roadway right-of-ways, to serve the proposed development. The project would connect to existing SASD sewer infrastructure located at the intersection of Rancho Cordova Parkway and Chrysanthy Boulevard. Sewer flows from the project would be conveyed by SASD facilities to RegionalSan interceptor, collector, and trunk facilities and would then be conveyed to the Sacramento Regional Wastewater Treatment Plant for treatment.

Off-site improvements may include upgrades to the existing sewer lift station that serves the eastern part of Rancho Cordova.

Drainage
The project would include development of on-site drainage and water quality basins to accommodate post-construction peak stormwater flows and provide for water quality treatment. The on-site system would connect to the City's stormwater drainage system.

Electric, Natural Gas, and Solid Waste
Electricity would be provided by SMUD. Natural gas would be provided by PG&E. Solid waste collection would be provided by Republic Services.

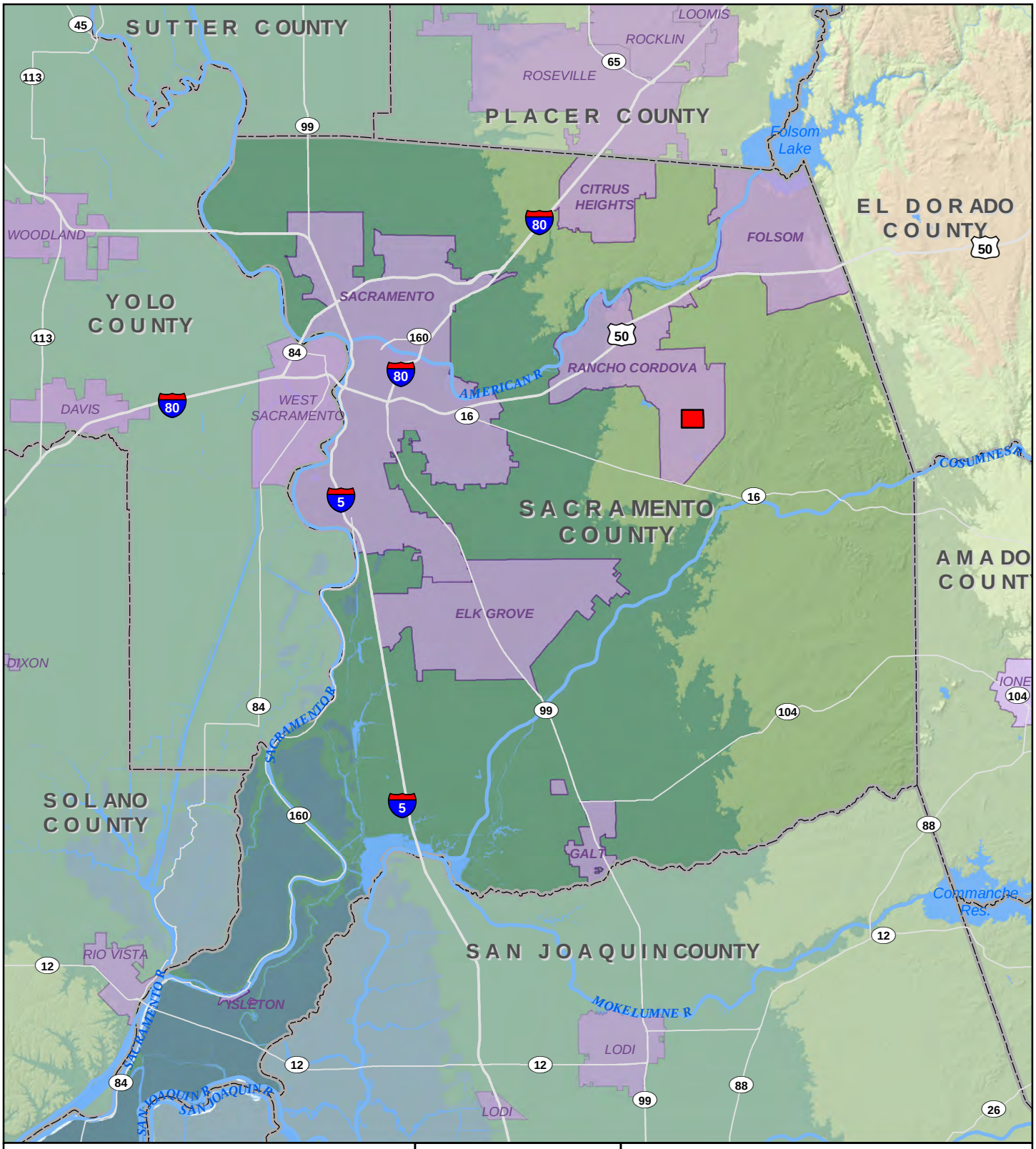
Public Services
Police services would be provided by the City of Rancho Cordova. Fire protection would be provided by Sacramento Metropolitan Fire District. Public school services would be provided by Elk Grove Unified School District.

General Plan Amendment and Rezone
The project site is currently designated Urban Development Area (UDA) in the City's General Plan and is currently zoned Agriculture, 80-Acre Minimum (AG-80). The entire project site would be rezoned from AG-80 to Special Planning Area (SPA). Table 2 summarizes the proposed General Plan land use designations:

Table 2: General Plan Land Use Designations

LAND USE DESIGNATION	EXISTING	PROPOSED	DIFFERENCE
Urban Development Area (UDA)	530.1	--	- 530.1
Low Density Residential (LDR)	--	181.9	+ 181.9
Medium Density Residential (MDR)	--	80.9	+ 80.9
Residential Mixed Use (RMU)	--	6.3	+ 6.3
Commercial Mixed Use (CMU)	--	7.2	+ 7.2
Parks and Open Space (P/OS)	--	16.2	+ 16.2
Natural Resources (NR)	--	222.0	+ 222.0
Right-of-Way	--	15.6	+ 15.6

Special Planning Area
The Ranch Special Planning Area (SPA) zoning will establish development standards and design guidelines to ensure quality and consistency in the design and implementation of the project. The SPA document is regulatory in nature and will serve as zoning for the project site. Development plans, subdivision maps, and site plans for the project must be consistent with both the SPA and the City of Rancho Cordova General Plan.



Legend

- Project Location
- City Areas
- County Boundary

Sources: CalAtlas; Yolo County; Sacramento County, Solano County; Placer County; San Joaquin County. Map date: April 23, 2018.

N

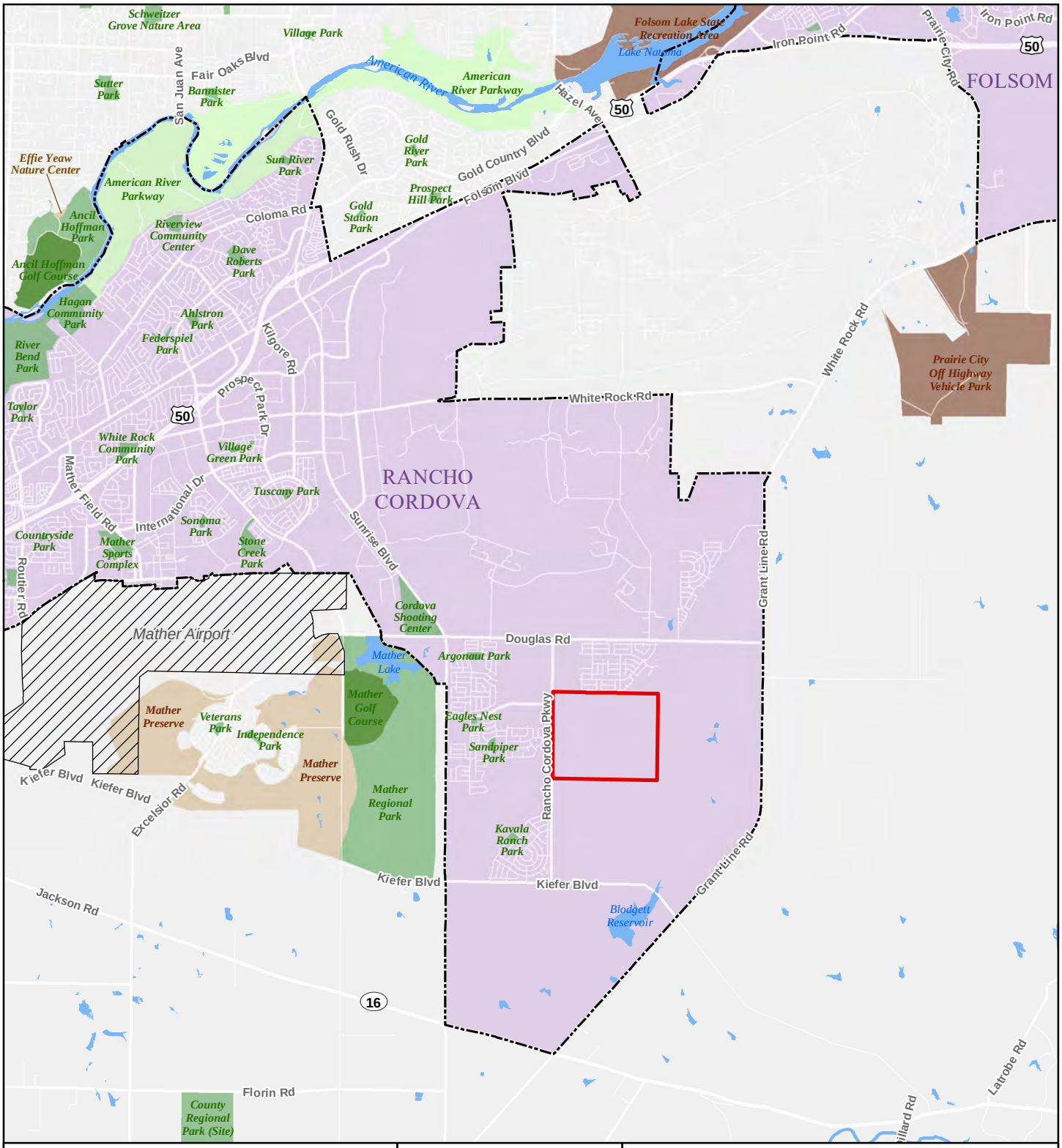
0 2½ 5

Miles

THE RANCH
SACRAMENTO COUNTY, CALIFORNIA

Figure 1. Regional Location Map

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm



Legend

- Project Location (APN 067-004-0008)
- City Area
- Airport
- Park
- Parkway
- Golf Course
- Ecological Preserve/Nature Area
- State Recreation Area

Data sources: Sacramento County GIS; Map date: April 25, 2018.

N

0 ½ 1

Miles

1:85,000

THE RANCH
SACRAMENTO COUNTY, CALIFORNIA

Figure 2. Project Vicinity Map

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

Legend

Project Location (APN 067-004-0008)

Rancho Cordova City Boundary

N

0 750 1,500

Feet

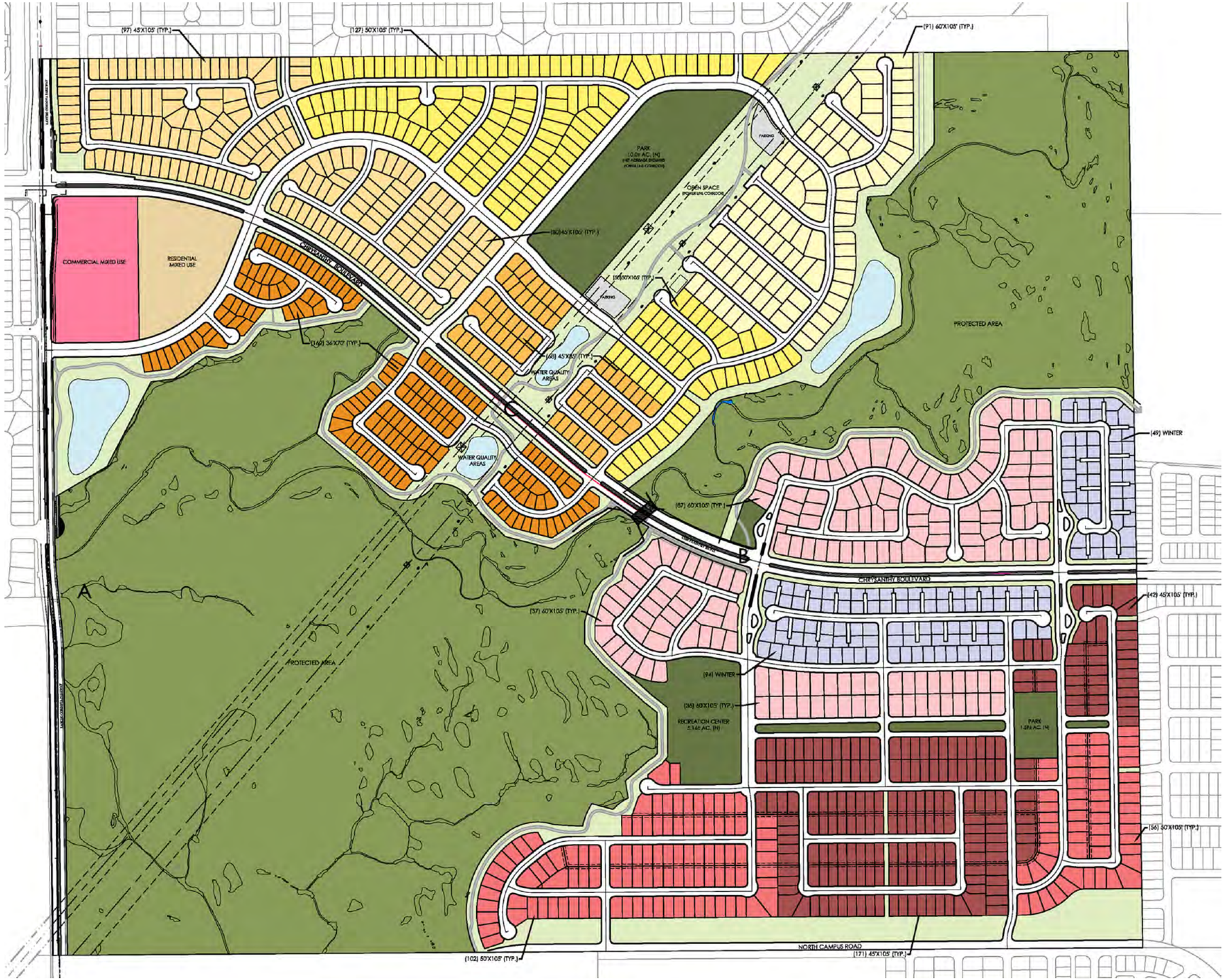
1:36,000

Data sources: Sacramento County GIS; ArcGIS Online World Imagery Map Service. Map date: April 25, 2018.

THE RANCH
SACRAMENTO COUNTY, CALIFORNIA

Figure 3. Aerial View of Project Site

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm



THE RANCH
SACRAMENTO COUNTY, CALIFORNIA

Figure 4. Site Plan

Land Use

- 60' x 105' (TYP.)
- 50' x 105' (TYP.)
- 45' x 105' (TYP.)
- 45' x 85' (TYP.)
- 36' 70' (TYP.)

Active Adult

- 60' x 105' (TYP.)
- 50' x 105' (TYP.)
- 45' x 105' (TYP)
- Winter (4-PACK)

A, B, C refers to Planned Pedestrian Crossings

N

0 250 500
Feet

1:6,000

Data sources: Sacramento County; Wood Rogers, The Ranch, Site Plan, 4/25/2018. Map date: June 27, 2018.

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

D. REQUIRED APPROVALS

City of Rancho Cordova: Actions that would be required from the City Council, Planning Commission, and/or City staff may include, but is not limited to, the following:

- Approval of the General Plan Amendment from UDA to LDR, MDR, RMU, CMU, P/OS, and NR;
- Approval of the Community Plan Amendment from UDA to LDR, MDR, RMU, CMU, P/OS, and NR;
- Approval of the Rezone from AG-80 (County) to SPA (City);
- Approval of the The Ranch Special Planning Area regulatory document;
- Approval of the Tentative Subdivision Map; and
- Approval of design review, improvement plans, and building permits.

Other discretionary approvals that may be required by other governmental agencies may include, but are not limited to, the following:

- Take permits from the U.S., Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) under the Federal and State Endangered Species Acts;
- Water quality permitting (NPDES and water quality certifications) under the Clean Water Act by the Central Valley Regional Water Quality Control Board;
- Wetland fill permits under Section 404 of the Clean Water Act by the U.S. Army Corps of Engineers;
- Approval of infrastructure details for water supply facilities by the Sacramento County Water Agency; and
- Approval of infrastructure details for wastewater collection facilities by Sacramento Area Sanitation District.

E. PROJECT BACKGROUND

The Ranch project site has been the subject of previous environmental review. The project site is located within the Sunrise Douglas Community Plan and Sunridge Specific Plan areas, which were approved by Sacramento County prior to the incorporation of the City.

In 2006, the City certified the Preserve at Sunridge EIR and subsequently approved entitlements for the Preserve at Sunridge project. The Preserve at Sunridge project was proposed on the same site as the currently proposed The Ranch project. The Preserve at Sunridge included 2,703 dwelling units (both single family and multi-family residential) commercial and office, neighborhood parks, an elementary school, detention/water quality basins, an open space/wetland preserve, pedestrian facilities, bikeways, and parkways/drainage corridors. The project included a 92.4-acre wetland preserve located at the southwest corner of the project site.
On September 5, 2006 following the City's approval of the Preserve at Sunridge project, the California Native Plant Society (CNPS) filed a petition for writ of mandate in Sacramento County Superior Court seeking to set aside the City's actions. The case was litigated in Superior

Court and appealed to the Court of Appeal, Third Appellate District. On March 24, 2009, the Third Appellate District filed an opinion upholding the judgment of the Superior Court with respect to the determination of the project's inconsistency with the City's General Plan regarding interconnection of preserved habitat areas that support special-status plant and animal species, and regarding mitigation on such species. The case was sent back to the Sacramento County Superior Court, which entered final judgment issuing a peremptory writ of mandate on September 28, 2009. The writ of mandate nullified all of the City's approvals for the project, including certification of the EIR.

During the course of the court proceedings, ownership of the project site was transferred to K. Hovnanian Communities. The project was redesigned and resubmitted as the Ranch at Sunridge to the City in 2010. In 2011, the City issued a Notice of Preparation for an Environmental Impact Report/Environmental Impact Statement. The EIR/EIS was not completed.

The project Applicant Team has submitted an application to the U.S. Army Corps of Engineers for a Clean Water Act (CWA) Section 404 permit associated with discharges of fill material into waters of the United States for fill of 6.37 acres of waters of the United States and temporary impacts to approximately 0.01 acres of waters of the United States. The permit is being processed by the U.S. Army Corps of Engineers and a determination by the U.S. Army Corps of Engineers is anticipated in 2018.

F. POTENTIAL ENVIRONMENTAL EFFECTS

See the Initial Study for discussion of potential environmental effects of the proposed project, including potential impacts that will be analyzed in the Draft EIR.

From: Wood, Dylan A@Wildlife [mailto:Dylan.A.Wood@wildlife.ca.gov]
Sent: Monday, August 06, 2018 5:09 PM
To: June Cowles
Cc: Wildlife R2 CEQA
Subject: Comments on the Notice of Preparation for The Ranch (SCH# 2018072011)

Mrs. Cowles,

The California Department of Fish and Wildlife (CDFW) received and reviewed the **Notice of Preparation** for **The Ranch** (Project) in Sacramento County pursuant the California Environmental Quality Act (CEQA).

CDFW offers the comments and recommendations below to assist Lead Agency in adequately identifying and, where appropriate, mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources.

The South Sacramento Habitat Conservation Plan (Plan) is nearing implementation. As a participating entity with a proposed project in the Plan area, CDFW recommends the draft Environmental Impact Report prepared by the Lead Agency be consistent with the Plan.

Notification to CDFW is required, pursuant to Fish and Game Code section 1602 if a Project proposes activities that will substantially divert or obstruct the natural flow of water; substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. The Project description has proposed activities that may be subject to Notification under Fish and Game Code section 1602. Some of these activities include but are not limited to the grading/filling or crossing of existing hydrologic features at the Project's location. CDFW approval of projects subject to Notification under Fish and Game Code section 1602 is facilitated when the environmental documentation discloses the impacts to and proposes measures to avoid, minimize, and mitigate impacts to perennial, intermittent, and ephemeral rivers, streams, and lakes, other features, and any associated biological resources/habitats present within the Project study area. CDFW relies on the Lead Agency environmental analysis when acting as a responsible agency if it is necessary to issue a Lake or Streambed Alteration Agreement for the Project. Addressing the Department comments ensures that the environmental document appropriately addresses project impacts and facilitating the approval of the Project. Please visit https://www.wildlife.ca.gov/Conservation/LSA for more information about obtaining a Lake or Streambed Alteration Agreement.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the project that may affect California fish and wildlife. I am available for consultation regarding biological resources and strategies to minimize and/or mitigate impacts.

Sincerely,

Dylan Wood

California Department of Fish and Wildlife

Environmental Scientist

(916) 358-2384

Every Californian should conserve water. Find out how at:

SaveOurWater.com · Drought.CA.gov

Cordova
Recreation & Park District

August 3, 2018

June Cowles, Senior Planner
City of Ranch Cordova
2729 Prospect Park Drive
Rancho Cordova, CA 95670

RE: The Ranch Project in the City of Rancho Cordova
Notice of Preparation dated July 6, 2018
Comments by Cordova Recreation and Park District

Dear Ms. Cowles,

Thank you for the opportunity to comment on the Notice of Preparation for The Ranch project. We have taken the opportunity to review the material gathered thus far and offer the following comments.

Aesthetics
Given that the Cordova Recreation and Parks District (the District) has not completed the programming for the community park, shown as Lot C on the tentative subdivision map, please evaluate the potential impacts from lighting potential sports fields at night. In particular, the impacts from the park onto the surrounding residential area.

Hazards and Hazardous Materials
While it is complementary to place the community park adjacent to the easement for the transmission lines to gather further open space, the impact of the transmission lines on park visitors should be evaluated. Please evaluate the impact of the electric and magnetic field radiation (EMF) from the transmission lines onto park users.

Hydrology and Water Quality
Constructed park facilities including programmed sport fields should be above the 100 year flood plain. The District does not accept Quimby park land encumbered with utility and storm drainage basins.

The project technical studies should demonstrate there will be adequate domestic water into the future sufficient to irrigate athletic fields and provide turf in both neighborhood and community parks as a public resource in perpetuity. The District will consider connection to alternative water sources in the future on a case by case basis consistent with new conservation and codes requirements.

Land Use
The District's adopted Level of Service (LOS) states that the required Quimby park land dedication is 5 acres/1000 residents. District Staff has previously indicated that the Quimby park land dedication

required for this project is 17.01 acres. Based upon the District's adopted Quimby park land allocation, The Ranch must provide 8.16 acres for neighborhood parks and 8.85 acres for the community park (with a 15 acre minimum preference).

The Ranch's Land Use Plan (Table 1) contained within the Notice of Preparation, indicates that the proposed project contains a total of 16.61 (net) acres to be parks. The proposed project includes 6.43 acres of neighborhood parkland and 10.18 acres of community park land, for a total of 16.61 acres. This is a deficiency of 0.40 acres to meet the project's Quimby Act requirement. The applicant will have to mitigate for the parkland deficiency. The District Staff have indicated that the neighborhood parkland requirement can be met with the private park facilities within the age-restricted & gated portion of the project, subject to approval by the CRPD board. The remaining acreage will be for a community park and must be dedicated to the Cordova Recreation and Park District.

The District does not accept Quimby park land encumbered with utility easements, storm drainage basins, wetlands and habitat areas that restrict development for recreational purposes. Where adjacencies of encumbered parcels exist the District is open to discussions about joint use agency programming and maintenance of encumbered parcels where adequate funding is provided in perpetuity.

Impacts of proposed parks on surrounding land uses should consider the full range of amenities that could be place on a park site as listed in Tables 3, 4 and 5 in the District's Cordova Recreation and Park District Park Impact Fee Nexus Study adopted April 8, 2014. Community Park facilities and District-wide facilities are eligible for placement in any community park.

Noise

Noise generated by the Park and Recreational Activities should be evaluated. In particular, the noise generated the sports activities in the community park onto the surrounding residential neighborhood and the outdoor activities taking place within the recreational center on Lot A onto those surrounding residences.

Traffic and Transportation

District standards state community parks should have street frontage on two sides where a high school property can substitute for one street and neighborhood parks have street frontage on three sides where elementary school property can be substituted for one street. The proposed project appears to meet this requirement.

Neighborhood park sites require on-street parking. Community park sites typically contain off-street parking but also benefit from the additional capacity provided by on-street parking.

Vehicular, pedestrian and multi-modal traffic impacts generated by park use should be evaluated, particularly for the Community Park. Placement of traffic signals and pedestrian crosswalks should be considered where community park facilities may generate significant volumes of traffic.

Soils

The Draft Environmental Impact Report (DEIR) should address the suitability of soil on proposed park sites to sustain active parks and the need to import fertile soils and/or provide soil amendments to meet District standards. The Geotechnical Engineering Report prepared for the development project should

include borings/test pits for park sites and provide discussion and recommendations relative to park site development.

The District appreciates the County's commitment to planning environmentally responsible and sustainable communities and we look forward to future engagement in this project. Please continue to forward documentation related to this project to the District. Please don't hesitate to contact me if you have any questions.

Sincerely,

Laura L. Taylor

Laura L. Taylor, ASLA
Park Planning and Development Manager
Cordova Recreation and Park District

CC: Patrick Larkin, District Administrator for Cordova Recreation and Park District

CALIFORNIA
Water Boards

RECEIVED
AUG 02 2018
BY:

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

30 July 2018

June Cowles
City of Rancho Cordova
2729 Prospect Park Drive
Rancho Cordova, CA 95670

CERTIFIED MAIL
91 7199 9991 7039 6992 6496

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, THE RANCH PROJECT, SCH# 2018072011, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 6 July 2018 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environment Impact Report* for the Ranch Project, located in Sacramento County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases,

the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/.

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at:
http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states:

> *Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*
>
> *This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan

(SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements – Discharges to Waters of the State

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver)
R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/for_growers/apply_coalition_group/index.shtml or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100**. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit.

For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit3.shtml

If you have questions regarding these comments, please contact me at (916) 464-4644 or Stephanie.Tadlock@waterboards.ca.gov.

Stephanie Tadlock

Stephanie Tadlock
Senior Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

SACRAMENTO AREA
SEWER DISTRICT
SERVING YOU 24/7

10060 Goethe Road
Sacramento, CA 95827-3553
Tel 916.876.6000
Fax 916.876.6160
www.sacsewer.com

August 6, 2018

June Cowles
City of Rancho Cordova
2729 Prospect Park Drive
Rancho Cordova, CA 95670

Subject: **Notice of Preparation of an Environmental Impact Report – The Ranch Project**
APN: **067-004-0008**

Dear Ms. Cowles,

The Sacramento Area Sewer District (SASD) and the Sacramento County Regional Sanitation District (Regional San) have reviewed the Notice of Preparation (NOP) of the Environmental Impact Report (EIR) for the subject project.

The project site consists of approximately 530 acres located in the City of Rancho Cordova city limits. The project site is bound by existing single-family residential uses and Douglas Road to the north, vacant land and Grant Line Road to the east, vacant land and Kiefer Boulevard to the south, and Rancho Cordova Parkway, single family residential, and vacant land on the west.

The objectives of the proposed project include development of the approximately 530 acre site with: 230.81 acres of residential units, 13.56 mixed use residential and commercial, 17.6 acres of parks and community facilities, 252.75 acres of open space, and 15.34 acres of roads.

The subject property is within the boundaries of SASD, Regional San, and the Urban Service Boundaries. The ultimate plan for conveyance and treatment of the subject property shall be by SASD's Sewer System Capacity Plan 2010 Update (SCP).

In order for SASD and Regional to more fully evaluate the subject project's impact on their systems, a sewer study will be needed. This study shall demonstrate the permanent connection(s) to SASD's and Regional San's system. The sewer study shall demonstrate the quantity of discharge and any "flow through sewage" along with appropriate pipe sizes and related appurtenances from this subject and other upstream areas and shall be done in accordance with SASDs' most recent "Minimum Sewer Study Requirements". The study shall be done on a no "Shed-Shift" basis unless approved by SASD in advance and in compliance with the SASD's Standards and Specifications.

We expect that if the project is subject to currently established policies, ordinances, fees, and to conditions of approval, then mitigation measures within the EIR will adequately address the sewage aspects of the project. We anticipate a less than significant impact to the sewage facilities due to mitigation as defined by the SCP.

Board of Directors
Representing:
County of Sacramento | City of Citrus Heights
City of Elk Grove | City of Folsom
City of Rancho Cordova | City of Sacramento

Prabhakar Somavarapu
District Engineer
Rosemary Clark
Director of Operations

Christoph Dobson
Director of Policy & Planning
David O'Toole
Director of Internal Services

Joseph Maestretti
Chief Financial Officer
Nicole Coleman
Public Affairs Manager

If you have any questions regarding these comments, please call me at 916-876-6336 or Dillon Miele at 916-876-6480.

Sincerely,

Yadira Lewis

Yadira Lewis
SASD Development Services

Elise Carroll

From: Beth Thompson <bthompson@denovoplanning.com>
Sent: Monday, July 16, 2018 5:13 PM
To: Elise Carroll
Subject: Fwd: FW: Notice of Preparation for The Ranch project
Attachments: NOP DEIR for Ranch at Sunridge.doc; RE: The Ranch GPA, RZ, TSM, DA, Phasing DD9725 (1.11 MB)

The Ranch NOP comment

Beth Thompson | Principal
De Novo Planning Group | www.denovoplanning.com
bthompson@denovoplanning.com | 916.812.7927
Northern California | 1020 Suncast Lane #106 | El Dorado Hills, CA 95762
Southern California | 180 East Main Street #108 | Tustin, CA 92780

---------- Forwarded message ----------
From: **June Cowles** <jcowles@cityofranchocordova.org>
Date: Mon, Jul 16, 2018 at 2:23 PM
Subject: FW: Notice of Preparation for The Ranch project
To: Beth Thompson <bthompson@denovoplanning.com>
Cc: "Patrick Hindmarsh (External)" <phindmarsh@mbakerintl.com>, Rupa Somavarapu <rsomavarapu@cityofranchocordova.org>, Mark Thomas <mthomas@cityofranchocordova.org>

Please see the attachment and below.

Ensuring you received this

From: Darrow. Matthew [mailto:DarrowM@SacCounty.NET]
Sent: Sunday, July 08, 2018 12:47 PM
To: Kelly Whitman; June Cowles
Cc: Darcy Goulart; Elizabeth Sparkman; Blank. Dean
Subject: RE: Notice of Preparation for The Ranch project

This e-mail is from an external source. Please do not open attachments or click links from an unknown or suspicious origin.

Kelly and June,

Thanks for the opportunity to comment. I've reattached our response from February 2018 which included the original NOP comment letter from 2011. These comments still generally apply. Please let me know if you have any questions.

Thanks,

Matt

From: Kelly Whitman [mailto:kwhitman@cityofranchocordova.org]
Sent: Friday, July 06, 2018 9:17 AM
To: 'dwilson@elkgrovecity.org'; Moffitt. Leighann; 'tpace@cityofsacramento.org'; 'rdevore@cityofsacramento.org'; 'rsherman@citrusheights.net'; 'pjohns@folsom.ca.us'; Adam Egbert; Adam Lindgren; agcom@saccounty.net; Albert Stricker; Amanda Norton; Singh. Amandeep; Amy Nygren (nygren.amy@metrofire.ca.gov); Audie.Foster@amwater.com; Benjamin Turner; Beth Tincher (beth.tincher@smud.org); Brian Bailey; Caltrans, District 3, Planning South; cholm@walksacramento.org; Hunley. Christopher; Chris Pace (pacec@saccounty.net); Chrishana Fields ; Christina James; Curt Haven; Abhar, Cyrus (MSA); Darcy Goulart; Darrow. Matthew; Elizabeth Sparkman; 'eric_fredericks@dot.ca.gov' (eric_fredericks@dot.ca.gov); fordc@saccounty.net; gchew@sacog.org; gwickham@fcusd.org; hockerl@saccounty.net; Jason Smalley (smalleyj@saccounty.net); Jenae Callison; Jennifer Hargrove; Jim Brown (jim@sacbike.org); Jim Dobson (jimd@sac-city.k12.ca.us); jlaurain@adamsbroadwell.com; Cuffe. Joe (MSA); John Rogers (rogersjo@saccounty.net); Kacey Lizon (klizon@sacog.org); Kate Cook (External); kenneth_sanchez@fws.gov; Kim Juran; 'larry_brohman@dot.ca.gov' (larry_brohman@dot.ca.gov); Liisa Behrends; Lisa Barsdale (barsdale.lisa@metrofire.ca.gov); Lori Murphy; Leah Pertl (MSA); ltaylor@crpd.com; Marilyn Phelps; Mary Pakenham-Walsh; Matt Buland; Melissa Brockman-Vignau (mbrockman@usbr.gov); Michelle Mingay; mike@cecwest.com; Molly Wright (mwright@airquality.org); Nancy Quaresma ; Patrick Hindmarsh (External); Peck Ha; Rachel Del Rio (rachel.delrio@smud.org); Richard Blackmarr (blackmarr@saccounty.net); Ryan Becker; Sacramento Metro Fire (Front Office Staff) (crrdstaff@metrofire.ca.gov); SASD Development Services; Sean Twilla (seantwilla@gswater.com); Smud ; Stefan Heisler; Steve Harriman; Tameem Samimi; Teresa Tholen in Facilities; Aldama. Tina (SacSheriff); Traci Canfield ; Victor Ramos; whughes@smud.org
Cc: June Cowles; Darcy Goulart; Elizabeth Sparkman
Subject: Notice of Preparation for The Ranch project

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE RANCH PROJECT

LEAD AGENCY: City of Rancho Cordova Planning Department

June Cowles, (916) 851-8756

2729 Prospect Park Drive

Rancho Cordova, CA 95670

The City of Rancho Cordova (as Lead Agency, hereinafter City) intends to prepare an Environmental Impact Report (EIR) for The Ranch project (Project). In accordance with Section 15082 of the CEQA Guidelines, the City has prepared this Notice of Preparation (NOP) to provide responsible agencies and other interested parties with sufficient information describing the Project and its potential environmental effects.

The determination to prepare an EIR was made by the City following preliminary review of the Project. An Initial Study has been prepared, pursuant to CEQA Guidelines Section 15063, which identifies the anticipated environmental effects of the project. The Initial Study may be viewed at the City of Rancho Cordova City Hall, 2729 Prospect Park Drive; or via

the internet at http://www.cityofranchocordova.org/government/planning/environmental-review/environmental-documents.

Project Overview

The project is a 530-acre residential community, including approximately 1,375 single family residential units (including 689 age restricted units, up to 120 multifamily units, a 6 acre commercial parcel, a community clubhouse, a park and trail system, open space and supporting infrastructure.

Public Comment Opportunity

As specified by the CEQA Guidelines, the Notice of Preparation shall be circulated for a 30-day review period. The comment period runs from **Friday, July 6, 2018 to Monday, August 6, 2018**. The City welcomes public input during this review. In the event that no response or request for additional time is received by any responsible agency by the end of the review period, the Lead Agency may presume that the responsible agency has no response [CEQA Guidelines Section 15082(b(2)].

Comments may be submitted in person at the Scoping Meeting or in writing during the review period and addressed to:

City of Rancho Cordova

Planning Department

c/o June Cowles

2729 Prospect Park Drive

Rancho Cordova, CA 95670

A Scoping Meeting will be held on **Thursday, July 26, 2018 at 5:30 p.m.** in the Rancho Cordova City Hall, American River South Room, located at 2729 Prospect Park Drive, Rancho Cordova, CA.

Kelly Whitman
City of Rancho Cordova
Planning Department
2729 Prospect Park Dr.
Rancho Cordova, CA 95670
(916) 851-8759
www.cityofranchocordova.org

County of Sacramento Email Disclaimer: This email and any attachments thereto may contain private, confidential, and privileged material for the sole use of the intended recipient. Any review, copying, or distribution of this email (or any attachments thereto) by other than the County of Sacramento or the intended recipient is strictly prohibited. If you are not the intended recipient, please contact the sender immediately and permanently delete the original and any copies of this email and any attachments thereto.

---------- Forwarded message ----------
From: "Darrow. Matthew" <DarrowM@saccounty.net>
To: Kelly Whitman <kwhitman@cityofranchocordova.org>
Cc: "Atwal. Kamal" <atwalk@saccounty.net>, "Blank. Dean" <blankd@saccounty.net>, "Elizabeth Sparkman (esparkman@cityofranchocordova.org)" <esparkman@cityofranchocordova.org>, "mthomas@cityofranchocordova.org" <mthomas@cityofranchocordova.org>
Bcc:
Date: Thu, 8 Feb 2018 16:48:48 +0000
Subject: RE: The Ranch GPA, RZ, TSM, DA, Phasing DD9725

Kelly,

Thanks for the email. I have a few comments. I see in our files we sent the attached comment letter on the NOP for the DEIR dated April 12, 2011 to the City. That's the last correspondence I see so I'm assuming this might have been on hold for a while. If I read the routing material correctly I see that a Traffic Impact Analysis was completed in 2017 by Kimley Horne and that an EIR will soon be prepared? I want to make sure the comments in the letter were incorporated into the traffic analysis. This project will most likely have impacts to existing and future county facilities along Grant Line Road and Sunrise Boulevard so I want to make sure those facilities were analyzed. Thanks for keeping us in the loop on this!

Thanks,

Matt

From: Kelly Whitman [mailto:kwhitman@cityofranchocordova.org]
Sent: Wednesday, February 07, 2018 4:50 PM
To: Adam Egbert; Adam Lindgren; agcom@saccounty.net; Albert Stricker; Amanda Norton; Singh. Amandeep; Amy Nygren (nygren.amy@metrofire.ca.gov); Audie.Foster@amwater.com; Benjamin Turner; Beth Tincher (beth.tincher@smud.org); Brian Bailey; Caltrans, District 3, Planning South; cholm@walksacramento.org; Hunley. Christopher; Pace. Chris; Chrishana Fields ; Christina James; Curt Haven; Abhar, Cyrus (MSA); Darcy Goulart; Darrow. Matthew; Eileen Cunningham; Elizabeth Sparkman; 'eric_fredericks@dot.ca.gov' (eric_fredericks@dot.ca.gov); fordc@saccounty.net; gchew@sacog.org; gwickham@fcusd.org; hockerl@saccounty.net; Jason Smalley (smalleyj@saccounty.net); Jennifer Hargrove; Jim Brown (jim@sacbike.org); Jim Dobson (jimd@sac-city.k12.ca.us); jlaurain@adamsbroadwell.com; Cuffe. Joe (MSA); John Rogers (rogersjo@saccounty.net); Kacey Lizon (klizon@sacog.org); Kate Cook (External); kenneth_sanchez@fws.gov; Kim Juran; 'larry_brohman@dot.ca.gov' (larry_brohman@dot.ca.gov); Liisa Behrends; Lisa Barsdale (barsdale.lisa@metrofire.ca.gov); Lori Murphy; Leah Pertl (MSA); ltaylor@crpd.com; Maret. Mary; Marilyn Phelps; Mary Pakenham-Walsh; Matt Buland; Melissa Brockman-Vignau (mbrockman@usbr.gov); Michelle Mingay; mike@cecwest.com; Molly Wright (mwright@airquality.org); Patrick Hindmarsh (External); Peck Ha; Rachel Del Rio (rachel.delrio@smud.org); Richard Blackmarr (blackmarr@saccounty.net); Ryan Becker; Sacramento Metro Fire (Front Office Staff) (crrdstaff@metrofire.ca.gov); SASD Development Services; Sean Twilla (seantwilla@gswater.com); Smud ; Stefan Heisler; Steve Harriman; Tameem Samimi; Teresa Tholen in Facilities; Tina Aldama ; Traci Canfield ; Victor Ramos; whughes@smud.org
Cc: June Cowles
Subject: The Ranch GPA, RZ, TSM, DA, Phasing DD9725

Good Afternoon,

Please find the attached project routing for your review. Completeness comments are due to June Cowles (jcowles@cityofranchocordova.org) by 5PM on March 2nd. Comments may be emailed but if we do not receive a response by March 2nd we will presume that your agency does not require any additional items to complete your review (i.e. additional studies, required items on plans, etc.).

Thank you,

Kelly

Kelly Whitman
City of Rancho Cordova
Planning Department
2729 Prospect Park Dr.
Rancho Cordova, CA 95670

(916) 851-8759
www.cityofranchocordova.org

Municipal Services Agency

Department of Transportation
Michael J. Penrose, Director

Steven Szalay, County Executive
Robert Leonard, Agency Administrator

County of Sacramento

April 12, 2011

Mr. Bret Sampson
City of Rancho Cordova
2729 Propect Park Drive
Rancho Cordova, CA 95670

SUBJECT: COMMENTS FOR THE NOTICE OF PREPARATION OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE RANCH AT SUNRIDGE PROJECT

Dear Mr. Sampson:

The Sacramento County Department of Transportation (DOT) has reviewed the Notice of Preparation (NOP) of the Draft Environmental Impact Report (DEIR) for the Ranch at Sunridge project. We appreciate the opportunity to review the NOP and have the following comments to offer:

1. Please coordinate the scope of the traffic study with County DOT staff. Generally, the transportation impact analysis should at least evaluate weekday AM and PM peak hour conditions at intersections and daily roadway traffic conditions for roadway segments that are affected in the County. We would expect these would include facilities along Sunrise Boulevard, Grant Line Road, Kiefer Boulevard, Jackson Highway, Eagles Nest Road, Douglas Road, and White Rock Road at a minimum. In general, the County would like the traffic study to include the same intersections and roadway segments that were included in the original traffic study for the Sunridge Specific Plan.

2. County facilities should be analyzed according to Sacramento County Traffic Impact Analysis (TIA) guidelines dated July 2004. Prior to initiating the traffic impact study, please coordinate the study assumptions and any deviation from the County's TIA guidelines with County DOT staff.

3. Please make sure the land use assumptions that are contained in the transportation model are consistent with Easton, South Mather, and the Cordova Hills Specific Plans at a minimum.

4. Land use assumptions should be consistent with those outlined in the Folsom SOI. Please coordinate with the City of Folsom for project details.

5. Land use assumptions should be consistent with various major Quarry projects in Sacramento County (Teichert, Granite Construction and DeSilva Gates). Please coordinate any additional details regarding these projects with County DOT staff.

6. The DEIR should identify all impacted facilities in the County and provide feasible mitigation measures and identified funding sources. If impacts are found, we would request that the City of Rancho Cordova enter into an agreement with the County of Sacramento to implement these mitigation measures.

Should you have any questions, please feel free to contact me at (916) 874-7052. We look forward to providing any assistance necessary regarding this project.

Sincerely,

Matthew Darrow
Senior Transportation Engineer
Department of Transportation

MGD

c: Mike Penrose – DOT
Dan Shoeman – DOT
Dean Blank – DOT
Kamal Atwal – DOT
Cheryl Lenzie – Planning
Joyce Horizumi – DERA
Bob Davison – County Engineering

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

July 13, 2018

SENT VIA EMAIL

June Cowles, Senior Planner
City of Rancho Cordova Planning Department
2729 Prospect Park Drive
Rancho Cordova, California 95670

RE: The Ranch Special Planning Area Notice of Preparation of a Draft Environmental Impact Report, and Project Routing for a Rezone, Development Agreement, and Tentative Subdivision Map

Dear Ms. Cowles,

The Sacramento Metropolitan Air Quality Management District (SMAQMD) thanks the City of Rancho Cordova for the opportunity to comment on the revised routing for the Ranch Special Planning Area project, and the Notice of Preparation under the California Environmental Quality Act (CEQA). We offer the following comments.

Because this project's size exceeds sizes specified in SMAQMD's screening tables, full CEQA analysis will be necessary for both construction and operational emissions. These emissions include both criteria pollutants (pollutants covered by state and federal clean air acts) and greenhouse gases (GHGs). SMAQMD's Guide to Air Quality Assessment in Sacramento County (CEQA Guide) provides methods to analyze project air quality and climate change impacts, including screening criteria, thresholds of significance, and more, to assist lead agencies in complying with CEQA.

If operational criteria pollutant emissions are determined to be significant, the City should require an air quality mitigation plan, consistent with General Plan Action AQ.1.2.3, to reduce operational emissions by at least 15%. We would be happy to work with the proponent on appropriate measures for the plan. We recommend SMAQMD verification of the plan prior to environmental document certification or tentative subdivision map approval, whichever occurs first.

If operational GHG emissions are determined to be significant, the City should apply all feasible mitigation, as described in SMAQMD's CEQA Guide. CEQA Guidelines Section 15183.5 includes the provision for tiering and streamlining the analysis of GHG emissions in CEQA documents. Under this provision, lead agencies may analyze and mitigate the effects of GHG emissions at a programmatic level, for example for a long range development plan such as the current Ranch Special Planning Area. Later project-specific CEQA documents may tier and/or incorporate by reference that existing programmatic review. SMAQMD's CEQA Guide includes guidance on programmatic CEQA review.

777 12th Street, 3rd Floor ▪ Sacramento, CA 95814-1908
916/874-4800 ▪ 916/874-4899 fax
www.airquality.org

If the construction emissions of criteria pollutants and / or GHGs are determined to be significant, the City should require SMAQMD's standard construction mitigation. This mitigation is available in SMAQMD's CEQA Guide.

We look forward to receiving more project information through the environmental review process, so we can more fully evaluate this project for its effects on air quality. Please note that all projects are subject to SMAQMD rules and regulations in effect at the time of construction. The attached document describes SMAQMD rules which may apply to this project whether the air quality impacts are determined to be significant or not. If you have questions about these comments, please contact me at mwright@airquality.org or 916-874-4207.

Sincerely,

Molly Wright, AICP
Air Quality Planner / Analyst

Attachment: SMAQMD Rules and Regulations Statement

c: Paul Philley, AICP, Program Coordinator

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

Sac Metro Air District Rules & Regulations Statement (revised 6/2018)

*The following statement is recommended as standard condition of approval or construction document language for **all** development projects within the Sacramento Metropolitan Air Quality Management District (Sac Metro Air District):*

All projects are subject to Sac Metro Air District rules in effect at the time of construction. A complete listing of current rules is available at www.airquality.org or by calling 916-874-4800. Specific rules that may relate to construction activities or building design may include, but are not limited to:

Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from Sac Metro Air District prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the Sac Metro Air District early to determine if a permit is required, and to begin the permit application process. Other general types of uses that require a permit include, but are not limited to, dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.
Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower is required to have a Sac Metro Air District permit or a California Air Resources Board portable equipment registration (PERP) (see Other Regulations below).

Rule 402: Nuisance. The developer or contractor is required to prevent dust or any emissions from onsite activities from causing injury, nuisance, or annoyance to the public.

Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earth moving activities, storage or any other construction activity to prevent airborne dust from leaving the project site.

Rule 414: Water Heaters, Boilers and Process Heaters Rated Less Than 1,000,000 BTU PER Hour. The developer or contractor is required to install water heaters (including residence water heaters), boilers or process heaters that comply with the emission limits specified in the rule.

Rule 417: Wood Burning Appliances. This rule prohibits the installation of any new, permanently installed, indoor or outdoor, uncontrolled fireplaces in new or existing developments.

Rule 442: Architectural Coatings. The developer or contractor is required to use coatings that comply with the volatile organic compound content limits specified in the rule.

Rule 453: Cutback and Emulsified Asphalt Paving Materials. This rule prohibits the use of certain types of cut back or emulsified asphalt for paving, road construction or road maintenance activities.

Rule 460: Adhesives and Sealants. The developer or contractor is required to use adhesives and sealants that comply with the volatile organic compound content limits specified in the rule.

Rule 902: Asbestos. The developer or contractor is required to notify the Sac Metro Air District of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of asbestos containing material.

Other Regulations (California Code of Regulations (CCR))

17 CCR, Division 3, Chapter 1, Subchapter 7.5, §93105 Naturally Occurring Asbestos: The developer or contractor is required to notify the Sac Metro Air District of earth moving projects, greater than 1 acre in size in areas "Moderately Likely to Contain Asbestos" within eastern Sacramento County. The developer or contractor is required to comply with specific requirements for surveying, notification, and handling soil that contains naturally occurring asbestos.

13 CCR, Division 3, Chapter 9, Article 5, Portable Equipment Registration Program: The developer or contractor is required to comply with all registration and operational requirements of the portable equipment registration program such as recordkeeping and notification.

13 CCR, Division 3, Chapter 9, Article 4.8, §2449(d)(2) and 13 CCR, Division 3, Chapter 10, Article 1, §2485 regarding Anti-Idling: Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes. These apply to diesel powered off-road equipment and on-road vehicles, respectively.

Sent Via E-Mail

August 6, 2018

June Cowles
City of Rancho Cordova
2729 Prospect Park Drive
Rancho Cordova, CA 95670
jcowles@cityofranchocordova.org

Subject: Response to Notice of Preparation for The Ranch Project

Dear Ms. Cowles:

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments in response to the Notice of Preparation of a Draft Environmental Impact Report (DEIR) for The Ranch Project (Project). SMUD is the primary energy provider for the City of Rancho Cordova that includes the proposed Project area. SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our region. As a Responsible Agency, SMUD aims to ensure that the proposed Project limits the potential for significant environmental effects on SMUD facilities, employees, and customers.

It is our desire that the DEIR that will be prepared for the Project acknowledge any Project impacts related to the following:

- Overhead and or underground transmission and distribution line easements. Please view the following links on smud.org for more information regarding transmission encroachment:
  - https://www.smud.org/en/Business-Solutions-and-Rebates/Design-and-Construction-Services
  - https://www.smud.org/en/Corporate/Do-Business-with-SMUD/Land-Use/Transmission-Right-of-Way
- Utility line routing
- Electrical load needs/requirements
- Energy Efficiency
- Climate Change
- Cumulative impacts related to the need for increased electrical delivery
- The new development can be served from existing and planned distribution substation facilities.
- SMUD has existing overhead 69kV within the transmission line corridor and along the west side of Rancho Cordova Pkwy.

- No new 69kV facilities are planned within the development.
- PUE will be required for all new 12kV within the development.
- A Consent to Common Use will be required through SMUD's Transmission and Real Estate Departments.

SMUD would like to be involved with discussing the above areas of interest as well as discussing any other potential issues. We aim to be partners in the efficient and sustainable delivery of the proposed Project. Please ensure that the information included in this response is conveyed to the Project planners and the appropriate Project proponents. Environmental leadership is a core value of SMUD and we look forward to collaborating with you on this Project. Again, we appreciate the opportunity to provide input on this NOP. If you have any questions regarding this letter, please contact SMUD's Environmental Management Specialist, Jerry Park, at jerry.park@smud.org or 916.732.7406.

Sincerely,

Nicole Goi
Regional & Local Government Affairs
Sacramento Municipal Utility District
6301 S Street, Mail Stop A313
Sacramento, CA 95817
nicole.goi@smud.org

Cc: Jerry Park

APPENDIX B

Air Quality, Greenhouse Gas, and Energy Appendices

CONTENTS

Appendix B.1: CalEEMod Outputs

Appendix B.2: Energy Outputs

Appendix B.3: Determination of MTP/SCS Consistency Worksheet

Appendix B.4: Analysis of Models and Tools to Correlate Project-Generated Pollutants to Health End Points

APPENDIX B.1

CalEEMod Outputs

Appendix B.1
CalEEMod Parameters

Proposed Project (Operational) Scenario

- Project Location: Sacramento County
- Climate Zone: 6
- Land Use Setting: Urban
- Operational Year: **2035**
- Utility Company: Sacramento Municipal Utility District
- Land Uses:

LAND USE TYPE AND SUBTYPE	UNIT AMOUNT AND METRIC	LOT ACREAGE	SQUARE FOOTAGE	POPULATION
Retail - Regional Shopping Center	32,000 sf	5.16	32,000	0
Residential - Apartments Mid-Rise (Multi-Family Residential)	215 units	7.17	215,000	621
Residential - Retirement Community (Active Adult Multi-Family Residential - attached)	38 units	1.26	38,000	78
Residential - Single-Family Residential (Traditional Single-Family Residential)	735 units	77.87	1,323,600	2,087
Residential - Retirement Community (Active Adult Single Family Residential - detached)	737 units	90.91	737,000	1,533
Recreational – City Park (Lot D – turf and play areas, and soccer field) (also includes 8,000 sf for restrooms)	9.1 acre – turf/play/fields 8,000 sf – restrooms	9.28	387,684	0
– Parking Other Asphalt Surface (Lot D – walking path)	1 acre	1	43,560	0
Parking – Parking Lot (Lot D)	0.5 acre	0.5	44,866.8	0
Recreational – City Park (Lot A – grass area) (also includes 21,000 sf for clubhouse and restrooms)	3.07 acres - turf, recreation 21,000 sf clubhouse	3.69	133,729	0
Parking – (Lot A, parking)	0.5 acres	0.5		
Parking – Other Asphalt Surfaces (open space lots, walking path)	2.5 acres	2.5	108,900	0
Parking – Parking Lot (open space lots	0.5	0.5		
Park (Lot C, Linear Tree and Natural Landscaping Feature))	0.5 acres – Park; 0.9 acres – passive uses (passive park uses are treated as open space and not modeled in CalEEMod)	1.4		
Park (Lot B, Community Garden)	1.58 – passive uses (passive park uses are treated as open space and	1.58		

	not modeled in CalEEMod)			
Park (Lot U, Passive Park))	1.21 (passive park uses are treated as open space and not modeled in CalEEMod)	1.21		
Subtotal		**204.53**		
Open Space (257.24 acres less 2.5 acres of paved/asphalt trails, 0.5 ac of parking)		254.24		
Roadways		71.33		
TOTAL		**530.1**		

Land Use data as provided by the project applicant.

Population = Population as calculated based on best available data. Consistent with what is provided in the Population and Housing section of the EIR (The population for non-age restricted single-family units were calculated using 2.84 persons per household. The population for non-age restricted multifamily units were calculated using 2.89 persons per household. The population for age-restricted single-family units were calculated using 2.08 persons per household. The population for age-restricted multifamily units was calculated using 2.05 person per household. All of these persons per household rates are from the 2013-2017 American Community Survey).

- Operational – Mobile:
  - Trip rates derived from the Traffic Analyses (Kimley Horn) (June 2019) (internal capture rate applied):
    - Apartments Mid-Rise: 5.36 trips/dwelling unit
    - Regional Shopping Center: 28.06 trips/dwelling unit
    - Retirement Community: 3.20 trips/dwelling unit (note – this is a weighted average of the two Retirement Community subtypes – attached and detached).
    - Single Family Housing: 8.7 trips/dwelling unit
  - Fleet Mix: Default CalEEMod values were used.
- Operational – Area
  - No woodstoves or fireplaces.
  - Consumer Products:
  - The "general category" emission factor was adjusted from default value (reduced by a total of 29.10%), based on the following differences between proposed project attributes and the inputs used to develop the default value (the default value utilizes statewide factors from year 2008):
    - The proposed project is estimated to have a persons per dwelling unit (persons/du) value of 2.504, versus the current statewide average of 2.971. This is a difference of 18.60%
    - The CARB estimated total statewide year 2016 ROG emissions of 208.71 tons/year, which is 12.89% less than the amount estimated for year 2008 (239.6 tons/year).
    - 3.5 out of the total 5.0 acres of parking lot – other asphalt surfaces modeled would be developed as walking paths.
  - Architectural Coatings:

[1] California Department of Finance, Table 2: E-5 City/County Population and Housing Estimates (1/1/2018).

        - The residential interior and non-residential interior emission factors were reduced from 100 g/L to 50 g/L, based on the SMAQMD Rule 442 that provides a maximum VOC limit of 50 g/L for flat coatings. It was assumed that flat coatings are used for interior coatings.

- Vegetation
    - Land Use Change: Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.87 - 90.91 - 7.17 - 5.16 - 32.3 - 20.59 - 17.34 = 278.76 acres of grassland remaining.
    - Approximately 2,240 new trees planted as part of the project (provided by project applicant). These were modeled as "miscellaneous" trees.

- Mitigation Measures (Operational) (Unmitigated):
    - Low Density Suburban (Project Setting)
    - Increase density to 6.86 dwelling units per acre;
    - Increase diversity;
    - Improve walkability design (123.53 intersections per square miles);
    - Improve destination accessibility (12.3 miles to downtown);
    - Increase transit accessibility (project site would include a bus/transit facilities – distance to transit for nearby residents would be approximately 0.25 miles);
    - Expand transit network (100% increase in coverage);
    - Provide traffic calming measures (50% of streets and intersections with improvements);
    - Improve pedestrian network (project site and connecting off-site);
    - Implement NEV network
    - Plant a minimum of 2,240 new trees throughout the project site;
    - No hearths.
    - Install energy efficient (i.e. LED) street lighting (for outdoor lighting);
    - Generate 95% or more of electricity via renewable energy (on-site energy generation and/or contract with SMUD);
    - Install energy efficient appliances;
    - Install low-flow appliances (bathroom faucet, kitchen faucet, toilet, and shower); and
    - Use water-efficient irrigation systems.
    - Turf Reduction: 70%

<u>Proposed Project (Operational – without car and light-duty truck trips) Scenario</u>
Note: all parameters are the same under this scenario as under the "Operational" scenario, except for the following:

- Operational – Mobile:
    - Trip rates derived from the Traffic Analyses (Kimley Horn) (June 2019) – modified to reflect the proportion of trips not due to cars or light-duty trucks (i.e. across-the-board reduction in trip rates by approximately 81.7%):
        - Apartments Mid-Rise: 0.98 trips/dwelling unit
        - Regional Shopping Center: 5.14 trips/dwelling unit
        - Retirement Community: 0.59 trips/dwelling unit
        - Single Family Housing: 1.59 trips/dwelling unit
    - Fleet Mix: Default CalEEMod values were used, except for car and light-duty truck fleet categories (LDA, LDT1, and LDT2). LDA, LDT1, and LDT2 trips were removed from the fleet

mix, and the remainder categories were reapportioned based on their relative size under the default scenario.

Proposed Project (Construction) Scenario – Phase 1

- Includes:
    - Phase I Clubhouse and associated landscaping (Lot A) – 1/3 of the building complex (about 7000 sf);
    - 270 single family residential units;
    - 232 single family residential units – age restricted.

Construction Tab – Phasing:

- Site Prep: 64 days (note: site prep for both phases 1 and 2)
    - 1/1/2020 – 3/30/2020
- Grading: 153 days
    - 4/1/2020 – 11/01/2020
- Paving: 65 days
    - 11/1/2020 – 1/30/2021
- Building Construction: 586 days
    - 2/1/2021 – 5/1/2023
- Architectural Coating: 587 days
    - 5/2/2021 – 8/1/2023

- Construction Tab – Off-Road Equipment:
    - Default CalEEMod values used.
- Construction Tab – Fleet Mix:
    - Default values used.

Proposed Project (Construction) Scenario – Phase 2

This phase includes the following:

- 197 single family residential units
- 210 single family residential units – age restricted.
- Neighborhood Park 2.2 ac (lot Q)
- Liner Park Lot C (1.4ac)
- Phase 2 Clubhouse building (~7000 sf) April 2023-June 2024

Construction Tab – Phasing:

- Improvements for Phase 2: 131 days
    - 4/1/2022 – 9/30/2022
- Paving: 65 days
    - 10/1/2022 – 12/31/2022
- Building Construction: 609 days
    - 4/1/2023 – 7/31/2025
- Architectural Coating: 609 days
    - 8/1/2023 – 11/30/2025

- Construction Tab – Off-Road Equipment:
    - Default CalEEMod values used.
- Construction Tab – Fleet Mix:
    - Default values used.

Proposed Project (Construction) Scenario – Phase 3

- This phase includes the following:
    - 268 single family residential units
    - 295 single family residential units – age restricted
    - 16 senior multi-family residential units
    - Open Space (Lot T) – 1.2 acres
    - Rancho Cordova Parkway Widening
    - Phase 3 clubhouse (~7000 sf) -April 2028-August 2029
    - Lot B (Park)

Construction Tab – Phasing:

- Site Prep: 43 days
    - 2/1/2025 – 4/27/2025
- Grading: 132 days
    - 4/28/2025 – 10/1/2025
- Paving: 65 days
    - 10/2/2025 – 12/31/2025
- Building Construction: 717 days
    - 1/1/2026 – 9/30/2028
- Architectural Coating: 718 days
    - 4/1/2026 – 12/31/2028
- Site Preparation and grading for Rancho Cordova widening: 196 days
    - 1/1/2027 – 10/1/2027
- Paving for Rancho Cordova widening: 86 days
    - 10/2/2027 – 01/31/2028
- Site Prep (note: for park – Lot D): 260 days
    - 4/1/2028 – 4/1/2029

- Construction Tab – Off-Road Equipment:
    - Default CalEEMod values used.
- Construction Tab – Fleet Mix:
    - Default values used.

Proposed Project (Construction) Scenario – Phase 4

- This phase includes the following:
    - 215 multi-family residential units
    - 22 senior multi-family residential units

Construction Tab – Phasing:

- Site Preparation for Commercial and MFR: 41 days
    - 3/1/2030 – 4/27/2030
- Grading and Improvements: 85 days
    - 4/28/2030 – 8/1/2030
- Paving: 65 days
    - 8/2/2030 – 10/31/2030
- Building Construction: 459 days
    - 4/1/2031 – 1/1/2033
- Architectural Coating: 108 days

        - 1/2/2033 – 6/1/2033
- Construction Tab – Off-Road Equipment:
    - Default CalEEMod values used.
- Construction Tab – Fleet Mix:
    - Default CalEEMod values used.

<u>Proposed Project (Construction) Scenario – Phase 5</u>
This phase includes the following:

- Commercial center.

Construction Tab – Phasing:
- Site Preparation for commercial center: 42 days
    - 3/1/2034 – 4/27/2034
- Grading and Improvements: 67 days
    - 4/28/2034 – 7/31/2024
- Paving: 24 days
    - 8/1/2034 – 9/1/2034
- Building Construction: 260 days
    - 10/1/2034 – 8/31/2035
- Architectural Coating: 86 days
    - 9/1/2035 – 12/31/2035

- Construction Tab – Off-Road Equipment:
    - Default CalEEMod values used.
- Construction Tab – Fleet Mix:
    - Default CalEEMod values used.

<u>Proposed Project (Construction) Scenario – All Phases</u>
Note: Site preparation and grading activities for Phases 1 and 2 are accounted for in Phase 1.

Construction Tab – Dust from Material Movement:
- Grading as modeled includes area for roadways, apportioned based on the acreages developed per construction phase. Grading for phases 1 and 2 would occur under phase 1 (per the Project Applicant).
- Cut and fill: net export of 152,708 cubic yards (CY) (prorated for phase 1 and 3 at 76,354 cubic yards for each phase).

Mitigation Measures (Construction):
- Water exposed area 2 time daily;
- Unpaved road mitigation = 15 mph;
- Clean paved road = 9% reduction.

The Ranch - City of Rancho Cordova (Construction Only - Phase 1)

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	270.00	Dwelling Unit	28.61	486,000.00	767
Retirement Community	232.00	Dwelling Unit	28.62	232,000.00	463
City Park	1.02	Acre	1.23	44,576.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction state date of January 2020 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 1

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the applicant)

Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -
Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).

Grading - Assume 148.53 (res./comm./right of way) this phase (includes phases 1 and 2). Assume 1/2 of site is exported during this this phase (152,708 CY / 2 = 76,354 CY). Total net export for entire project (152,708 CY) as provided by applicant.

Architectural Coating - Interior VOC limts reduced from 100 g/L to 50 g/L based on SMAQMD Rule 443 that provides a VOC limit for flat coatings of 50 g/L.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust -

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%. NOTE: This model run reflects operational emissions only.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15

tblConstructionPhase	NumDays	40.00	64.00
tblConstructionPhase	NumDays	110.00	153.00
tblConstructionPhase	NumDays	75.00	65.00
tblConstructionPhase	NumDays	1,110.00	586.00
tblConstructionPhase	NumDays	75.00	587.00
tblConstructionPhase	PhaseEndDate	2/25/2020	3/30/2020
tblConstructionPhase	PhaseEndDate	7/28/2020	10/30/2020
tblConstructionPhase	PhaseEndDate	2/11/2025	1/29/2021
tblConstructionPhase	PhaseEndDate	10/29/2024	5/1/2023
tblConstructionPhase	PhaseEndDate	5/27/2025	8/1/2023
tblConstructionPhase	PhaseStartDate	2/26/2020	4/1/2020
tblConstructionPhase	PhaseStartDate	10/30/2024	11/1/2020
tblConstructionPhase	PhaseStartDate	7/29/2020	2/1/2021
tblConstructionPhase	PhaseStartDate	2/12/2025	5/2/2021
tblGrading	AcresOfGrading	382.50	148.53
tblLandUse	LandUseSquareFeet	44,431.20	44,576.40
tblLandUse	LotAcreage	87.66	28.61
tblLandUse	LotAcreage	46.40	28.62
tblLandUse	LotAcreage	1.02	1.23
tblLandUse	Population	721.00	767.00
tblLandUse	Population	619.00	463.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	HaulingTripNumber	0.00	9,544.00
tblTripsAndVMT	VendorTripNumber	61.00	0.00
tblTripsAndVMT	VendorTripNumber	61.00	0.00
tblTripsAndVMT	WorkerTripNumber	283.00	15.00
tblTripsAndVMT	WorkerTripNumber	283.00	15.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.5465	6.8842	3.8328	0.0104	1.2160	0.2582	1.4742	0.6064	0.2377	0.8441	0.0000	948.8146	948.8146	0.2053	0.0000	953.9478
2021	1.4252	4.7568	5.3413	0.0112	0.8937	0.2160	1.1097	0.2277	0.2018	0.4294	0.0000	1,001.8066	1,001.8066	0.1700	0.0000	1,006.0559
2022	1.8233	4.5275	5.5771	0.0120	0.9817	0.1940	1.1757	0.2502	0.1816	0.4318	0.0000	1,070.7478	1,070.7478	0.1760	0.0000	1,075.1479
2023	0.9189	1.4037	1.9018	4.1400e-003	0.3385	0.0586	0.3971	0.0864	0.0550	0.1414	0.0000	368.8509	368.8509	0.0582	0.0000	370.3048
Maximum	**1.8233**	**6.8842**	**5.5771**	**0.0120**	**1.2160**	**0.2582**	**1.4742**	**0.6064**	**0.2377**	**0.8441**	**0.0000**	**1,070.7478**	**1,070.7478**	**0.2053**	**0.0000**	**1,075.1479**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.5465	6.8842	3.8328	0.0104	0.5945	0.2582	0.8527	0.2860	0.2377	0.5237	0.0000	948.8140	948.8140	0.2053	0.0000	953.9471
2021	1.4252	4.7568	5.3413	0.0112	0.8182	0.2160	1.0342	0.2091	0.2018	0.4109	0.0000	1,001.8060	1,001.8060	0.1700	0.0000	1,006.0553
2022	1.8233	4.5275	5.5771	0.0120	0.8989	0.1940	1.0928	0.2299	0.1816	0.4115	0.0000	1,070.7471	1,070.7471	0.1760	0.0000	1,075.1472
2023	0.9189	1.4037	1.9018	4.1400e-003	0.3101	0.0586	0.3686	0.0795	0.0550	0.1344	0.0000	368.8506	368.8506	0.0582	0.0000	370.3045
Maximum	**1.8233**	**6.8842**	**5.5771**	**0.0120**	**0.8989**	**0.2582**	**1.0928**	**0.2860**	**0.2377**	**0.5237**	**0.0000**	**1,070.7471**	**1,070.7471**	**0.2053**	**0.0000**	**1,075.1472**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**23.57**	**0.00**	**19.44**	**31.28**	**0.00**	**19.83**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2020**	**3-31-2020**	1.4984	1.4984
2	**4-1-2020**	**6-30-2020**	2.3582	2.3582
3	**7-1-2020**	**9-30-2020**	2.3842	2.3842
4	**10-1-2020**	**12-31-2020**	1.1234	1.1234
5	**1-1-2021**	**3-31-2021**	1.0303	1.0303
6	**4-1-2021**	**6-30-2021**	1.6072	1.6072
7	**7-1-2021**	**9-30-2021**	1.7561	1.7561
8	**10-1-2021**	**12-31-2021**	1.7618	1.7618

9	**1-1-2022**	**3-31-2022**	1.5755	1.5755
10	**4-1-2022**	**6-30-2022**	1.5881	1.5881
11	**7-1-2022**	**9-30-2022**	1.6056	1.6056
12	**10-1-2022**	**12-31-2022**	1.6105	1.6105
13	**1-1-2023**	**3-31-2023**	1.4595	1.4595
14	**4-1-2023**	**6-30-2023**	0.7464	0.7464
15	**7-1-2023**	**9-30-2023**	0.1306	0.1306
		Highest	2.3842	2.3842

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.4386	0.0595	5.1588	2.7000e-004		0.0287	0.0287		0.0287	0.0287	0.0000	8.4565	8.4565	8.0500e-003	0.0000	8.6577
Energy	0.0528	0.4508	0.1918	2.8800e-003		0.0364	0.0364		0.0364	0.0364	0.0000	1,423.4967	1,423.4967	0.0543	0.0187	1,430.4365
Mobile	0.4555	2.3639	5.3211	0.0251	2.9466	0.0128	2.9595	0.7890	0.0119	0.8009	0.0000	2,322.3684	2,322.3684	0.0846	0.0000	2,324.4842
Waste						0.0000	0.0000		0.0000	0.0000	77.7313	0.0000	77.7313	4.5938	0.0000	192.5761
Water						0.0000	0.0000		0.0000	0.0000	11.5719	64.0992	75.6711	0.0430	0.0258	84.4389
Total	**3.9468**	**2.8742**	**10.6717**	**0.0282**	**2.9466**	**0.0780**	**3.0246**	**0.7890**	**0.0771**	**0.8660**	**89.3032**	**3,818.4209**	**3,907.7241**	**4.7837**	**0.0446**	**4,040.5935**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.4386	0.0595	5.1588	2.7000e-004		0.0287	0.0287		0.0287	0.0287	0.0000	8.4565	8.4565	8.0500e-003	0.0000	8.6577
Energy	0.0528	0.4508	0.1918	2.8800e-003		0.0364	0.0364		0.0364	0.0364	0.0000	1,423.4967	1,423.4967	0.0543	0.0187	1,430.4365
Mobile	0.4555	2.3639	5.3211	0.0251	2.9466	0.0128	2.9595	0.7890	0.0119	0.8009	0.0000	2,322.3684	2,322.3684	0.0846	0.0000	2,324.4842
Waste						0.0000	0.0000		0.0000	0.0000	77.7313	0.0000	77.7313	4.5938	0.0000	192.5761
Water						0.0000	0.0000		0.0000	0.0000	11.5719	64.0992	75.6711	0.0430	0.0258	84.4389
Total	**3.9468**	**2.8742**	**10.6717**	**0.0282**	**2.9466**	**0.0780**	**3.0246**	**0.7890**	**0.0771**	**0.8660**	**89.3032**	**3,818.4209**	**3,907.7241**	**4.7837**	**0.0446**	**4,040.5935**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,585.9200
Vegetation Land Change	-1,057.2430
Total	**528.6770**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2020	3/30/2020	5	64	
2	Grading	Grading	4/1/2020	10/30/2020	5	153	
3	Paving	Paving	11/1/2020	1/29/2021	5	65	
4	Building Construction	Building Construction	2/1/2021	5/1/2023	5	586	
5	Architectural Coating	Architectural Coating	5/2/2021	8/1/2023	5	587	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 148.53

Acres of Paving: 0

Residential Indoor: 1,453,950; Residential Outdoor: 484,650; Non-Residential Indoor: 10,500; Non-Residential Outdoor: 3,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Pavers	2	8.00	130	0.42
Building Construction	Paving Equipment	2	8.00	132	0.36
Building Construction	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	9,544.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	283.00	61.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	57.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5781	0.0000	0.5781	0.3178	0.0000	0.3178	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1305	1.3574	0.6884	1.2200e-003		0.0703	0.0703		0.0647	0.0647	0.0000	106.9782	106.9782	0.0346	0.0000	107.8432
Total	**0.1305**	**1.3574**	**0.6884**	**1.2200e-003**	**0.5781**	**0.0703**	**0.6484**	**0.3178**	**0.0647**	**0.3825**	**0.0000**	**106.9782**	**106.9782**	**0.0346**	**0.0000**	**107.8432**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1400e-003	1.4500e-003	0.0159	4.0000e-005	4.2300e-003	3.0000e-005	4.2600e-003	1.1300e-003	3.0000e-005	1.1500e-003	0.0000	3.7482	3.7482	1.1000e-004	0.0000	3.7509
Total	**2.1400e-003**	**1.4500e-003**	**0.0159**	**4.0000e-005**	**4.2300e-003**	**3.0000e-005**	**4.2600e-003**	**1.1300e-003**	**3.0000e-005**	**1.1500e-003**	**0.0000**	**3.7482**	**3.7482**	**1.1000e-004**	**0.0000**	**3.7509**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2602	0.0000	0.2602	0.1430	0.0000	0.1430	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1305	1.3574	0.6884	1.2200e-003		0.0703	0.0703		0.0647	0.0647	0.0000	106.9781	106.9781	0.0346	0.0000	107.8430
Total	**0.1305**	**1.3574**	**0.6884**	**1.2200e-003**	**0.2602**	**0.0703**	**0.3305**	**0.1430**	**0.0647**	**0.2077**	**0.0000**	**106.9781**	**106.9781**	**0.0346**	**0.0000**	**107.8430**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1400e-003	1.4500e-003	0.0159	4.0000e-005	3.9000e-003	3.0000e-005	3.9300e-003	1.0400e-003	3.0000e-005	1.0700e-003	0.0000	3.7482	3.7482	1.1000e-004	0.0000	3.7509
Total	**2.1400e-003**	**1.4500e-003**	**0.0159**	**4.0000e-005**	**3.9000e-003**	**3.0000e-005**	**3.9300e-003**	**1.0400e-003**	**3.0000e-005**	**1.0700e-003**	**0.0000**	**3.7482**	**3.7482**	**1.1000e-004**	**0.0000**	**3.7509**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5395	0.0000	0.5395	0.2617	0.0000	0.2617	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3404	3.8401	2.4448	4.7400e-003		0.1663	0.1663		0.1530	0.1530	0.0000	416.8048	416.8048	0.1348	0.0000	420.1749
Total	**0.3404**	**3.8401**	**2.4448**	**4.7400e-003**	**0.5395**	**0.1663**	**0.7058**	**0.2617**	**0.1530**	**0.4147**	**0.0000**	**416.8048**	**416.8048**	**0.1348**	**0.0000**	**420.1749**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0367	1.3711	0.3098	3.7600e-003	0.0805	4.9100e-003	0.0854	0.0221	4.6900e-003	0.0268	0.0000	365.1176	365.1176	0.0212	0.0000	365.6482
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-003	3.8600e-003	0.0424	1.1000e-004	0.0112	8.0000e-005	0.0113	2.9900e-003	7.0000e-005	3.0600e-003	0.0000	9.9563	9.9563	2.8000e-004	0.0000	9.9633
Total	**0.0424**	**1.3750**	**0.3522**	**3.8700e-003**	**0.0918**	**4.9900e-003**	**0.0967**	**0.0251**	**4.7600e-003**	**0.0299**	**0.0000**	**375.0739**	**375.0739**	**0.0215**	**0.0000**	**375.6115**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2428	0.0000	0.2428	0.1178	0.0000	0.1178	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3404	3.8401	2.4448	4.7400e-003		0.1663	0.1663		0.1530	0.1530	0.0000	416.8044	416.8044	0.1348	0.0000	420.1744
Total	**0.3404**	**3.8401**	**2.4448**	**4.7400e-003**	**0.2428**	**0.1663**	**0.4091**	**0.1178**	**0.1530**	**0.2708**	**0.0000**	**416.8044**	**416.8044**	**0.1348**	**0.0000**	**420.1744**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0367	1.3711	0.3098	3.7600e-003	0.0751	4.9100e-003	0.0800	0.0208	4.6900e-003	0.0255	0.0000	365.1176	365.1176	0.0212	0.0000	365.6482
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-003	3.8600e-003	0.0424	1.1000e-004	0.0104	8.0000e-005	0.0104	2.7700e-003	7.0000e-005	2.8500e-003	0.0000	9.9563	9.9563	2.8000e-004	0.0000	9.9633
Total	**0.0424**	**1.3750**	**0.3522**	**3.8700e-003**	**0.0854**	**4.9900e-003**	**0.0904**	**0.0235**	**4.7600e-003**	**0.0283**	**0.0000**	**375.0739**	**375.0739**	**0.0215**	**0.0000**	**375.6115**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0298	0.3094	0.3224	5.0000e-004		0.0166	0.0166		0.0152	0.0152	0.0000	44.0621	44.0621	0.0143	0.0000	44.4184
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0298**	**0.3094**	**0.3224**	**5.0000e-004**		**0.0166**	**0.0166**		**0.0152**	**0.0152**	**0.0000**	**44.0621**	**44.0621**	**0.0143**	**0.0000**	**44.4184**

3.4 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2300e-003	8.3000e-004	9.1300e-003	2.0000e-005	2.4200e-003	2.0000e-005	2.4400e-003	6.4000e-004	2.0000e-005	6.6000e-004	0.0000	2.1474	2.1474	6.0000e-005	0.0000	2.1490
Total	**1.2300e-003**	**8.3000e-004**	**9.1300e-003**	**2.0000e-005**	**2.4200e-003**	**2.0000e-005**	**2.4400e-003**	**6.4000e-004**	**2.0000e-005**	**6.6000e-004**	**0.0000**	**2.1474**	**2.1474**	**6.0000e-005**	**0.0000**	**2.1490**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0298	0.3094	0.3224	5.0000e-004		0.0166	0.0166		0.0152	0.0152	0.0000	44.0620	44.0620	0.0143	0.0000	44.4183
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0298**	**0.3094**	**0.3224**	**5.0000e-004**		**0.0166**	**0.0166**		**0.0152**	**0.0152**	**0.0000**	**44.0620**	**44.0620**	**0.0143**	**0.0000**	**44.4183**

3.4 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2300e-003	8.3000e-004	9.1300e-003	2.0000e-005	2.2400e-003	2.0000e-005	2.2500e-003	6.0000e-004	2.0000e-005	6.1000e-004	0.0000	2.1474	2.1474	6.0000e-005	0.0000	2.1490
Total	**1.2300e-003**	**8.3000e-004**	**9.1300e-003**	**2.0000e-005**	**2.2400e-003**	**2.0000e-005**	**2.2500e-003**	**6.0000e-004**	**2.0000e-005**	**6.1000e-004**	**0.0000**	**2.1474**	**2.1474**	**6.0000e-005**	**0.0000**	**2.1490**

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0132	0.1357	0.1539	2.4000e-004		7.1200e-003	7.1200e-003		6.5500e-003	6.5500e-003	0.0000	21.0247	21.0247	6.8000e-003	0.0000	21.1947
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0132**	**0.1357**	**0.1539**	**2.4000e-004**		**7.1200e-003**	**7.1200e-003**		**6.5500e-003**	**6.5500e-003**	**0.0000**	**21.0247**	**21.0247**	**6.8000e-003**	**0.0000**	**21.1947**

3.4 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.6000e-004	3.9900e-003	1.0000e-005	1.1600e-003	1.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	0.9900	0.9900	3.0000e-005	0.0000	0.9907
Total	**5.5000e-004**	**3.6000e-004**	**3.9900e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1600e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9900**	**0.9900**	**3.0000e-005**	**0.0000**	**0.9907**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0132	0.1357	0.1539	2.4000e-004		7.1200e-003	7.1200e-003		6.5500e-003	6.5500e-003	0.0000	21.0246	21.0246	6.8000e-003	0.0000	21.1946
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0132**	**0.1357**	**0.1539**	**2.4000e-004**		**7.1200e-003**	**7.1200e-003**		**6.5500e-003**	**6.5500e-003**	**0.0000**	**21.0246**	**21.0246**	**6.8000e-003**	**0.0000**	**21.1946**

3.4 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.6000e-004	3.9900e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0700e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9900	0.9900	3.0000e-005	0.0000	0.9907
Total	**5.5000e-004**	**3.6000e-004**	**3.9900e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0700e-003**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.9900**	**0.9900**	**3.0000e-005**	**0.0000**	**0.9907**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3788	3.6421	3.7474	5.9700e-003		0.1964	0.1964		0.1830	0.1830	0.0000	518.2465	518.2465	0.1448	0.0000	521.8658
Total	**0.3788**	**3.6421**	**3.7474**	**5.9700e-003**		**0.1964**	**0.1964**		**0.1830**	**0.1830**	**0.0000**	**518.2465**	**518.2465**	**0.1448**	**0.0000**	**521.8658**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0230	0.7488	0.2001	1.7900e-003	0.1032	2.0700e-003	0.1053	0.0272	1.9800e-003	0.0292	0.0000	171.7598	171.7598	9.8200e-003	0.0000	172.0054
Worker	0.1301	0.0850	0.9506	2.6100e-003	0.7527	1.9300e-003	0.7546	0.1904	1.7800e-003	0.1922	0.0000	236.0943	236.0943	6.2000e-003	0.0000	236.2492
Total	**0.1531**	**0.8338**	**1.1508**	**4.4000e-003**	**0.8559**	**4.0000e-003**	**0.8599**	**0.2176**	**3.7600e-003**	**0.2214**	**0.0000**	**407.8541**	**407.8541**	**0.0160**	**0.0000**	**408.2546**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3788	3.6421	3.7474	5.9700e-003		0.1964	0.1964		0.1830	0.1830	0.0000	518.2459	518.2459	0.1448	0.0000	521.8652
Total	**0.3788**	**3.6421**	**3.7474**	**5.9700e-003**		**0.1964**	**0.1964**		**0.1830**	**0.1830**	**0.0000**	**518.2459**	**518.2459**	**0.1448**	**0.0000**	**521.8652**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0230	0.7488	0.2001	1.7900e-003	0.0951	2.0700e-003	0.0971	0.0252	1.9800e-003	0.0272	0.0000	171.7598	171.7598	9.8200e-003	0.0000	172.0054
Worker	0.1301	0.0850	0.9506	2.6100e-003	0.6883	1.9300e-003	0.6903	0.1746	1.7800e-003	0.1764	0.0000	236.0943	236.0943	6.2000e-003	0.0000	236.2492
Total	**0.1531**	**0.8338**	**1.1508**	**4.4000e-003**	**0.7834**	**4.0000e-003**	**0.7874**	**0.1998**	**3.7600e-003**	**0.2036**	**0.0000**	**407.8541**	**407.8541**	**0.0160**	**0.0000**	**408.2546**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3652	3.4763	4.0227	6.4700e-003		0.1790	0.1790		0.1669	0.1669	0.0000	561.6011	561.6011	0.1564	0.0000	565.5104
Total	**0.3652**	**3.4763**	**4.0227**	**6.4700e-003**		**0.1790**	**0.1790**		**0.1669**	**0.1669**	**0.0000**	**561.6011**	**561.6011**	**0.1564**	**0.0000**	**565.5104**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0232	0.7702	0.1999	1.9200e-003	0.1118	1.9700e-003	0.1138	0.0295	1.8800e-003	0.0313	0.0000	184.4376	184.4376	0.0103	0.0000	184.6960
Worker	0.1317	0.0828	0.9464	2.7300e-003	0.8154	2.0300e-003	0.8175	0.2063	1.8700e-003	0.2082	0.0000	246.6076	246.6076	6.0300e-003	0.0000	246.7584
Total	**0.1548**	**0.8530**	**1.1463**	**4.6500e-003**	**0.9272**	**4.0000e-003**	**0.9312**	**0.2357**	**3.7500e-003**	**0.2395**	**0.0000**	**431.0451**	**431.0451**	**0.0164**	**0.0000**	**431.4543**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3652	3.4763	4.0227	6.4700e-003		0.1790	0.1790		0.1669	0.1669	0.0000	561.6004	561.6004	0.1564	0.0000	565.5098
Total	**0.3652**	**3.4763**	**4.0227**	**6.4700e-003**		**0.1790**	**0.1790**		**0.1669**	**0.1669**	**0.0000**	**561.6004**	**561.6004**	**0.1564**	**0.0000**	**565.5098**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0232	0.7702	0.1999	1.9200e-003	0.1030	1.9700e-003	0.1049	0.0273	1.8800e-003	0.0292	0.0000	184.4376	184.4376	0.0103	0.0000	184.6960
Worker	0.1317	0.0828	0.9464	2.7300e-003	0.7457	2.0300e-003	0.7477	0.1892	1.8700e-003	0.1910	0.0000	246.6076	246.6076	6.0300e-003	0.0000	246.7584
Total	**0.1548**	**0.8530**	**1.1463**	**4.6500e-003**	**0.8487**	**4.0000e-003**	**0.8527**	**0.2165**	**3.7500e-003**	**0.2202**	**0.0000**	**431.0451**	**431.0451**	**0.0164**	**0.0000**	**431.4543**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1120	1.0568	1.3256	2.1400e-003		0.0520	0.0520		0.0485	0.0485	0.0000	185.7916	185.7916	0.0516	0.0000	187.0806
Total	**0.1120**	**1.0568**	**1.3256**	**2.1400e-003**		**0.0520**	**0.0520**		**0.0485**	**0.0485**	**0.0000**	**185.7916**	**185.7916**	**0.0516**	**0.0000**	**187.0806**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0500e-003	0.2153	0.0585	6.2000e-004	0.0370	3.1000e-004	0.0373	9.7400e-003	3.0000e-004	0.0100	0.0000	59.8787	59.8787	3.0700e-003	0.0000	59.9553
Worker	0.0408	0.0246	0.2875	8.7000e-004	0.2697	6.6000e-004	0.2704	0.0682	6.0000e-004	0.0688	0.0000	78.5071	78.5071	1.7900e-003	0.0000	78.5518
Total	**0.0468**	**0.2400**	**0.3460**	**1.4900e-003**	**0.3067**	**9.7000e-004**	**0.3077**	**0.0780**	**9.0000e-004**	**0.0789**	**0.0000**	**138.3858**	**138.3858**	**4.8600e-003**	**0.0000**	**138.5072**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1120	1.0568	1.3256	2.1400e-003		0.0520	0.0520		0.0485	0.0485	0.0000	185.7914	185.7914	0.0516	0.0000	187.0804
Total	**0.1120**	**1.0568**	**1.3256**	**2.1400e-003**		**0.0520**	**0.0520**		**0.0485**	**0.0485**	**0.0000**	**185.7914**	**185.7914**	**0.0516**	**0.0000**	**187.0804**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0500e-003	0.2153	0.0585	6.2000e-004	0.0341	3.1000e-004	0.0344	9.0300e-003	3.0000e-004	9.3200e-003	0.0000	59.8787	59.8787	3.0700e-003	0.0000	59.9553
Worker	0.0408	0.0246	0.2875	8.7000e-004	0.2467	6.6000e-004	0.2473	0.0626	6.0000e-004	0.0632	0.0000	78.5071	78.5071	1.7900e-003	0.0000	78.5518
Total	**0.0468**	**0.2400**	**0.3460**	**1.4900e-003**	**0.2807**	**9.7000e-004**	**0.2817**	**0.0716**	**9.0000e-004**	**0.0725**	**0.0000**	**138.3858**	**138.3858**	**4.8600e-003**	**0.0000**	**138.5072**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0192	0.1336	0.1590	2.6000e-004		8.2300e-003	8.2300e-003		8.2300e-003	8.2300e-003	0.0000	22.3410	22.3410	1.5300e-003	0.0000	22.3793
Total	**0.8623**	**0.1336**	**0.1590**	**2.6000e-004**		**8.2300e-003**	**8.2300e-003**		**8.2300e-003**	**8.2300e-003**	**0.0000**	**22.3410**	**22.3410**	**1.5300e-003**	**0.0000**	**22.3793**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0173	0.0113	0.1262	3.5000e-004	0.0366	2.6000e-004	0.0369	9.7400e-003	2.4000e-004	9.9800e-003	0.0000	31.3504	31.3504	8.2000e-004	0.0000	31.3710
Total	**0.0173**	**0.0113**	**0.1262**	**3.5000e-004**	**0.0366**	**2.6000e-004**	**0.0369**	**9.7400e-003**	**2.4000e-004**	**9.9800e-003**	**0.0000**	**31.3504**	**31.3504**	**8.2000e-004**	**0.0000**	**31.3710**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0192	0.1336	0.1590	2.6000e-004		8.2300e-003	8.2300e-003		8.2300e-003	8.2300e-003	0.0000	22.3409	22.3409	1.5300e-003	0.0000	22.3793
Total	**0.8623**	**0.1336**	**0.1590**	**2.6000e-004**		**8.2300e-003**	**8.2300e-003**		**8.2300e-003**	**8.2300e-003**	**0.0000**	**22.3409**	**22.3409**	**1.5300e-003**	**0.0000**	**22.3793**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0173	0.0113	0.1262	3.5000e-004	0.0338	2.6000e-004	0.0340	9.0400e-003	2.4000e-004	9.2800e-003	0.0000	31.3504	31.3504	8.2000e-004	0.0000	31.3710
Total	**0.0173**	**0.0113**	**0.1262**	**3.5000e-004**	**0.0338**	**2.6000e-004**	**0.0340**	**9.0400e-003**	**2.4000e-004**	**9.2800e-003**	**0.0000**	**31.3504**	**31.3504**	**8.2000e-004**	**0.0000**	**31.3710**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.2527					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463
Total	**1.2793**	**0.1831**	**0.2358**	**3.9000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**33.1923**	**33.1923**	**2.1600e-003**	**0.0000**	**33.2463**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0240	0.0151	0.1723	5.0000e-004	0.0544	3.7000e-004	0.0548	0.0145	3.4000e-004	0.0148	0.0000	44.9094	44.9094	1.1000e-003	0.0000	44.9368
Total	**0.0240**	**0.0151**	**0.1723**	**5.0000e-004**	**0.0544**	**3.7000e-004**	**0.0548**	**0.0145**	**3.4000e-004**	**0.0148**	**0.0000**	**44.9094**	**44.9094**	**1.1000e-003**	**0.0000**	**44.9368**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.2527					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463
Total	**1.2793**	**0.1831**	**0.2358**	**3.9000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**33.1923**	**33.1923**	**2.1600e-003**	**0.0000**	**33.2463**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0240	0.0151	0.1723	5.0000e-004	0.0502	3.7000e-004	0.0506	0.0134	3.4000e-004	0.0138	0.0000	44.9094	44.9094	1.1000e-003	0.0000	44.9368
Total	**0.0240**	**0.0151**	**0.1723**	**5.0000e-004**	**0.0502**	**3.7000e-004**	**0.0506**	**0.0134**	**3.4000e-004**	**0.0138**	**0.0000**	**44.9094**	**44.9094**	**1.1000e-003**	**0.0000**	**44.9368**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7324					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0146	0.0990	0.1376	2.3000e-004		5.3800e-003	5.3800e-003		5.3800e-003	5.3800e-003	0.0000	19.4047	19.4047	1.1600e-003	0.0000	19.4338
Total	**0.7469**	**0.0990**	**0.1376**	**2.3000e-004**		**5.3800e-003**	**5.3800e-003**		**5.3800e-003**	**5.3800e-003**	**0.0000**	**19.4047**	**19.4047**	**1.1600e-003**	**0.0000**	**19.4338**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0131	7.9300e-003	0.0925	2.8000e-004	0.0318	2.1000e-004	0.0320	8.4600e-003	1.9000e-004	8.6600e-003	0.0000	25.2688	25.2688	5.8000e-004	0.0000	25.2832
Total	**0.0131**	**7.9300e-003**	**0.0925**	**2.8000e-004**	**0.0318**	**2.1000e-004**	**0.0320**	**8.4600e-003**	**1.9000e-004**	**8.6600e-003**	**0.0000**	**25.2688**	**25.2688**	**5.8000e-004**	**0.0000**	**25.2832**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7324					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0146	0.0990	0.1376	2.3000e-004		5.3800e-003	5.3800e-003		5.3800e-003	5.3800e-003	0.0000	19.4047	19.4047	1.1600e-003	0.0000	19.4337
Total	**0.7469**	**0.0990**	**0.1376**	**2.3000e-004**		**5.3800e-003**	**5.3800e-003**		**5.3800e-003**	**5.3800e-003**	**0.0000**	**19.4047**	**19.4047**	**1.1600e-003**	**0.0000**	**19.4337**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0131	7.9300e-003	0.0925	2.8000e-004	0.0293	2.1000e-004	0.0296	7.8500e-003	1.9000e-004	8.0500e-003	0.0000	25.2688	25.2688	5.8000e-004	0.0000	25.2832
Total	**0.0131**	**7.9300e-003**	**0.0925**	**2.8000e-004**	**0.0293**	**2.1000e-004**	**0.0296**	**7.8500e-003**	**1.9000e-004**	**8.0500e-003**	**0.0000**	**25.2688**	**25.2688**	**5.8000e-004**	**0.0000**	**25.2832**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4555	2.3639	5.3211	0.0251	2.9466	0.0128	2.9595	0.7890	0.0119	0.8009	0.0000	2,322.3684	2,322.3684	0.0846	0.0000	2,324.4842
Unmitigated	0.4555	2.3639	5.3211	0.0251	2.9466	0.0128	2.9595	0.7890	0.0119	0.8009	0.0000	2,322.3684	2,322.3684	0.0846	0.0000	2,324.4842

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.93	23.21	17.07	13,157	13,157
Retirement Community	556.80	470.96	452.40	1,359,070	1,359,070
Single Family Housing	2,570.40	2,675.70	2327.40	6,545,448	6,545,448
Total	3,129.13	3,169.87	2,796.87	7,917,674	7,917,674

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	901.4776	901.4776	0.0443	9.1600e-003	905.3153
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	901.4776	901.4776	0.0443	9.1600e-003	905.3153
NaturalGas Mitigated	0.0528	0.4508	0.1918	2.8800e-003		0.0364	0.0364		0.0364	0.0364	0.0000	522.0192	522.0192	0.0100	9.5700e-003	525.1212
NaturalGas Unmitigated	0.0528	0.4508	0.1918	2.8800e-003		0.0364	0.0364		0.0364	0.0364	0.0000	522.0192	522.0192	0.0100	9.5700e-003	525.1212

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	2.8069e+006	0.0151	0.1293	0.0550	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	149.7870	149.7870	2.8700e-003	2.7500e-003	150.6772
Single Family Housing	6.97537e+006	0.0376	0.3214	0.1368	2.0500e-003		0.0260	0.0260		0.0260	0.0260	0.0000	372.2321	372.2321	7.1300e-003	6.8200e-003	374.4441
Total		**0.0528**	**0.4508**	**0.1918**	**2.8800e-003**		**0.0365**	**0.0365**		**0.0365**	**0.0365**	**0.0000**	**522.0192**	**522.0192**	**0.0100**	**9.5700e-003**	**525.1213**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	2.8069e+006	0.0151	0.1293	0.0550	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	149.7870	149.7870	2.8700e-003	2.7500e-003	150.6772
Single Family Housing	6.97537e+006	0.0376	0.3214	0.1368	2.0500e-003		0.0260	0.0260		0.0260	0.0260	0.0000	372.2321	372.2321	7.1300e-003	6.8200e-003	374.4441
Total		**0.0528**	**0.4508**	**0.1918**	**2.8800e-003**		**0.0365**	**0.0365**		**0.0365**	**0.0365**	**0.0000**	**522.0192**	**522.0192**	**0.0100**	**9.5700e-003**	**525.1213**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Retirement Community	1.08692e+006	291.0326	0.0143	2.9600e-003	292.2715
Single Family Housing	2.27982e+006	610.4450	0.0300	6.2000e-003	613.0437
Total		**901.4776**	**0.0443**	**9.1600e-003**	**905.3153**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Retirement Community	1.08692e+006	291.0326	0.0143	2.9600e-003	292.2715
Single Family Housing	2.27982e+006	610.4450	0.0300	6.2000e-003	613.0437
Total		**901.4776**	**0.0443**	**9.1600e-003**	**905.3153**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.4386	0.0595	5.1588	2.7000e-004		0.0287	0.0287		0.0287	0.0287	0.0000	8.4565	8.4565	8.0500e-003	0.0000	8.6577
Unmitigated	3.4386	0.0595	5.1588	2.7000e-004		0.0287	0.0287		0.0287	0.0287	0.0000	8.4565	8.4565	8.0500e-003	0.0000	8.6577

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4525					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.8318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1543	0.0595	5.1588	2.7000e-004		0.0287	0.0287		0.0287	0.0287	0.0000	8.4565	8.4565	8.0500e-003	0.0000	8.6577
Total	**3.4386**	**0.0595**	**5.1588**	**2.7000e-004**		**0.0287**	**0.0287**		**0.0287**	**0.0287**	**0.0000**	**8.4565**	**8.4565**	**8.0500e-003**	**0.0000**	**8.6577**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4525					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.8318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1543	0.0595	5.1588	2.7000e-004		0.0287	0.0287		0.0287	0.0287	0.0000	8.4565	8.4565	8.0500e-003	0.0000	8.6577
Total	**3.4386**	**0.0595**	**5.1588**	**2.7000e-004**		**0.0287**	**0.0287**		**0.0287**	**0.0287**	**0.0000**	**8.4565**	**8.4565**	**8.0500e-003**	**0.0000**	**8.6577**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	75.6711	0.0430	0.0258	84.4389
Unmitigated	75.6711	0.0430	0.0258	84.4389

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 1.21531	1.1389	6.0000e-005	1.0000e-005	1.1438
Retirement Community	15.1157 / 9.52948	34.4452	0.0198	0.0119	38.4950
Single Family Housing	17.5916 / 11.0903	40.0870	0.0231	0.0139	44.8002
Total		**75.6711**	**0.0430**	**0.0258**	**84.4389**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 1.21531	1.1389	6.0000e-005	1.0000e-005	1.1438
Retirement Community	15.1157 / 9.52948	34.4452	0.0198	0.0119	38.4950
Single Family Housing	17.5916 / 11.0903	40.0870	0.0231	0.0139	44.8002
Total		**75.6711**	**0.0430**	**0.0258**	**84.4389**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	77.7313	4.5938	0.0000	192.5761
Unmitigated	77.7313	4.5938	0.0000	192.5761

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.09	0.0183	1.0800e-003	0.0000	0.0453
Retirement Community	106.72	21.6632	1.2803	0.0000	53.6697
Single Family Housing	276.12	56.0499	3.3125	0.0000	138.8612
Total		**77.7313**	**4.5938**	**0.0000**	**192.5761**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.09	0.0183	1.0800e-003	0.0000	0.0453
Retirement Community	106.72	21.6632	1.2803	0.0000	53.6697
Single Family Housing	276.12	56.0499	3.3125	0.0000	138.8612
Total		**77.7313**	**4.5938**	**0.0000**	**192.5761**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	528.6770	0.0000	0.0000	528.6770

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	530.1 / 284.8	-1,057.2430	0.0000	0.0000	-1,057.2430
Total		**-1,057.2430**	**0.0000**	**0.0000**	**-1,057.2430**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2240	1,585.9200	0.0000	0.0000	1,585.9200
Total		**1,585.9200**	**0.0000**	**0.0000**	**1,585.9200**

The Ranch - City of Rancho Cordova (Construction Only - Phase 1)

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	270.00	Dwelling Unit	28.61	486,000.00	767
Retirement Community	232.00	Dwelling Unit	28.62	232,000.00	463
City Park	1.02	Acre	1.23	44,576.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction state date of January 2020 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 1

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the applicant)

Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -
Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).

Grading - Assume 148.53 (res./comm./right of way) this phase (includes phases 1 and 2). Assume 1/2 of site is exported during this this phase (152,708 CY / 2 = 76,354 CY). Total net export for entire project (152,708 CY) as provided by applicant.

Architectural Coating - Interior VOC limts reduced from 100 g/L to 50 g/L based on SMAQMD Rule 443 that provides a VOC limit for flat coatings of 50 g/L.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust -

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%. NOTE: This model run reflects operational emissions only.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15

tblConstructionPhase	NumDays	40.00	64.00
tblConstructionPhase	NumDays	110.00	153.00
tblConstructionPhase	NumDays	75.00	65.00
tblConstructionPhase	NumDays	1,110.00	586.00
tblConstructionPhase	NumDays	75.00	587.00
tblConstructionPhase	PhaseEndDate	2/25/2020	3/30/2020
tblConstructionPhase	PhaseEndDate	7/28/2020	10/30/2020
tblConstructionPhase	PhaseEndDate	2/11/2025	1/29/2021
tblConstructionPhase	PhaseEndDate	10/29/2024	5/1/2023
tblConstructionPhase	PhaseEndDate	5/27/2025	8/1/2023
tblConstructionPhase	PhaseStartDate	2/26/2020	4/1/2020
tblConstructionPhase	PhaseStartDate	10/30/2024	11/1/2020
tblConstructionPhase	PhaseStartDate	7/29/2020	2/1/2021
tblConstructionPhase	PhaseStartDate	2/12/2025	5/2/2021
tblGrading	AcresOfGrading	382.50	148.53
tblLandUse	LandUseSquareFeet	44,431.20	44,576.40
tblLandUse	LotAcreage	87.66	28.61
tblLandUse	LotAcreage	46.40	28.62
tblLandUse	LotAcreage	1.02	1.23
tblLandUse	Population	721.00	767.00
tblLandUse	Population	619.00	463.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	HaulingTripNumber	0.00	9,544.00
tblTripsAndVMT	VendorTripNumber	61.00	0.00
tblTripsAndVMT	VendorTripNumber	61.00	0.00
tblTripsAndVMT	WorkerTripNumber	283.00	15.00
tblTripsAndVMT	WorkerTripNumber	283.00	15.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	5.0102	67.5510	36.5623	0.1130	18.2032	2.2382	20.4016	9.9670	2.0615	11.9895	0.0000	11,459.8154	11,459.8154	2.2472	0.0000	11,515.9945
2021	14.6830	38.7640	45.6792	0.0962	7.8441	1.7662	9.6103	1.9966	1.6525	3.6491	0.0000	9,473.0105	9,473.0105	1.5118	0.0000	9,510.8061
2022	14.2089	34.6567	44.3924	0.0951	7.8440	1.4919	9.3359	1.9966	1.3965	3.3931	0.0000	9,358.8113	9,358.8113	1.4968	0.0000	9,396.2304
2023	13.8653	31.4350	43.3006	0.0938	7.8440	1.3058	9.1497	1.9966	1.2219	3.2185	0.0000	9,227.5454	9,227.5454	1.4755	0.0000	9,264.4330
Maximum	**14.6830**	**67.5510**	**45.6792**	**0.1130**	**18.2032**	**2.2382**	**20.4016**	**9.9670**	**2.0615**	**11.9895**	**0.0000**	**11,459.8154**	**11,459.8154**	**2.2472**	**0.0000**	**11,515.9945**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	5.0102	67.5510	36.5623	0.1130	8.2560	2.2382	10.4544	4.5025	2.0615	6.5250	0.0000	11,459.8154	11,459.8154	2.2472	0.0000	11,515.9945
2021	14.6830	38.7640	45.6792	0.0962	7.1807	1.7662	8.9470	1.8338	1.6525	3.4863	0.0000	9,473.0105	9,473.0105	1.5118	0.0000	9,510.8061
2022	14.2089	34.6567	44.3924	0.0951	7.1807	1.4919	8.6726	1.8338	1.3965	3.2303	0.0000	9,358.8113	9,358.8113	1.4968	0.0000	9,396.2303
2023	13.8653	31.4350	43.3006	0.0938	7.1807	1.3058	8.4864	1.8338	1.2219	3.0557	0.0000	9,227.5454	9,227.5454	1.4755	0.0000	9,264.4330
Maximum	**14.6830**	**67.5510**	**45.6792**	**0.1130**	**8.2560**	**2.2382**	**10.4544**	**4.5025**	**2.0615**	**6.5250**	**0.0000**	**11,459.8154**	**11,459.8154**	**2.2472**	**0.0000**	**11,515.9945**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**28.60**	**0.00**	**24.61**	**37.31**	**0.00**	**26.75**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	19.2304	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297	0.0000	74.5735	74.5735	0.0710	0.0000	76.3482
Energy	0.2890	2.4699	1.0510	0.0158		0.1997	0.1997		0.1997	0.1997		3,153.0280	3,153.0280	0.0604	0.0578	3,171.7649
Mobile	3.3740	13.3563	34.9432	0.1564	17.6509	0.0741	17.7250	4.7125	0.0689	4.7814		15,939.6108	15,939.6108	0.5453		15,953.2438
Total	**22.8935**	**16.3024**	**77.2643**	**0.1744**	**17.6509**	**0.5035**	**18.1544**	**4.7125**	**0.4982**	**5.2107**	**0.0000**	**19,167.2123**	**19,167.2123**	**0.6767**	**0.0578**	**19,201.3568**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	19.2304	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297	0.0000	74.5735	74.5735	0.0710	0.0000	76.3482
Energy	0.2890	2.4699	1.0510	0.0158		0.1997	0.1997		0.1997	0.1997		3,153.0280	3,153.0280	0.0604	0.0578	3,171.7649
Mobile	3.3740	13.3563	34.9432	0.1564	17.6509	0.0741	17.7250	4.7125	0.0689	4.7814		15,939.6108	15,939.6108	0.5453		15,953.2438
Total	**22.8935**	**16.3024**	**77.2643**	**0.1744**	**17.6509**	**0.5035**	**18.1544**	**4.7125**	**0.4982**	**5.2107**	**0.0000**	**19,167.2123**	**19,167.2123**	**0.6767**	**0.0578**	**19,201.3568**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2020	3/30/2020	5	64	
2	Grading	Grading	4/1/2020	10/30/2020	5	153	
3	Paving	Paving	11/1/2020	1/29/2021	5	65	
4	Building Construction	Building Construction	2/1/2021	5/1/2023	5	586	
5	Architectural Coating	Architectural Coating	5/2/2021	8/1/2023	5	587	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 148.53

Acres of Paving: 0

Residential Indoor: 1,453,950; Residential Outdoor: 484,650; Non-Residential Indoor: 10,500; Non-Residential Outdoor: 3,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Ranch - City of Rancho Cordova (Construction Only - Phase 1) - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Pavers	2	8.00	130	0.42
Building Construction	Paving Equipment	2	8.00	132	0.36
Building Construction	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	9,544.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	283.00	61.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	57.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346
Total	**0.0776**	**0.0412**	**0.5877**	**1.4400e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**142.8323**	**142.8323**	**4.0900e-003**		**142.9346**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**8.1298**	**2.1974**	**10.3272**	**4.4688**	**2.0216**	**6.4904**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1262	9.5000e-004	0.1272	0.0337	8.8000e-004	0.0346		142.8323	142.8323	4.0900e-003		142.9346
Total	**0.0776**	**0.0412**	**0.5877**	**1.4400e-003**	**0.1262**	**9.5000e-004**	**0.1272**	**0.0337**	**8.8000e-004**	**0.0346**		**142.8323**	**142.8323**	**4.0900e-003**		**142.9346**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0516	0.0000	7.0516	3.4214	0.0000	3.4214			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.0516**	**2.1739**	**9.2255**	**3.4214**	**2.0000**	**5.4214**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4739	17.3077	3.9510	0.0494	1.0852	0.0633	1.1485	0.2970	0.0605	0.3575		5,295.2475	5,295.2475	0.3002		5,302.7525
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0862	0.0458	0.6530	1.5900e-003	0.1521	1.0600e-003	0.1532	0.0404	9.7000e-004	0.0413		158.7026	158.7026	4.5500e-003		158.8163
Total	**0.5601**	**17.3535**	**4.6040**	**0.0510**	**1.2374**	**0.0643**	**1.3017**	**0.3374**	**0.0615**	**0.3989**		**5,453.9501**	**5,453.9501**	**0.3048**		**5,461.5688**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1732	0.0000	3.1732	1.5396	0.0000	1.5396			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.1732**	**2.1739**	**5.3471**	**1.5396**	**2.0000**	**3.5396**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4739	17.3077	3.9510	0.0494	1.0110	0.0633	1.0743	0.2788	0.0605	0.3393		5,295.2475	5,295.2475	0.3002		5,302.7525
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0862	0.0458	0.6530	1.5900e-003	0.1402	1.0600e-003	0.1413	0.0374	9.7000e-004	0.0384		158.7026	158.7026	4.5500e-003		158.8163
Total	**0.5601**	**17.3535**	**4.6040**	**0.0510**	**1.1512**	**0.0643**	**1.2156**	**0.3162**	**0.0615**	**0.3777**		**5,453.9501**	**5,453.9501**	**0.3048**		**5,461.5688**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3566**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.4 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122
Total	**0.0647**	**0.0343**	**0.4898**	**1.2000e-003**	**0.1141**	**7.9000e-004**	**0.1149**	**0.0303**	**7.3000e-004**	**0.0310**		**119.0269**	**119.0269**	**3.4100e-003**		**119.1122**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3566**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.4 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0647	0.0343	0.4898	1.2000e-003	0.1052	7.9000e-004	0.1060	0.0281	7.3000e-004	0.0288		119.0269	119.0269	3.4100e-003		119.1122
Total	**0.0647**	**0.0343**	**0.4898**	**1.2000e-003**	**0.1052**	**7.9000e-004**	**0.1060**	**0.0281**	**7.3000e-004**	**0.0288**		**119.0269**	**119.0269**	**3.4100e-003**		**119.1122**

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.4 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	**0.0601**	**0.0308**	**0.4487**	**1.1500e-003**	**0.1141**	**7.7000e-004**	**0.1149**	**0.0303**	**7.1000e-004**	**0.0310**		**114.9719**	**114.9719**	**3.0600e-003**		**115.0483**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.4 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1052	7.7000e-004	0.1060	0.0281	7.1000e-004	0.0288		114.9719	114.9719	3.0600e-003		115.0483
Total	**0.0601**	**0.0308**	**0.4487**	**1.1500e-003**	**0.1052**	**7.7000e-004**	**0.1060**	**0.0281**	**7.1000e-004**	**0.0288**		**114.9719**	**114.9719**	**3.0600e-003**		**115.0483**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1565	30.3512	31.2284	0.0497		1.6363	1.6363		1.5248	1.5248		4,760.5748	4,760.5748	1.3299		4,793.8216
Total	**3.1565**	**30.3512**	**31.2284**	**0.0497**		**1.6363**	**1.6363**		**1.5248**	**1.5248**		**4,760.5748**	**4,760.5748**	**1.3299**		**4,793.8216**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1885	6.1269	1.5645	0.0151	0.8913	0.0168	0.9081	0.2343	0.0161	0.2504		1,595.0152	1,595.0152	0.0872		1,597.1946
Worker	1.2545	0.6422	9.3635	0.0241	6.5192	0.0161	6.5353	1.6473	0.0148	1.6621		2,399.0794	2,399.0794	0.0638		2,400.6754
Total	**1.4430**	**6.7690**	**10.9280**	**0.0392**	**7.4105**	**0.0329**	**7.4433**	**1.8816**	**0.0309**	**1.9125**		**3,994.0946**	**3,994.0946**	**0.1510**		**3,997.8699**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1565	30.3512	31.2284	0.0497		1.6363	1.6363		1.5248	1.5248	0.0000	4,760.5748	4,760.5748	1.3299		4,793.8216
Total	**3.1565**	**30.3512**	**31.2284**	**0.0497**		**1.6363**	**1.6363**		**1.5248**	**1.5248**	**0.0000**	**4,760.5748**	**4,760.5748**	**1.3299**		**4,793.8216**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1885	6.1269	1.5645	0.0151	0.8205	0.0168	0.8373	0.2169	0.0161	0.2330		1,595.0152	1,595.0152	0.0872		1,597.1946
Worker	1.2545	0.6422	9.3635	0.0241	5.9605	0.0161	5.9766	1.5102	0.0148	1.5250		2,399.0794	2,399.0794	0.0638		2,400.6754
Total	**1.4430**	**6.7690**	**10.9280**	**0.0392**	**6.7810**	**0.0329**	**6.8139**	**1.7271**	**0.0309**	**1.7580**		**3,994.0946**	**3,994.0946**	**0.1510**		**3,997.8699**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8091	26.7405	30.9439	0.0497		1.3769	1.3769		1.2836	1.2836		4,761.9939	4,761.9939	1.3260		4,795.1426
Total	**2.8091**	**26.7405**	**30.9439**	**0.0497**		**1.3769**	**1.3769**		**1.2836**	**1.2836**		**4,761.9939**	**4,761.9939**	**1.3260**		**4,795.1426**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1749	5.8249	1.4415	0.0149	0.8912	0.0147	0.9060	0.2343	0.0141	0.2484		1,581.1018	1,581.1018	0.0847		1,583.2183
Worker	1.1709	0.5776	8.6231	0.0232	6.5192	0.0157	6.5349	1.6473	0.0144	1.6617		2,313.0426	2,313.0426	0.0574		2,314.4771
Total	**1.3459**	**6.4025**	**10.0646**	**0.0381**	**7.4104**	**0.0304**	**7.4408**	**1.8816**	**0.0285**	**1.9101**		**3,894.1443**	**3,894.1443**	**0.1420**		**3,897.6954**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8091	26.7405	30.9439	0.0497		1.3769	1.3769		1.2836	1.2836	0.0000	4,761.9939	4,761.9939	1.3260		4,795.1426
Total	**2.8091**	**26.7405**	**30.9439**	**0.0497**		**1.3769**	**1.3769**		**1.2836**	**1.2836**	**0.0000**	**4,761.9939**	**4,761.9939**	**1.3260**		**4,795.1426**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1749	5.8249	1.4415	0.0149	0.8205	0.0147	0.8352	0.2169	0.0141	0.2310		1,581.1018	1,581.1018	0.0847		1,583.2183
Worker	1.1709	0.5776	8.6231	0.0232	5.9605	0.0157	5.9762	1.5102	0.0144	1.5246		2,313.0426	2,313.0426	0.0574		2,314.4771
Total	**1.3459**	**6.4025**	**10.0646**	**0.0381**	**6.7810**	**0.0304**	**6.8114**	**1.7271**	**0.0285**	**1.7556**		**3,894.1443**	**3,894.1443**	**0.1420**		**3,897.6954**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6055	24.5765	30.8282	0.0498		1.2099	1.2099		1.1278	1.1278		4,762.7941	4,762.7941	1.3218		4,795.8396
Total	**2.6055**	**24.5765**	**30.8282**	**0.0498**		**1.2099**	**1.2099**		**1.1278**	**1.1278**		**4,762.7941**	**4,762.7941**	**1.3218**		**4,795.8396**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1382	4.9409	1.2787	0.0146	0.8912	6.9400e-003	0.8981	0.2343	6.6400e-003	0.2409		1,551.8329	1,551.8329	0.0760		1,553.7338
Worker	1.0945	0.5199	7.9372	0.0224	6.5192	0.0153	6.5345	1.6473	0.0141	1.6614		2,226.0817	2,226.0817	0.0514		2,227.3677
Total	**1.2327**	**5.4608**	**9.2159**	**0.0370**	**7.4104**	**0.0222**	**7.4326**	**1.8816**	**0.0207**	**1.9023**		**3,777.9146**	**3,777.9146**	**0.1275**		**3,781.1015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6055	24.5765	30.8282	0.0498		1.2099	1.2099		1.1278	1.1278	0.0000	4,762.7941	4,762.7941	1.3218		4,795.8396
Total	**2.6055**	**24.5765**	**30.8282**	**0.0498**		**1.2099**	**1.2099**		**1.1278**	**1.1278**	**0.0000**	**4,762.7941**	**4,762.7941**	**1.3218**		**4,795.8396**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1382	4.9409	1.2787	0.0146	0.8204	6.9400e-003	0.8274	0.2169	6.6400e-003	0.2235		1,551.8329	1,551.8329	0.0760		1,553.7338
Worker	1.0945	0.5199	7.9372	0.0224	5.9605	0.0153	5.9758	1.5102	0.0141	1.5243		2,226.0817	2,226.0817	0.0514		2,227.3677
Total	**1.2327**	**5.4608**	**9.2159**	**0.0370**	**6.7810**	**0.0222**	**6.8032**	**1.7271**	**0.0207**	**1.7478**		**3,777.9146**	**3,777.9146**	**0.1275**		**3,781.1015**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**9.8551**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2285	0.1169	1.7052	4.3900e-003	0.4336	2.9300e-003	0.4365	0.1150	2.7000e-003	0.1177		436.8931	436.8931	0.0116		437.1837
Total	**0.2285**	**0.1169**	**1.7052**	**4.3900e-003**	**0.4336**	**2.9300e-003**	**0.4365**	**0.1150**	**2.7000e-003**	**0.1177**		**436.8931**	**436.8931**	**0.0116**		**437.1837**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**9.8551**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2285	0.1169	1.7052	4.3900e-003	0.3997	2.9300e-003	0.4026	0.1067	2.7000e-003	0.1094		436.8931	436.8931	0.0116		437.1837
Total	**0.2285**	**0.1169**	**1.7052**	**4.3900e-003**	**0.3997**	**2.9300e-003**	**0.4026**	**0.1067**	**2.7000e-003**	**0.1094**		**436.8931**	**436.8931**	**0.0116**		**437.1837**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**9.8407**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2132	0.1052	1.5703	4.2300e-003	0.4336	2.8500e-003	0.4365	0.1150	2.6300e-003	0.1176		421.2250	421.2250	0.0105		421.4863
Total	**0.2132**	**0.1052**	**1.5703**	**4.2300e-003**	**0.4336**	**2.8500e-003**	**0.4365**	**0.1150**	**2.6300e-003**	**0.1176**		**421.2250**	**421.2250**	**0.0105**		**421.4863**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**9.8407**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2132	0.1052	1.5703	4.2300e-003	0.3997	2.8500e-003	0.4025	0.1067	2.6300e-003	0.1093		421.2250	421.2250	0.0105		421.4863
Total	**0.2132**	**0.1052**	**1.5703**	**4.2300e-003**	**0.3997**	**2.8500e-003**	**0.4025**	**0.1067**	**2.6300e-003**	**0.1093**		**421.2250**	**421.2250**	**0.0105**		**421.4863**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**9.8278**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1993	0.0947	1.4454	4.0700e-003	0.4336	2.7800e-003	0.4364	0.1150	2.5600e-003	0.1176		405.3887	405.3887	9.3700e-003		405.6229
Total	**0.1993**	**0.0947**	**1.4454**	**4.0700e-003**	**0.4336**	**2.7800e-003**	**0.4364**	**0.1150**	**2.5600e-003**	**0.1176**		**405.3887**	**405.3887**	**9.3700e-003**		**405.6229**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**9.8278**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1993	0.0947	1.4454	4.0700e-003	0.3997	2.7800e-003	0.4025	0.1067	2.5600e-003	0.1093		405.3887	405.3887	9.3700e-003		405.6229
Total	**0.1993**	**0.0947**	**1.4454**	**4.0700e-003**	**0.3997**	**2.7800e-003**	**0.4025**	**0.1067**	**2.5600e-003**	**0.1093**		**405.3887**	**405.3887**	**9.3700e-003**		**405.6229**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.3740	13.3563	34.9432	0.1564	17.6509	0.0741	17.7250	4.7125	0.0689	4.7814		15,939.6108	15,939.6108	0.5453		15,953.2438
Unmitigated	3.3740	13.3563	34.9432	0.1564	17.6509	0.0741	17.7250	4.7125	0.0689	4.7814		15,939.6108	15,939.6108	0.5453		15,953.2438

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.93	23.21	17.07	13,157	13,157
Retirement Community	556.80	470.96	452.40	1,359,070	1,359,070
Single Family Housing	2,570.40	2,675.70	2327.40	6,545,448	6,545,448
Total	3,129.13	3,169.87	2,796.87	7,917,674	7,917,674

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2890	2.4699	1.0510	0.0158		0.1997	0.1997		0.1997	0.1997		3,153.0280	3,153.0280	0.0604	0.0578	3,171.7649
NaturalGas Unmitigated	0.2890	2.4699	1.0510	0.0158		0.1997	0.1997		0.1997	0.1997		3,153.0280	3,153.0280	0.0604	0.0578	3,171.7649

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	7690.15	0.0829	0.7087	0.3016	4.5200e-003		0.0573	0.0573		0.0573	0.0573		904.7230	904.7230	0.0173	0.0166	910.0993
Single Family Housing	19110.6	0.2061	1.7612	0.7494	0.0112		0.1424	0.1424		0.1424	0.1424		2,248.3050	2,248.3050	0.0431	0.0412	2,261.6656
Total		**0.2890**	**2.4699**	**1.0510**	**0.0158**		**0.1997**	**0.1997**		**0.1997**	**0.1997**		**3,153.0280**	**3,153.0280**	**0.0604**	**0.0578**	**3,171.7649**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	7.69015	0.0829	0.7087	0.3016	4.5200e-003		0.0573	0.0573		0.0573	0.0573		904.7230	904.7230	0.0173	0.0166	910.0993
Single Family Housing	19.1106	0.2061	1.7612	0.7494	0.0112		0.1424	0.1424		0.1424	0.1424		2,248.3050	2,248.3050	0.0431	0.0412	2,261.6656
Total		**0.2890**	**2.4699**	**1.0510**	**0.0158**		**0.1997**	**0.1997**		**0.1997**	**0.1997**		**3,153.0280**	**3,153.0280**	**0.0604**	**0.0578**	**3,171.7649**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	19.2304	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297	0.0000	74.5735	74.5735	0.0710	0.0000	76.3482
Unmitigated	19.2304	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297	0.0000	74.5735	74.5735	0.0710	0.0000	76.3482

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4795					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.5169					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2340	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297		74.5735	74.5735	0.0710		76.3482
Total	**19.2304**	**0.4761**	**41.2702**	**2.1900e-003**		**0.2297**	**0.2297**		**0.2297**	**0.2297**	**0.0000**	**74.5735**	**74.5735**	**0.0710**	**0.0000**	**76.3482**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4795					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.5169					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2340	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297		74.5735	74.5735	0.0710		76.3482
Total	**19.2304**	**0.4761**	**41.2702**	**2.1900e-003**		**0.2297**	**0.2297**		**0.2297**	**0.2297**	**0.0000**	**74.5735**	**74.5735**	**0.0710**	**0.0000**	**76.3482**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Construction Only - Phase 1)

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	270.00	Dwelling Unit	28.61	486,000.00	767
Retirement Community	232.00	Dwelling Unit	28.62	232,000.00	463
City Park	1.02	Acre	1.23	44,576.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction state date of January 2020 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 1

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the applicant)

Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -
Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).

Grading - Assume 148.53 (res./comm./right of way) this phase (includes phases 1 and 2). Assume 1/2 of site is exported during this this phase (152,708 CY / 2 = 76,354 CY). Total net export for entire project (152,708 CY) as provided by applicant.

Architectural Coating - Interior VOC limts reduced from 100 g/L to 50 g/L based on SMAQMD Rule 443 that provides a VOC limit for flat coatings of 50 g/L.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust -

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%. NOTE: This model run reflects operational emissions only.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15

tblConstructionPhase	NumDays	40.00	64.00
tblConstructionPhase	NumDays	110.00	153.00
tblConstructionPhase	NumDays	75.00	65.00
tblConstructionPhase	NumDays	1,110.00	586.00
tblConstructionPhase	NumDays	75.00	587.00
tblConstructionPhase	PhaseEndDate	2/25/2020	3/30/2020
tblConstructionPhase	PhaseEndDate	7/28/2020	10/30/2020
tblConstructionPhase	PhaseEndDate	2/11/2025	1/29/2021
tblConstructionPhase	PhaseEndDate	10/29/2024	5/1/2023
tblConstructionPhase	PhaseEndDate	5/27/2025	8/1/2023
tblConstructionPhase	PhaseStartDate	2/26/2020	4/1/2020
tblConstructionPhase	PhaseStartDate	10/30/2024	11/1/2020
tblConstructionPhase	PhaseStartDate	7/29/2020	2/1/2021
tblConstructionPhase	PhaseStartDate	2/12/2025	5/2/2021
tblGrading	AcresOfGrading	382.50	148.53
tblLandUse	LandUseSquareFeet	44,431.20	44,576.40
tblLandUse	LotAcreage	87.66	28.61
tblLandUse	LotAcreage	46.40	28.62
tblLandUse	LotAcreage	1.02	1.23
tblLandUse	Population	721.00	767.00
tblLandUse	Population	619.00	463.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	HaulingTripNumber	0.00	9,544.00
tblTripsAndVMT	VendorTripNumber	61.00	0.00
tblTripsAndVMT	VendorTripNumber	61.00	0.00
tblTripsAndVMT	WorkerTripNumber	283.00	15.00
tblTripsAndVMT	WorkerTripNumber	283.00	15.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	5.0184	68.2687	36.7453	0.1121	18.2032	2.2403	20.4016	9.9670	2.0635	11.9895	0.0000	11,359.1594	11,359.1594	2.2605	0.0000	11,415.6713
2021	14.5769	39.0432	44.3015	0.0924	7.8441	1.7673	9.6114	1.9966	1.6535	3.6501	0.0000	9,086.7181	9,086.7181	1.5100	0.0000	9,124.4673
2022	14.1122	34.9022	43.0883	0.0914	7.8440	1.4928	9.3369	1.9966	1.3974	3.3940	0.0000	8,985.1495	8,985.1495	1.4955	0.0000	9,022.5377
2023	13.7769	31.6284	42.0463	0.0902	7.8440	1.3064	9.1503	1.9966	1.2225	3.2191	0.0000	8,867.3950	8,867.3950	1.4740	0.0000	8,904.2455
Maximum	**14.5769**	**68.2687**	**44.3015**	**0.1121**	**18.2032**	**2.2403**	**20.4016**	**9.9670**	**2.0635**	**11.9895**	**0.0000**	**11,359.1594**	**11,359.1594**	**2.2605**	**0.0000**	**11,415.6713**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	5.0184	68.2687	36.7453	0.1121	8.2560	2.2403	10.4544	4.5025	2.0635	6.5250	0.0000	11,359.1594	11,359.1594	2.2605	0.0000	11,415.6713
2021	14.5769	39.0432	44.3015	0.0924	7.1807	1.7673	8.9480	1.8338	1.6535	3.4873	0.0000	9,086.7181	9,086.7181	1.5100	0.0000	9,124.4673
2022	14.1122	34.9022	43.0883	0.0914	7.1807	1.4928	8.6735	1.8338	1.3974	3.2312	0.0000	8,985.1495	8,985.1495	1.4955	0.0000	9,022.5377
2023	13.7769	31.6284	42.0463	0.0902	7.1807	1.3064	8.4870	1.8338	1.2225	3.0563	0.0000	8,867.3949	8,867.3949	1.4740	0.0000	8,904.2455
Maximum	**14.5769**	**68.2687**	**44.3015**	**0.1121**	**8.2560**	**2.2403**	**10.4544**	**4.5025**	**2.0635**	**6.5250**	**0.0000**	**11,359.1594**	**11,359.1594**	**2.2605**	**0.0000**	**11,415.6713**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**28.60**	**0.00**	**24.61**	**37.31**	**0.00**	**26.75**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	19.2304	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297	0.0000	74.5735	74.5735	0.0710	0.0000	76.3482
Energy	0.2890	2.4699	1.0510	0.0158		0.1997	0.1997		0.1997	0.1997		3,153.0280	3,153.0280	0.0604	0.0578	3,171.7649
Mobile	2.4533	13.8980	31.5599	0.1419	17.6509	0.0745	17.7253	4.7125	0.0692	4.7817		14,485.7439	14,485.7439	0.5530		14,499.5686
Total	**21.9728**	**16.8440**	**73.8811**	**0.1599**	**17.6509**	**0.5038**	**18.1547**	**4.7125**	**0.4986**	**5.2111**	**0.0000**	**17,713.3454**	**17,713.3454**	**0.6844**	**0.0578**	**17,747.6817**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	19.2304	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297	0.0000	74.5735	74.5735	0.0710	0.0000	76.3482
Energy	0.2890	2.4699	1.0510	0.0158		0.1997	0.1997		0.1997	0.1997		3,153.0280	3,153.0280	0.0604	0.0578	3,171.7649
Mobile	2.4533	13.8980	31.5599	0.1419	17.6509	0.0745	17.7253	4.7125	0.0692	4.7817		14,485.7439	14,485.7439	0.5530		14,499.5686
Total	**21.9728**	**16.8440**	**73.8811**	**0.1599**	**17.6509**	**0.5038**	**18.1547**	**4.7125**	**0.4986**	**5.2111**	**0.0000**	**17,713.3454**	**17,713.3454**	**0.6844**	**0.0578**	**17,747.6817**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2020	3/30/2020	5	64	
2	Grading	Grading	4/1/2020	10/30/2020	5	153	
3	Paving	Paving	11/1/2020	1/29/2021	5	65	
4	Building Construction	Building Construction	2/1/2021	5/1/2023	5	586	
5	Architectural Coating	Architectural Coating	5/2/2021	8/1/2023	5	587	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 148.53

Acres of Paving: 0

Residential Indoor: 1,453,950; Residential Outdoor: 484,650; Non-Residential Indoor: 10,500; Non-Residential Outdoor: 3,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Ranch - City of Rancho Cordova (Construction Only - Phase 1) - Sacramento County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Pavers	2	8.00	130	0.42
Building Construction	Paving Equipment	2	8.00	132	0.36
Building Construction	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	9,544.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	283.00	61.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	57.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0714	0.0509	0.5032	1.2600e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		125.4399	125.4399	3.6100e-003		125.5301
Total	**0.0714**	**0.0509**	**0.5032**	**1.2600e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**125.4399**	**125.4399**	**3.6100e-003**		**125.5301**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**8.1298**	**2.1974**	**10.3272**	**4.4688**	**2.0216**	**6.4904**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0714	0.0509	0.5032	1.2600e-003	0.1262	9.5000e-004	0.1272	0.0337	8.8000e-004	0.0346		125.4399	125.4399	3.6100e-003		125.5301
Total	**0.0714**	**0.0509**	**0.5032**	**1.2600e-003**	**0.1262**	**9.5000e-004**	**0.1272**	**0.0337**	**8.8000e-004**	**0.0346**		**125.4399**	**125.4399**	**3.6100e-003**		**125.5301**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0516	0.0000	7.0516	3.4214	0.0000	3.4214			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.0516**	**2.1739**	**9.2255**	**3.4214**	**2.0000**	**5.4214**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4889	18.0147	4.2279	0.0487	1.0852	0.0654	1.1506	0.2970	0.0625	0.3595		5,213.9165	5,213.9165	0.3141		5,221.7677
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0794	0.0565	0.5591	1.4000e-003	0.1521	1.0600e-003	0.1532	0.0404	9.7000e-004	0.0413		139.3777	139.3777	4.0100e-003		139.4779
Total	**0.5683**	**18.0712**	**4.7870**	**0.0501**	**1.2374**	**0.0664**	**1.3038**	**0.3374**	**0.0635**	**0.4009**		**5,353.2942**	**5,353.2942**	**0.3181**		**5,361.2456**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1732	0.0000	3.1732	1.5396	0.0000	1.5396			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.1732**	**2.1739**	**5.3471**	**1.5396**	**2.0000**	**3.5396**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4889	18.0147	4.2279	0.0487	1.0110	0.0654	1.0764	0.2788	0.0625	0.3413		5,213.9165	5,213.9165	0.3141		5,221.7677
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0794	0.0565	0.5591	1.4000e-003	0.1402	1.0600e-003	0.1413	0.0374	9.7000e-004	0.0384		139.3777	139.3777	4.0100e-003		139.4779
Total	**0.5683**	**18.0712**	**4.7870**	**0.0501**	**1.1512**	**0.0664**	**1.2177**	**0.3162**	**0.0635**	**0.3797**		**5,353.2942**	**5,353.2942**	**0.3181**		**5,361.2456**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3566**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.4 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0595	0.0424	0.4194	1.0500e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		104.5333	104.5333	3.0100e-003		104.6084
Total	**0.0595**	**0.0424**	**0.4194**	**1.0500e-003**	**0.1141**	**7.9000e-004**	**0.1149**	**0.0303**	**7.3000e-004**	**0.0310**		**104.5333**	**104.5333**	**3.0100e-003**		**104.6084**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3566**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.4 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0595	0.0424	0.4194	1.0500e-003	0.1052	7.9000e-004	0.1060	0.0281	7.3000e-004	0.0288		104.5333	104.5333	3.0100e-003		104.6084
Total	**0.0595**	**0.0424**	**0.4194**	**1.0500e-003**	**0.1052**	**7.9000e-004**	**0.1060**	**0.0281**	**7.3000e-004**	**0.0288**		**104.5333**	**104.5333**	**3.0100e-003**		**104.6084**

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.4 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0554	0.0380	0.3827	1.0100e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		100.9746	100.9746	2.6900e-003		101.0419
Total	**0.0554**	**0.0380**	**0.3827**	**1.0100e-003**	**0.1141**	**7.7000e-004**	**0.1149**	**0.0303**	**7.1000e-004**	**0.0310**		**100.9746**	**100.9746**	**2.6900e-003**		**101.0419**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.4 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0554	0.0380	0.3827	1.0100e-003	0.1052	7.7000e-004	0.1060	0.0281	7.1000e-004	0.0288		100.9746	100.9746	2.6900e-003		101.0419
Total	**0.0554**	**0.0380**	**0.3827**	**1.0100e-003**	**0.1052**	**7.7000e-004**	**0.1060**	**0.0281**	**7.1000e-004**	**0.0288**		**100.9746**	**100.9746**	**2.6900e-003**		**101.0419**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1565	30.3512	31.2284	0.0497		1.6363	1.6363		1.5248	1.5248		4,760.5748	4,760.5748	1.3299		4,793.8216
Total	**3.1565**	**30.3512**	**31.2284**	**0.0497**		**1.6363**	**1.6363**		**1.5248**	**1.5248**		**4,760.5748**	**4,760.5748**	**1.3299**		**4,793.8216**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1997	6.2276	1.8145	0.0147	0.8913	0.0179	0.9091	0.2343	0.0171	0.2514		1,553.9876	1,553.9876	0.0944		1,556.3477
Worker	1.1552	0.7931	7.9866	0.0212	6.5192	0.0161	6.5353	1.6473	0.0148	1.6621		2,107.0041	2,107.0041	0.0562		2,108.4078
Total	**1.3549**	**7.0208**	**9.8011**	**0.0358**	**7.4105**	**0.0339**	**7.4444**	**1.8816**	**0.0319**	**1.9135**		**3,660.9917**	**3,660.9917**	**0.1506**		**3,664.7556**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1565	30.3512	31.2284	0.0497		1.6363	1.6363		1.5248	1.5248	0.0000	4,760.5748	4,760.5748	1.3299		4,793.8216
Total	**3.1565**	**30.3512**	**31.2284**	**0.0497**		**1.6363**	**1.6363**		**1.5248**	**1.5248**	**0.0000**	**4,760.5748**	**4,760.5748**	**1.3299**		**4,793.8216**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1997	6.2276	1.8145	0.0147	0.8205	0.0179	0.8384	0.2169	0.0171	0.2340		1,553.9876	1,553.9876	0.0944		1,556.3477
Worker	1.1552	0.7931	7.9866	0.0212	5.9605	0.0161	5.9766	1.5102	0.0148	1.5250		2,107.0041	2,107.0041	0.0562		2,108.4078
Total	**1.3549**	**7.0208**	**9.8011**	**0.0358**	**6.7810**	**0.0339**	**6.8150**	**1.7271**	**0.0319**	**1.7590**		**3,660.9917**	**3,660.9917**	**0.1506**		**3,664.7556**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8091	26.7405	30.9439	0.0497		1.3769	1.3769		1.2836	1.2836		4,761.9939	4,761.9939	1.3260		4,795.1426
Total	**2.8091**	**26.7405**	**30.9439**	**0.0497**		**1.3769**	**1.3769**		**1.2836**	**1.2836**		**4,761.9939**	**4,761.9939**	**1.3260**		**4,795.1426**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1853	5.9103	1.6734	0.0145	0.8912	0.0157	0.9069	0.2343	0.0150	0.2493		1,540.1798	1,540.1798	0.0917		1,542.4729
Worker	1.0804	0.7130	7.3238	0.0204	6.5192	0.0157	6.5349	1.6473	0.0144	1.6617		2,031.5627	2,031.5627	0.0504		2,032.8217
Total	**1.2657**	**6.6234**	**8.9972**	**0.0349**	**7.4104**	**0.0313**	**7.4418**	**1.8816**	**0.0294**	**1.9110**		**3,571.7425**	**3,571.7425**	**0.1421**		**3,575.2946**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8091	26.7405	30.9439	0.0497		1.3769	1.3769		1.2836	1.2836	0.0000	4,761.9939	4,761.9939	1.3260		4,795.1426
Total	**2.8091**	**26.7405**	**30.9439**	**0.0497**		**1.3769**	**1.3769**		**1.2836**	**1.2836**	**0.0000**	**4,761.9939**	**4,761.9939**	**1.3260**		**4,795.1426**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1853	5.9103	1.6734	0.0145	0.8205	0.0157	0.8361	0.2169	0.0150	0.2319		1,540.1798	1,540.1798	0.0917		1,542.4729
Worker	1.0804	0.7130	7.3238	0.0204	5.9605	0.0157	5.9762	1.5102	0.0144	1.5246		2,031.5627	2,031.5627	0.0504		2,032.8217
Total	**1.2657**	**6.6234**	**8.9972**	**0.0349**	**6.7810**	**0.0313**	**6.8123**	**1.7271**	**0.0294**	**1.7565**		**3,571.7425**	**3,571.7425**	**0.1421**		**3,575.2946**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6055	24.5765	30.8282	0.0498		1.2099	1.2099		1.1278	1.1278		4,762.7941	4,762.7941	1.3218		4,795.8396
Total	**2.6055**	**24.5765**	**30.8282**	**0.0498**		**1.2099**	**1.2099**		**1.1278**	**1.1278**		**4,762.7941**	**4,762.7941**	**1.3218**		**4,795.8396**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1469	4.9907	1.4747	0.0143	0.8912	7.5500e-003	0.8987	0.2343	7.2200e-003	0.2415		1,511.7736	1,511.7736	0.0821		1,513.8268
Worker	1.0123	0.6414	6.7103	0.0196	6.5192	0.0153	6.5345	1.6473	0.0141	1.6614		1,955.3019	1,955.3019	0.0450		1,956.4277
Total	**1.1592**	**5.6321**	**8.1850**	**0.0339**	**7.4104**	**0.0228**	**7.4332**	**1.8816**	**0.0213**	**1.9029**		**3,467.0755**	**3,467.0755**	**0.1272**		**3,470.2545**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6055	24.5765	30.8282	0.0498		1.2099	1.2099		1.1278	1.1278	0.0000	4,762.7941	4,762.7941	1.3218		4,795.8396
Total	**2.6055**	**24.5765**	**30.8282**	**0.0498**		**1.2099**	**1.2099**		**1.1278**	**1.1278**	**0.0000**	**4,762.7941**	**4,762.7941**	**1.3218**		**4,795.8396**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1469	4.9907	1.4747	0.0143	0.8204	7.5500e-003	0.8280	0.2169	7.2200e-003	0.2241		1,511.7736	1,511.7736	0.0821		1,513.8268
Worker	1.0123	0.6414	6.7103	0.0196	5.9605	0.0153	5.9758	1.5102	0.0141	1.5243		1,955.3019	1,955.3019	0.0450		1,956.4277
Total	**1.1592**	**5.6321**	**8.1850**	**0.0339**	**6.7810**	**0.0228**	**6.8038**	**1.7271**	**0.0213**	**1.7484**		**3,467.0755**	**3,467.0755**	**0.1272**		**3,470.2545**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**9.8551**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2104	0.1444	1.4544	3.8500e-003	0.4336	2.9300e-003	0.4365	0.1150	2.7000e-003	0.1177		383.7036	383.7036	0.0102		383.9593
Total	**0.2104**	**0.1444**	**1.4544**	**3.8500e-003**	**0.4336**	**2.9300e-003**	**0.4365**	**0.1150**	**2.7000e-003**	**0.1177**		**383.7036**	**383.7036**	**0.0102**		**383.9593**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**9.8551**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2104	0.1444	1.4544	3.8500e-003	0.3997	2.9300e-003	0.4026	0.1067	2.7000e-003	0.1094		383.7036	383.7036	0.0102		383.9593
Total	**0.2104**	**0.1444**	**1.4544**	**3.8500e-003**	**0.3997**	**2.9300e-003**	**0.4026**	**0.1067**	**2.7000e-003**	**0.1094**		**383.7036**	**383.7036**	**0.0102**		**383.9593**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**9.8407**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1967	0.1299	1.3337	3.7100e-003	0.4336	2.8500e-003	0.4365	0.1150	2.6300e-003	0.1176		369.9651	369.9651	9.1700e-003		370.1944
Total	**0.1967**	**0.1299**	**1.3337**	**3.7100e-003**	**0.4336**	**2.8500e-003**	**0.4365**	**0.1150**	**2.6300e-003**	**0.1176**		**369.9651**	**369.9651**	**9.1700e-003**		**370.1944**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**9.8407**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1967	0.1299	1.3337	3.7100e-003	0.3997	2.8500e-003	0.4025	0.1067	2.6300e-003	0.1093		369.9651	369.9651	9.1700e-003		370.1944
Total	**0.1967**	**0.1299**	**1.3337**	**3.7100e-003**	**0.3997**	**2.8500e-003**	**0.4025**	**0.1067**	**2.6300e-003**	**0.1093**		**369.9651**	**369.9651**	**9.1700e-003**		**370.1944**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**9.8278**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1844	0.1168	1.2220	3.5700e-003	0.4336	2.7800e-003	0.4364	0.1150	2.5600e-003	0.1176		356.0773	356.0773	8.2000e-003		356.2824
Total	**0.1844**	**0.1168**	**1.2220**	**3.5700e-003**	**0.4336**	**2.7800e-003**	**0.4364**	**0.1150**	**2.5600e-003**	**0.1176**		**356.0773**	**356.0773**	**8.2000e-003**		**356.2824**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.6362					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**9.8278**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1844	0.1168	1.2220	3.5700e-003	0.3997	2.7800e-003	0.4025	0.1067	2.5600e-003	0.1093		356.0773	356.0773	8.2000e-003		356.2824
Total	**0.1844**	**0.1168**	**1.2220**	**3.5700e-003**	**0.3997**	**2.7800e-003**	**0.4025**	**0.1067**	**2.5600e-003**	**0.1093**		**356.0773**	**356.0773**	**8.2000e-003**		**356.2824**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.4533	13.8980	31.5599	0.1419	17.6509	0.0745	17.7253	4.7125	0.0692	4.7817		14,485.7439	14,485.7439	0.5530		14,499.5686
Unmitigated	2.4533	13.8980	31.5599	0.1419	17.6509	0.0745	17.7253	4.7125	0.0692	4.7817		14,485.7439	14,485.7439	0.5530		14,499.5686

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.93	23.21	17.07	13,157	13,157
Retirement Community	556.80	470.96	452.40	1,359,070	1,359,070
Single Family Housing	2,570.40	2,675.70	2327.40	6,545,448	6,545,448
Total	3,129.13	3,169.87	2,796.87	7,917,674	7,917,674

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2890	2.4699	1.0510	0.0158		0.1997	0.1997		0.1997	0.1997		3,153.0280	3,153.0280	0.0604	0.0578	3,171.7649
NaturalGas Unmitigated	0.2890	2.4699	1.0510	0.0158		0.1997	0.1997		0.1997	0.1997		3,153.0280	3,153.0280	0.0604	0.0578	3,171.7649

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	7690.15	0.0829	0.7087	0.3016	4.5200e-003		0.0573	0.0573		0.0573	0.0573		904.7230	904.7230	0.0173	0.0166	910.0993
Single Family Housing	19110.6	0.2061	1.7612	0.7494	0.0112		0.1424	0.1424		0.1424	0.1424		2,248.3050	2,248.3050	0.0431	0.0412	2,261.6656
Total		**0.2890**	**2.4699**	**1.0510**	**0.0158**		**0.1997**	**0.1997**		**0.1997**	**0.1997**		**3,153.0280**	**3,153.0280**	**0.0604**	**0.0578**	**3,171.7649**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	7.69015	0.0829	0.7087	0.3016	4.5200e-003		0.0573	0.0573		0.0573	0.0573		904.7230	904.7230	0.0173	0.0166	910.0993
Single Family Housing	19.1106	0.2061	1.7612	0.7494	0.0112		0.1424	0.1424		0.1424	0.1424		2,248.3050	2,248.3050	0.0431	0.0412	2,261.6656
Total		**0.2890**	**2.4699**	**1.0510**	**0.0158**		**0.1997**	**0.1997**		**0.1997**	**0.1997**		**3,153.0280**	**3,153.0280**	**0.0604**	**0.0578**	**3,171.7649**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	19.2304	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297	0.0000	74.5735	74.5735	0.0710	0.0000	76.3482
Unmitigated	19.2304	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297	0.0000	74.5735	74.5735	0.0710	0.0000	76.3482

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4795					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.5169					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2340	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297		74.5735	74.5735	0.0710		76.3482
Total	**19.2304**	**0.4761**	**41.2702**	**2.1900e-003**		**0.2297**	**0.2297**		**0.2297**	**0.2297**	**0.0000**	**74.5735**	**74.5735**	**0.0710**	**0.0000**	**76.3482**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4795					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.5169					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2340	0.4761	41.2702	2.1900e-003		0.2297	0.2297		0.2297	0.2297		74.5735	74.5735	0.0710		76.3482
Total	**19.2304**	**0.4761**	**41.2702**	**2.1900e-003**		**0.2297**	**0.2297**		**0.2297**	**0.2297**	**0.0000**	**74.5735**	**74.5735**	**0.0710**	**0.0000**	**76.3482**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Construction Only - Phase 2)

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	197.00	Dwelling Unit	20.87	354,600.00	559
Retirement Community	210.00	Dwelling Unit	25.97	210,000.00	437
City Park	0.50	Acre	1.40	21,780.00	0
City Park	1.02	Acre	1.23	44,576.40	0
City Park	2.20	Acre	2.20	95,832.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction state date of April 2022 for Phase 2 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 2

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - D

Trips and VMT - Default values.

Grading - No grading during Phase 2. Grading for phase 2 occured under Phase 1.

Architectural Coating - Interior VOC limts reduced from 100 g/L to 50 g/L based on SMAQMD Rule 443 that provides a VOC limit for flat coatings of 50 g/L.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust - Project will not have unpaved roads during the project's operational phase. Therefore, project does not use CARB Unmitigated Unpaved Road Statewide Emission Inventory Method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

The Ranch - City of Rancho Cordova (Construction Only - Phase 2) - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	75.00	609.00
tblConstructionPhase	NumDays	1,110.00	609.00
tblConstructionPhase	NumDays	75.00	65.00
tblConstructionPhase	PhaseEndDate	8/26/2026	11/28/2025
tblConstructionPhase	PhaseEndDate	1/28/2026	7/31/2025
tblConstructionPhase	PhaseEndDate	5/13/2026	12/30/2022
tblConstructionPhase	PhaseStartDate	5/14/2026	8/1/2023
tblConstructionPhase	PhaseStartDate	10/28/2021	4/1/2023
tblConstructionPhase	PhaseStartDate	1/29/2026	10/1/2022
tblLandUse	LandUseSquareFeet	44,576.25	44,576.40
tblLandUse	LotAcreage	63.96	20.87
tblLandUse	LotAcreage	42.00	25.97
tblLandUse	LotAcreage	0.50	1.40
tblLandUse	LotAcreage	1.02	1.23
tblLandUse	Population	526.00	559.00
tblLandUse	Population	561.00	437.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1525	1.3875	1.5807	2.6100e-003	0.0206	0.0715	0.0922	5.2900e-003	0.0669	0.0722	0.0000	226.0000	226.0000	0.0576	0.0000	227.4409
2023	0.6736	2.0914	2.5062	6.4400e-003	0.2708	0.0744	0.3452	0.0729	0.0702	0.1432	0.0000	579.0961	579.0961	0.0668	0.0000	580.7649
2024	1.3251	2.7346	3.4479	8.9100e-003	0.3884	0.0915	0.4799	0.1045	0.0865	0.1911	0.0000	800.8706	800.8706	0.0898	0.0000	803.1147
2025	1.0842	1.5479	2.0730	5.3700e-003	0.2437	0.0481	0.2918	0.0655	0.0456	0.1112	0.0000	482.4640	482.4640	0.0523	0.0000	483.7717
Maximum	**1.3251**	**2.7346**	**3.4479**	**8.9100e-003**	**0.3884**	**0.0915**	**0.4799**	**0.1045**	**0.0865**	**0.1911**	**0.0000**	**800.8706**	**800.8706**	**0.0898**	**0.0000**	**803.1147**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1525	1.3875	1.5807	2.6100e-003	0.0189	0.0715	0.0904	4.8700e-003	0.0669	0.0718	0.0000	225.9997	225.9997	0.0576	0.0000	227.4406
2023	0.6736	2.0914	2.5062	6.4400e-003	0.2503	0.0744	0.3247	0.0679	0.0702	0.1381	0.0000	579.0958	579.0958	0.0668	0.0000	580.7646
2024	1.3251	2.7346	3.4479	8.9100e-003	0.3590	0.0915	0.4505	0.0973	0.0865	0.1839	0.0000	800.8702	800.8702	0.0898	0.0000	803.1143
2025	1.0842	1.5479	2.0730	5.3700e-003	0.2251	0.0481	0.2733	0.0610	0.0456	0.1066	0.0000	482.4638	482.4638	0.0523	0.0000	483.7715
Maximum	**1.3251**	**2.7346**	**3.4479**	**8.9100e-003**	**0.3590**	**0.0915**	**0.4505**	**0.0973**	**0.0865**	**0.1839**	**0.0000**	**800.8702**	**800.8702**	**0.0898**	**0.0000**	**803.1143**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**7.60**	**0.00**	**5.80**	**6.94**	**0.00**	**3.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	**4-1-2022**	**6-30-2022**	0.5671	0.5671
6	**7-1-2022**	**9-30-2022**	0.5734	0.5734
7	**10-1-2022**	**12-31-2022**	0.3974	0.3974
9	**4-1-2023**	**6-30-2023**	0.7567	0.7567
10	**7-1-2023**	**9-30-2023**	0.9635	0.9635
11	**10-1-2023**	**12-31-2023**	1.0680	1.0680
12	**1-1-2024**	**3-31-2024**	1.0112	1.0112
13	**4-1-2024**	**6-30-2024**	1.0079	1.0079

14	**7-1-2024**	**9-30-2024**	1.0190	1.0190
15	**10-1-2024**	**12-31-2024**	1.0224	1.0224
16	**1-1-2025**	**3-31-2025**	0.9555	0.9555
17	**4-1-2025**	**6-30-2025**	0.9630	0.9630
18	**7-1-2025**	**9-30-2025**	0.5218	0.5218
		Highest	1.0680	1.0680

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.7154	0.0483	4.1826	2.2000e-004		0.0233	0.0233		0.0233	0.0233	0.0000	6.8562	6.8562	6.5300e-003	0.0000	7.0194
Energy	0.0411	0.3516	0.1496	2.2400e-003		0.0284	0.0284		0.0284	0.0284	0.0000	1,116.0081	1,116.0081	0.0426	0.0147	1,121.4453
Mobile	0.3488	1.8102	4.0705	0.0192	2.2531	9.8000e-003	2.2629	0.6032	9.1100e-003	0.6124	0.0000	1,776.0278	1,776.0278	0.0648	0.0000	1,777.6465
Waste						0.0000	0.0000		0.0000	0.0000	60.5238	0.0000	60.5238	3.5769	0.0000	149.9451
Water						0.0000	0.0000		0.0000	0.0000	9.3820	55.1993	64.5813	0.0350	0.0210	71.7036
Total	**3.1053**	**2.2100**	**8.4027**	**0.0216**	**2.2531**	**0.0615**	**2.3146**	**0.6032**	**0.0608**	**0.6641**	**69.9058**	**2,954.0914**	**3,023.9972**	**3.7258**	**0.0356**	**3,127.7599**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.7154	0.0483	4.1826	2.2000e-004		0.0233	0.0233		0.0233	0.0233	0.0000	6.8562	6.8562	6.5300e-003	0.0000	7.0194
Energy	0.0411	0.3516	0.1496	2.2400e-003		0.0284	0.0284		0.0284	0.0284	0.0000	1,116.0081	1,116.0081	0.0426	0.0147	1,121.4453
Mobile	0.3488	1.8102	4.0705	0.0192	2.2531	9.8000e-003	2.2629	0.6032	9.1100e-003	0.6124	0.0000	1,776.0278	1,776.0278	0.0648	0.0000	1,777.6465
Waste						0.0000	0.0000		0.0000	0.0000	60.5238	0.0000	60.5238	3.5769	0.0000	149.9451
Water						0.0000	0.0000		0.0000	0.0000	9.3820	55.1993	64.5813	0.0350	0.0210	71.7036
Total	**3.1053**	**2.2100**	**8.4027**	**0.0216**	**2.2531**	**0.0615**	**2.3146**	**0.6032**	**0.0608**	**0.6641**	**69.9058**	**2,954.0914**	**3,023.9972**	**3.7258**	**0.0356**	**3,127.7599**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,585.9200
Vegetation Land Change	-1,057.2430
Total	**528.6770**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	8/1/2023	11/28/2025	5	609	
2	Building Construction	Building Construction	4/1/2023	7/31/2025	5	609	
3	Improvements for Phase 2	Trenching	4/1/2022	9/30/2022	5	131	
4	Paving	Paving	10/1/2022	12/30/2022	5	65	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 1,143,315; Residential Outdoor: 381,105; Non-Residential Indoor: 10,500; Non-Residential Outdoor: 3,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Improvements for Phase 2	Cranes	1	7.00	231	0.29
Improvements for Phase 2	Forklifts	3	8.00	89	0.20
Improvements for Phase 2	Generator Sets	1	8.00	84	0.74
Improvements for Phase 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Improvements for Phase 2	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Improvements for Phase 2	9	23.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	290.00	70.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Improvements for Phase 2	9	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3988					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0105	0.0710	0.0987	1.6000e-004		3.8600e-003	3.8600e-003		3.8600e-003	3.8600e-003	0.0000	13.9152	13.9152	8.3000e-004	0.0000	13.9361
Total	**0.4093**	**0.0710**	**0.0987**	**1.6000e-004**		**3.8600e-003**	**3.8600e-003**		**3.8600e-003**	**3.8600e-003**	**0.0000**	**13.9152**	**13.9152**	**8.3000e-004**	**0.0000**	**13.9361**

3.2 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5700e-003	5.7900e-003	0.0675	2.0000e-004	0.0232	1.5000e-004	0.0234	6.1700e-003	1.4000e-004	6.3200e-003	0.0000	18.4383	18.4383	4.2000e-004	0.0000	18.4488
Total	**9.5700e-003**	**5.7900e-003**	**0.0675**	**2.0000e-004**	**0.0232**	**1.5000e-004**	**0.0234**	**6.1700e-003**	**1.4000e-004**	**6.3200e-003**	**0.0000**	**18.4383**	**18.4383**	**4.2000e-004**	**0.0000**	**18.4488**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3988					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0105	0.0710	0.0987	1.6000e-004		3.8600e-003	3.8600e-003		3.8600e-003	3.8600e-003	0.0000	13.9152	13.9152	8.3000e-004	0.0000	13.9360
Total	**0.4093**	**0.0710**	**0.0987**	**1.6000e-004**		**3.8600e-003**	**3.8600e-003**		**3.8600e-003**	**3.8600e-003**	**0.0000**	**13.9152**	**13.9152**	**8.3000e-004**	**0.0000**	**13.9360**

3.2 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5700e-003	5.7900e-003	0.0675	2.0000e-004	0.0214	1.5000e-004	0.0216	5.7300e-003	1.4000e-004	5.8700e-003	0.0000	18.4383	18.4383	4.2000e-004	0.0000	18.4488
Total	**9.5700e-003**	**5.7900e-003**	**0.0675**	**2.0000e-004**	**0.0214**	**1.5000e-004**	**0.0216**	**5.7300e-003**	**1.4000e-004**	**5.8700e-003**	**0.0000**	**18.4383**	**18.4383**	**4.2000e-004**	**0.0000**	**18.4488**

3.2 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9587					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.1597	0.2371	3.9000e-004		7.9800e-003	7.9800e-003		7.9800e-003	7.9800e-003	0.0000	33.4476	33.4476	1.8800e-003	0.0000	33.4947
Total	**0.9823**	**0.1597**	**0.2371**	**3.9000e-004**		**7.9800e-003**	**7.9800e-003**		**7.9800e-003**	**7.9800e-003**	**0.0000**	**33.4476**	**33.4476**	**1.8800e-003**	**0.0000**	**33.4947**

3.2 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0216	0.0126	0.1503	4.7000e-004	0.0558	3.6000e-004	0.0562	0.0148	3.3000e-004	0.0152	0.0000	42.5967	42.5967	9.1000e-004	0.0000	42.6195
Total	**0.0216**	**0.0126**	**0.1503**	**4.7000e-004**	**0.0558**	**3.6000e-004**	**0.0562**	**0.0148**	**3.3000e-004**	**0.0152**	**0.0000**	**42.5967**	**42.5967**	**9.1000e-004**	**0.0000**	**42.6195**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9587					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.1597	0.2371	3.9000e-004		7.9800e-003	7.9800e-003		7.9800e-003	7.9800e-003	0.0000	33.4476	33.4476	1.8800e-003	0.0000	33.4947
Total	**0.9823**	**0.1597**	**0.2371**	**3.9000e-004**		**7.9800e-003**	**7.9800e-003**		**7.9800e-003**	**7.9800e-003**	**0.0000**	**33.4476**	**33.4476**	**1.8800e-003**	**0.0000**	**33.4947**

3.2 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0216	0.0126	0.1503	4.7000e-004	0.0515	3.6000e-004	0.0518	0.0138	3.3000e-004	0.0141	0.0000	42.5967	42.5967	9.1000e-004	0.0000	42.6195
Total	**0.0216**	**0.0126**	**0.1503**	**4.7000e-004**	**0.0515**	**3.6000e-004**	**0.0518**	**0.0138**	**3.3000e-004**	**0.0141**	**0.0000**	**42.5967**	**42.5967**	**9.1000e-004**	**0.0000**	**42.6195**

3.2 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8708					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0203	0.1363	0.2153	3.5000e-004		6.1300e-003	6.1300e-003		6.1300e-003	6.1300e-003	0.0000	30.3837	30.3837	1.6600e-003	0.0000	30.4252
Total	**0.8912**	**0.1363**	**0.2153**	**3.5000e-004**		**6.1300e-003**	**6.1300e-003**		**6.1300e-003**	**6.1300e-003**	**0.0000**	**30.3837**	**30.3837**	**1.6600e-003**	**0.0000**	**30.4252**

3.2 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0186	0.0104	0.1265	4.1000e-004	0.0507	3.2000e-004	0.0510	0.0135	3.0000e-004	0.0138	0.0000	37.1455	37.1455	7.5000e-004	0.0000	37.1643
Total	**0.0186**	**0.0104**	**0.1265**	**4.1000e-004**	**0.0507**	**3.2000e-004**	**0.0510**	**0.0135**	**3.0000e-004**	**0.0138**	**0.0000**	**37.1455**	**37.1455**	**7.5000e-004**	**0.0000**	**37.1643**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8708					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0203	0.1363	0.2153	3.5000e-004		6.1300e-003	6.1300e-003		6.1300e-003	6.1300e-003	0.0000	30.3837	30.3837	1.6600e-003	0.0000	30.4251
Total	**0.8912**	**0.1363**	**0.2153**	**3.5000e-004**		**6.1300e-003**	**6.1300e-003**		**6.1300e-003**	**6.1300e-003**	**0.0000**	**30.3837**	**30.3837**	**1.6600e-003**	**0.0000**	**30.4251**

3.2 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0186	0.0104	0.1265	4.1000e-004	0.0468	3.2000e-004	0.0471	0.0125	3.0000e-004	0.0128	0.0000	37.1455	37.1455	7.5000e-004	0.0000	37.1643
Total	**0.0186**	**0.0104**	**0.1265**	**4.1000e-004**	**0.0468**	**3.2000e-004**	**0.0471**	**0.0125**	**3.0000e-004**	**0.0128**	**0.0000**	**37.1455**	**37.1455**	**7.5000e-004**	**0.0000**	**37.1643**

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1533	1.4025	1.5838	2.6300e-003		0.0682	0.0682		0.0642	0.0642	0.0000	226.0096	226.0096	0.0538	0.0000	227.3537
Total	**0.1533**	**1.4025**	**1.5838**	**2.6300e-003**		**0.0682**	**0.0682**		**0.0642**	**0.0642**	**0.0000**	**226.0096**	**226.0096**	**0.0538**	**0.0000**	**227.3537**

3.3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0158	0.5603	0.1522	1.6200e-003	0.0399	8.1000e-004	0.0407	0.0115	7.7000e-004	0.0123	0.0000	155.8032	155.8032	7.9800e-003	0.0000	156.0027
Worker	0.0857	0.0518	0.6040	1.8200e-003	0.2077	1.3800e-003	0.2090	0.0552	1.2700e-003	0.0565	0.0000	164.9297	164.9297	3.7600e-003	0.0000	165.0236
Total	**0.1014**	**0.6120**	**0.7562**	**3.4400e-003**	**0.2476**	**2.1900e-003**	**0.2497**	**0.0668**	**2.0400e-003**	**0.0688**	**0.0000**	**320.7329**	**320.7329**	**0.0117**	**0.0000**	**321.0264**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1533	1.4025	1.5838	2.6300e-003		0.0682	0.0682		0.0642	0.0642	0.0000	226.0094	226.0094	0.0538	0.0000	227.3535
Total	**0.1533**	**1.4025**	**1.5838**	**2.6300e-003**		**0.0682**	**0.0682**		**0.0642**	**0.0642**	**0.0000**	**226.0094**	**226.0094**	**0.0538**	**0.0000**	**227.3535**

3.3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0158	0.5603	0.1522	1.6200e-003	0.0374	8.1000e-004	0.0382	0.0109	7.7000e-004	0.0117	0.0000	155.8032	155.8032	7.9800e-003	0.0000	156.0027
Worker	0.0857	0.0518	0.6040	1.8200e-003	0.1915	1.3800e-003	0.1929	0.0513	1.2700e-003	0.0525	0.0000	164.9297	164.9297	3.7600e-003	0.0000	165.0236
Total	**0.1014**	**0.6120**	**0.7562**	**3.4400e-003**	**0.2289**	**2.1900e-003**	**0.2311**	**0.0622**	**2.0400e-003**	**0.0642**	**0.0000**	**320.7329**	**320.7329**	**0.0117**	**0.0000**	**321.0264**

3.3 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

3.3 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0202	0.7384	0.1912	2.1600e-003	0.0536	1.0300e-003	0.0546	0.0155	9.8000e-004	0.0165	0.0000	208.1204	208.1204	0.0106	0.0000	208.3851
Worker	0.1082	0.0629	0.7515	2.3600e-003	0.2790	1.8100e-003	0.2808	0.0742	1.6700e-003	0.0759	0.0000	212.9836	212.9836	4.5600e-003	0.0000	213.0975
Total	**0.1284**	**0.8013**	**0.9427**	**4.5200e-003**	**0.3326**	**2.8400e-003**	**0.3355**	**0.0897**	**2.6500e-003**	**0.0924**	**0.0000**	**421.1040**	**421.1040**	**0.0152**	**0.0000**	**421.4826**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

3.3 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0202	0.7384	0.1912	2.1600e-003	0.0502	1.0300e-003	0.0512	0.0147	9.8000e-004	0.0156	0.0000	208.1204	208.1204	0.0106	0.0000	208.3851
Worker	0.1082	0.0629	0.7515	2.3600e-003	0.2573	1.8100e-003	0.2591	0.0689	1.6700e-003	0.0706	0.0000	212.9836	212.9836	4.5600e-003	0.0000	213.0975
Total	**0.1284**	**0.8013**	**0.9427**	**4.5200e-003**	**0.3075**	**2.8400e-003**	**0.3103**	**0.0835**	**2.6500e-003**	**0.0862**	**0.0000**	**421.1040**	**421.1040**	**0.0152**	**0.0000**	**421.4826**

3.3 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1039	0.9477	1.2224	2.0500e-003		0.0401	0.0401		0.0377	0.0377	0.0000	176.2588	176.2588	0.0414	0.0000	177.2946
Total	**0.1039**	**0.9477**	**1.2224**	**2.0500e-003**		**0.0401**	**0.0401**		**0.0377**	**0.0377**	**0.0000**	**176.2588**	**176.2588**	**0.0414**	**0.0000**	**177.2946**

3.3 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0112	0.4205	0.1050	1.2500e-003	0.0311	5.7000e-004	0.0317	8.9800e-003	5.4000e-004	9.5200e-003	0.0000	120.0600	120.0600	6.0700e-003	0.0000	120.2118
Worker	0.0593	0.0331	0.4038	1.3100e-003	0.1619	1.0300e-003	0.1629	0.0431	9.5000e-004	0.0440	0.0000	118.6160	118.6160	2.4000e-003	0.0000	118.6758
Total	**0.0705**	**0.4536**	**0.5089**	**2.5600e-003**	**0.1930**	**1.6000e-003**	**0.1946**	**0.0520**	**1.4900e-003**	**0.0535**	**0.0000**	**238.6760**	**238.6760**	**8.4700e-003**	**0.0000**	**238.8877**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1039	0.9477	1.2224	2.0500e-003		0.0401	0.0401		0.0377	0.0377	0.0000	176.2586	176.2586	0.0414	0.0000	177.2944
Total	**0.1039**	**0.9477**	**1.2224**	**2.0500e-003**		**0.0401**	**0.0401**		**0.0377**	**0.0377**	**0.0000**	**176.2586**	**176.2586**	**0.0414**	**0.0000**	**177.2944**

3.3 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0112	0.4205	0.1050	1.2500e-003	0.0291	5.7000e-004	0.0297	8.5000e-003	5.4000e-004	9.0400e-003	0.0000	120.0600	120.0600	6.0700e-003	0.0000	120.2118
Worker	0.0593	0.0331	0.4038	1.3100e-003	0.1493	1.0300e-003	0.1503	0.0400	9.5000e-004	0.0409	0.0000	118.6160	118.6160	2.4000e-003	0.0000	118.6758
Total	**0.0705**	**0.4536**	**0.5089**	**2.5600e-003**	**0.1784**	**1.6000e-003**	**0.1800**	**0.0485**	**1.4900e-003**	**0.0500**	**0.0000**	**238.6760**	**238.6760**	**8.4700e-003**	**0.0000**	**238.8877**

3.4 Improvements for Phase 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1118	1.0228	1.0718	1.7600e-003		0.0530	0.0530		0.0499	0.0499	0.0000	151.7800	151.7800	0.0364	0.0000	152.6891
Total	**0.1118**	**1.0228**	**1.0718**	**1.7600e-003**		**0.0530**	**0.0530**		**0.0499**	**0.0499**	**0.0000**	**151.7800**	**151.7800**	**0.0364**	**0.0000**	**152.6891**

3.4 Improvements for Phase 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8800e-003	3.0700e-003	0.0350	1.0000e-004	0.0206	8.0000e-005	0.0207	5.2900e-003	7.0000e-005	5.3600e-003	0.0000	9.1304	9.1304	2.2000e-004	0.0000	9.1359
Total	**4.8800e-003**	**3.0700e-003**	**0.0350**	**1.0000e-004**	**0.0206**	**8.0000e-005**	**0.0207**	**5.2900e-003**	**7.0000e-005**	**5.3600e-003**	**0.0000**	**9.1304**	**9.1304**	**2.2000e-004**	**0.0000**	**9.1359**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1118	1.0228	1.0718	1.7600e-003		0.0530	0.0530		0.0499	0.0499	0.0000	151.7799	151.7799	0.0364	0.0000	152.6889
Total	**0.1118**	**1.0228**	**1.0718**	**1.7600e-003**		**0.0530**	**0.0530**		**0.0499**	**0.0499**	**0.0000**	**151.7799**	**151.7799**	**0.0364**	**0.0000**	**152.6889**

3.4 Improvements for Phase 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8800e-003	3.0700e-003	0.0350	1.0000e-004	0.0189	8.0000e-005	0.0190	4.8700e-003	7.0000e-005	4.9400e-003	0.0000	9.1304	9.1304	2.2000e-004	0.0000	9.1359
Total	**4.8800e-003**	**3.0700e-003**	**0.0350**	**1.0000e-004**	**0.0189**	**8.0000e-005**	**0.0190**	**4.8700e-003**	**7.0000e-005**	**4.9400e-003**	**0.0000**	**9.1304**	**9.1304**	**2.2000e-004**	**0.0000**	**9.1359**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0358	0.3616	0.4739	7.4000e-004		0.0185	0.0185		0.0170	0.0170	0.0000	65.0896	65.0896	0.0211	0.0000	65.6158
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0358**	**0.3616**	**0.4739**	**7.4000e-004**		**0.0185**	**0.0185**		**0.0170**	**0.0170**	**0.0000**	**65.0896**	**65.0896**	**0.0211**	**0.0000**	**65.6158**

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0358	0.3616	0.4739	7.4000e-004		0.0185	0.0185		0.0170	0.0170	0.0000	65.0895	65.0895	0.0211	0.0000	65.6158
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0358**	**0.3616**	**0.4739**	**7.4000e-004**		**0.0185**	**0.0185**		**0.0170**	**0.0170**	**0.0000**	**65.0895**	**65.0895**	**0.0211**	**0.0000**	**65.6158**

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3488	1.8102	4.0705	0.0192	2.2531	9.8000e-003	2.2629	0.6032	9.1100e-003	0.6124	0.0000	1,776.0278	1,776.0278	0.0648	0.0000	1,777.6465
Unmitigated	0.3488	1.8102	4.0705	0.0192	2.2531	9.8000e-003	2.2629	0.6032	9.1100e-003	0.6124	0.0000	1,776.0278	1,776.0278	0.0648	0.0000	1,777.6465

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.95	11.38	8.37	6,449	6,449
City Park	1.93	23.28	17.13	13,200	13,200
City Park	4.16	50.05	36.83	28,377	28,377
Retirement Community	504.00	426.30	409.50	1,230,193	1,230,193
Single Family Housing	1,875.44	1,952.27	1698.14	4,775,752	4,775,752
Total	2,386.48	2,463.28	2,169.97	6,053,972	6,053,972

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	708.8334	708.8334	0.0348	7.2000e-003	711.8510
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	708.8334	708.8334	0.0348	7.2000e-003	711.8510
NaturalGas Mitigated	0.0411	0.3516	0.1496	2.2400e-003		0.0284	0.0284		0.0284	0.0284	0.0000	407.1747	407.1747	7.8000e-003	7.4600e-003	409.5943
NaturalGas Unmitigated	0.0411	0.3516	0.1496	2.2400e-003		0.0284	0.0284		0.0284	0.0284	0.0000	407.1747	407.1747	7.8000e-003	7.4600e-003	409.5943

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	2.54073e+006	0.0137	0.1171	0.0498	7.5000e-004		9.4700e-003	9.4700e-003		9.4700e-003	9.4700e-003	0.0000	135.5831	135.5831	2.6000e-003	2.4900e-003	136.3888
Single Family Housing	5.08943e+006	0.0274	0.2345	0.0998	1.5000e-003		0.0190	0.0190		0.0190	0.0190	0.0000	271.5916	271.5916	5.2100e-003	4.9800e-003	273.2055
Total		**0.0411**	**0.3516**	**0.1496**	**2.2500e-003**		**0.0284**	**0.0284**		**0.0284**	**0.0284**	**0.0000**	**407.1747**	**407.1747**	**7.8100e-003**	**7.4700e-003**	**409.5943**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	2.54073e+006	0.0137	0.1171	0.0498	7.5000e-004		9.4700e-003	9.4700e-003		9.4700e-003	9.4700e-003	0.0000	135.5831	135.5831	2.6000e-003	2.4900e-003	136.3888
Single Family Housing	5.08943e+006	0.0274	0.2345	0.0998	1.5000e-003		0.0190	0.0190		0.0190	0.0190	0.0000	271.5916	271.5916	5.2100e-003	4.9800e-003	273.2055
Total		**0.0411**	**0.3516**	**0.1496**	**2.2500e-003**		**0.0284**	**0.0284**		**0.0284**	**0.0284**	**0.0000**	**407.1747**	**407.1747**	**7.8100e-003**	**7.4700e-003**	**409.5943**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Retirement Community	983846	263.4347	0.0129	2.6800e-003	264.5561
Single Family Housing	1.66342e+006	445.3988	0.0219	4.5300e-003	447.2949
Total		**708.8334**	**0.0348**	**7.2100e-003**	**711.8510**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Retirement Community	983846	263.4347	0.0129	2.6800e-003	264.5561
Single Family Housing	1.66342e+006	445.3988	0.0219	4.5300e-003	447.2949
Total		**708.8334**	**0.0348**	**7.2100e-003**	**711.8510**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.7154	0.0483	4.1826	2.2000e-004		0.0233	0.0233		0.0233	0.0233	0.0000	6.8562	6.8562	6.5300e-003	0.0000	7.0194
Unmitigated	2.7154	0.0483	4.1826	2.2000e-004		0.0233	0.0233		0.0233	0.0233	0.0000	6.8562	6.8562	6.5300e-003	0.0000	7.0194

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3565					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.2338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1251	0.0483	4.1826	2.2000e-004		0.0233	0.0233		0.0233	0.0233	0.0000	6.8562	6.8562	6.5300e-003	0.0000	7.0194
Total	**2.7154**	**0.0483**	**4.1826**	**2.2000e-004**		**0.0233**	**0.0233**		**0.0233**	**0.0233**	**0.0000**	**6.8562**	**6.8562**	**6.5300e-003**	**0.0000**	**7.0194**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3565					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.2338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1251	0.0483	4.1826	2.2000e-004		0.0233	0.0233		0.0233	0.0233	0.0000	6.8562	6.8562	6.5300e-003	0.0000	7.0194
Total	**2.7154**	**0.0483**	**4.1826**	**2.2000e-004**		**0.0233**	**0.0233**		**0.0233**	**0.0233**	**0.0000**	**6.8562**	**6.8562**	**6.5300e-003**	**0.0000**	**7.0194**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	64.5813	0.0350	0.0210	71.7036
Unmitigated	64.5813	0.0350	0.0210	71.7036

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 4.43231	4.1538	2.0000e-004	4.0000e-005	4.1715
Retirement Community	13.6823 / 8.62583	31.1788	0.0180	0.0108	34.8446
Single Family Housing	12.8353 / 8.09185	29.2487	0.0168	0.0101	32.6875
Total		**64.5813**	**0.0350**	**0.0210**	**71.7036**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 4.43231	4.1538	2.0000e-004	4.0000e-005	4.1715
Retirement Community	13.6823 / 8.62583	31.1788	0.0180	0.0108	34.8446
Single Family Housing	12.8353 / 8.09185	29.2487	0.0168	0.0101	32.6875
Total		**64.5813**	**0.0350**	**0.0210**	**71.7036**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	60.5238	3.5769	0.0000	149.9451
Unmitigated	60.5238	3.5769	0.0000	149.9451

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.32	0.0650	3.8400e-003	0.0000	0.1609
Retirement Community	96.6	19.6089	1.1589	0.0000	48.5803
Single Family Housing	201.24	40.8499	2.4142	0.0000	101.2039
Total		**60.5238**	**3.5769**	**0.0000**	**149.9451**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.32	0.0650	3.8400e-003	0.0000	0.1609
Retirement Community	96.6	19.6089	1.1589	0.0000	48.5803
Single Family Housing	201.24	40.8499	2.4142	0.0000	101.2039
Total		**60.5238**	**3.5769**	**0.0000**	**149.9451**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	528.6770	0.0000	0.0000	528.6770

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	530.1 / 284.8	-1,057.2430	0.0000	0.0000	-1,057.2430
Total		**-1,057.2430**	**0.0000**	**0.0000**	**-1,057.2430**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2240	1,585.9200	0.0000	0.0000	1,585.9200
Total		**1,585.9200**	**0.0000**	**0.0000**	**1,585.9200**

The Ranch - City of Rancho Cordova (Construction Only - Phase 2)

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	197.00	Dwelling Unit	20.87	354,600.00	559
Retirement Community	210.00	Dwelling Unit	25.97	210,000.00	437
City Park	0.50	Acre	1.40	21,780.00	0
City Park	1.02	Acre	1.23	44,576.40	0
City Park	2.20	Acre	2.20	95,832.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction state date of April 2022 for Phase 2 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 2

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - D

Trips and VMT - Default values.

Grading - No grading during Phase 2. Grading for phase 2 occured under Phase 1.

Architectural Coating - Interior VOC limts reduced from 100 g/L to 50 g/L based on SMAQMD Rule 443 that provides a VOC limit for flat coatings of 50 g/L.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust - Project will not have unpaved roads during the project's operational phase. Therefore, project does not use CARB Unmitigated Unpaved Road Statewide Emission Inventory Method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

The Ranch - City of Rancho Cordova (Construction Only - Phase 2) - Sacramento County, Summer

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	75.00	609.00
tblConstructionPhase	NumDays	1,110.00	609.00
tblConstructionPhase	NumDays	75.00	65.00
tblConstructionPhase	PhaseEndDate	8/26/2026	11/28/2025
tblConstructionPhase	PhaseEndDate	1/28/2026	7/31/2025
tblConstructionPhase	PhaseEndDate	5/13/2026	12/30/2022
tblConstructionPhase	PhaseStartDate	5/14/2026	8/1/2023
tblConstructionPhase	PhaseStartDate	10/28/2021	4/1/2023
tblConstructionPhase	PhaseStartDate	1/29/2026	10/1/2022
tblLandUse	LandUseSquareFeet	44,576.25	44,576.40
tblLandUse	LotAcreage	63.96	20.87
tblLandUse	LotAcreage	42.00	25.97
tblLandUse	LotAcreage	0.50	1.40
tblLandUse	LotAcreage	1.02	1.23
tblLandUse	Population	526.00	559.00
tblLandUse	Population	561.00	437.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.7923	15.6581	16.9971	0.0286	0.3270	0.8102	1.1372	0.0837	0.7622	0.8460	0.0000	2,724.3016	2,724.3016	0.7140	0.0000	2,739.7056
2023	10.4578	21.9358	28.3472	0.0715	3.0684	0.7955	3.8639	0.8234	0.7525	1.5759	0.0000	7,092.4544	7,092.4544	0.7691	0.0000	7,111.6826
2024	10.2640	20.7489	27.5348	0.0705	3.0683	0.6984	3.7667	0.8234	0.6604	1.4837	0.0000	6,986.1945	6,986.1945	0.7580	0.0000	7,005.1439
2025	10.0791	19.5521	26.7856	0.0694	3.0683	0.6026	3.6708	0.8233	0.5697	1.3930	0.0000	6,881.5335	6,881.5335	0.7483	0.0000	6,900.2396
Maximum	**10.4578**	**21.9358**	**28.3472**	**0.0715**	**3.0684**	**0.8102**	**3.8639**	**0.8234**	**0.7622**	**1.5759**	**0.0000**	**7,092.4544**	**7,092.4544**	**0.7691**	**0.0000**	**7,111.6826**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.7923	15.6581	16.9971	0.0286	0.2996	0.8102	1.1098	0.0770	0.7622	0.8392	0.0000	2,724.3016	2,724.3016	0.7140	0.0000	2,739.7056
2023	10.4578	21.9358	28.3472	0.0715	2.8342	0.7955	3.6297	0.7659	0.7525	1.5184	0.0000	7,092.4544	7,092.4544	0.7691	0.0000	7,111.6826
2024	10.2640	20.7489	27.5348	0.0705	2.8342	0.6984	3.5326	0.7659	0.6604	1.4263	0.0000	6,986.1945	6,986.1945	0.7580	0.0000	7,005.1439
2025	10.0791	19.5521	26.7856	0.0694	2.8342	0.6026	3.4367	0.7659	0.5697	1.3355	0.0000	6,881.5335	6,881.5335	0.7483	0.0000	6,900.2396
Maximum	**10.4578**	**21.9358**	**28.3472**	**0.0715**	**2.8342**	**0.8102**	**3.6297**	**0.7659**	**0.7622**	**1.5184**	**0.0000**	**7,092.4544**	**7,092.4544**	**0.7691**	**0.0000**	**7,111.6826**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**7.66**	**0.00**	**5.87**	**7.01**	**0.00**	**3.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.1943	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862	0.0000	60.4616	60.4616	0.0576	0.0000	61.9005
Energy	0.2254	1.9265	0.8198	0.0123		0.1558	0.1558		0.1558	0.1558		2,459.3602	2,459.3602	0.0471	0.0451	2,473.9750
Mobile	2.6270	10.3963	27.1001	0.1212	13.6743	0.0575	13.7318	3.6508	0.0534	3.7042		12,354.9060	12,354.9060	0.4232		12,365.4853
Total	**18.0467**	**12.7089**	**61.3802**	**0.1353**	**13.6743**	**0.3995**	**14.0737**	**3.6508**	**0.3954**	**4.0462**	**0.0000**	**14,874.7278**	**14,874.7278**	**0.5279**	**0.0451**	**14,901.3608**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.1943	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862	0.0000	60.4616	60.4616	0.0576	0.0000	61.9005
Energy	0.2254	1.9265	0.8198	0.0123		0.1558	0.1558		0.1558	0.1558		2,459.3602	2,459.3602	0.0471	0.0451	2,473.9750
Mobile	2.6270	10.3963	27.1001	0.1212	13.6743	0.0575	13.7318	3.6508	0.0534	3.7042		12,354.9060	12,354.9060	0.4232		12,365.4853
Total	**18.0467**	**12.7089**	**61.3802**	**0.1353**	**13.6743**	**0.3995**	**14.0737**	**3.6508**	**0.3954**	**4.0462**	**0.0000**	**14,874.7278**	**14,874.7278**	**0.5279**	**0.0451**	**14,901.3608**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	8/1/2023	11/28/2025	5	609	
2	Building Construction	Building Construction	4/1/2023	7/31/2025	5	609	
3	Improvements for Phase 2	Trenching	4/1/2022	9/30/2022	5	131	
4	Paving	Paving	10/1/2022	12/30/2022	5	65	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 1,143,315; Residential Outdoor: 381,105; Non-Residential Indoor: 10,500; Non-Residential Outdoor: 3,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Ranch - City of Rancho Cordova (Construction Only - Phase 2) - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Improvements for Phase 2	Cranes	1	7.00	231	0.29
Improvements for Phase 2	Forklifts	3	8.00	89	0.20
Improvements for Phase 2	Generator Sets	1	8.00	84	0.74
Improvements for Phase 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Improvements for Phase 2	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Improvements for Phase 2	9	23.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	290.00	70.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Improvements for Phase 2	9	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**7.5096**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.2 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2028	0.0963	1.4708	4.1400e-003	0.4412	2.8300e-003	0.4440	0.1170	2.6100e-003	0.1196		412.5008	412.5008	9.5300e-003		412.7391
Total	**0.2028**	**0.0963**	**1.4708**	**4.1400e-003**	**0.4412**	**2.8300e-003**	**0.4440**	**0.1170**	**2.6100e-003**	**0.1196**		**412.5008**	**412.5008**	**9.5300e-003**		**412.7391**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**7.5096**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.2 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2028	0.0963	1.4708	4.1400e-003	0.4067	2.8300e-003	0.4095	0.1086	2.6100e-003	0.1112		412.5008	412.5008	9.5300e-003		412.7391
Total	**0.2028**	**0.0963**	**1.4708**	**4.1400e-003**	**0.4067**	**2.8300e-003**	**0.4095**	**0.1086**	**2.6100e-003**	**0.1112**		**412.5008**	**412.5008**	**9.5300e-003**		**412.7391**

3.2 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**7.4987**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.2 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1904	0.0871	1.3644	3.9800e-003	0.4412	2.7700e-003	0.4440	0.1170	2.5500e-003	0.1196		396.4445	396.4445	8.6000e-003		396.6595
Total	**0.1904**	**0.0871**	**1.3644**	**3.9800e-003**	**0.4412**	**2.7700e-003**	**0.4440**	**0.1170**	**2.5500e-003**	**0.1196**		**396.4445**	**396.4445**	**8.6000e-003**		**396.6595**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**7.4987**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.2 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1904	0.0871	1.3644	3.9800e-003	0.4067	2.7700e-003	0.4095	0.1086	2.5500e-003	0.1111		396.4445	396.4445	8.6000e-003		396.6595
Total	**0.1904**	**0.0871**	**1.3644**	**3.9800e-003**	**0.4067**	**2.7700e-003**	**0.4095**	**0.1086**	**2.5500e-003**	**0.1111**		**396.4445**	**396.4445**	**8.6000e-003**		**396.6595**

3.2 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**7.4888**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

3.2 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1797	0.0791	1.2655	3.8200e-003	0.4412	2.7200e-003	0.4439	0.1170	2.5000e-003	0.1195		380.5514	380.5514	7.8000e-003		380.7463
Total	**0.1797**	**0.0791**	**1.2655**	**3.8200e-003**	**0.4412**	**2.7200e-003**	**0.4439**	**0.1170**	**2.5000e-003**	**0.1195**		**380.5514**	**380.5514**	**7.8000e-003**		**380.7463**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**7.4888**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

3.2 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1797	0.0791	1.2655	3.8200e-003	0.4067	2.7200e-003	0.4094	0.1086	2.5000e-003	0.1111		380.5514	380.5514	7.8000e-003		380.7463
Total	**0.1797**	**0.0791**	**1.2655**	**3.8200e-003**	**0.4067**	**2.7200e-003**	**0.4094**	**0.1086**	**2.5000e-003**	**0.1111**		**380.5514**	**380.5514**	**7.8000e-003**		**380.7463**

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1586	5.6699	1.4674	0.0168	0.4211	7.9700e-003	0.4291	0.1212	7.6200e-003	0.1288		1,780.7918	1,780.7918	0.0873		1,782.9732
Worker	1.0140	0.4817	7.3539	0.0207	2.2060	0.0142	2.2202	0.5852	0.0130	0.5982		2,062.5038	2,062.5038	0.0477		2,063.6953
Total	**1.1727**	**6.1516**	**8.8213**	**0.0375**	**2.6271**	**0.0221**	**2.6493**	**0.7063**	**0.0207**	**0.7270**		**3,843.2956**	**3,843.2956**	**0.1349**		**3,846.6685**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1586	5.6699	1.4674	0.0168	0.3940	7.9700e-003	0.4020	0.1145	7.6200e-003	0.1221		1,780.7918	1,780.7918	0.0873		1,782.9732
Worker	1.0140	0.4817	7.3539	0.0207	2.0335	0.0142	2.0476	0.5428	0.0130	0.5559		2,062.5038	2,062.5038	0.0477		2,063.6953
Total	**1.1727**	**6.1516**	**8.8213**	**0.0375**	**2.4275**	**0.0221**	**2.4497**	**0.6573**	**0.0207**	**0.6780**		**3,843.2956**	**3,843.2956**	**0.1349**		**3,846.6685**

3.3 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.3 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1511	5.5637	1.3715	0.0167	0.4211	7.5800e-003	0.4287	0.1212	7.2500e-003	0.1284		1,770.3805	1,770.3805	0.0862		1,772.5351
Worker	0.9522	0.4355	6.8220	0.0199	2.2060	0.0138	2.2199	0.5852	0.0127	0.5979		1,982.2226	1,982.2226	0.0430		1,983.2974
Total	**1.1034**	**5.9992**	**8.1935**	**0.0366**	**2.6271**	**0.0214**	**2.6485**	**0.7063**	**0.0200**	**0.7263**		**3,752.6030**	**3,752.6030**	**0.1292**		**3,755.8325**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.3 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1511	5.5637	1.3715	0.0167	0.3940	7.5800e-003	0.4016	0.1145	7.2500e-003	0.1218		1,770.3805	1,770.3805	0.0862		1,772.5351
Worker	0.9522	0.4355	6.8220	0.0199	2.0335	0.0138	2.0473	0.5428	0.0127	0.5556		1,982.2226	1,982.2226	0.0430		1,983.2974
Total	**1.1034**	**5.9992**	**8.1935**	**0.0366**	**2.4275**	**0.0214**	**2.4489**	**0.6573**	**0.0200**	**0.6773**		**3,752.6030**	**3,752.6030**	**0.1292**		**3,755.8325**

3.3 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.3 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1450	5.4622	1.2987	0.0166	0.4210	7.2000e-003	0.4282	0.1211	6.8900e-003	0.1280		1,760.3026	1,760.3026	0.0852		1,762.4318
Worker	0.8983	0.3956	6.3276	0.0191	2.2060	0.0136	2.2196	0.5852	0.0125	0.5977		1,902.7571	1,902.7571	0.0390		1,903.7316
Total	**1.0433**	**5.8578**	**7.6263**	**0.0357**	**2.6271**	**0.0208**	**2.6479**	**0.7063**	**0.0194**	**0.7257**		**3,663.0597**	**3,663.0597**	**0.1242**		**3,666.1634**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.3 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1450	5.4622	1.2987	0.0166	0.3940	7.2000e-003	0.4012	0.1145	6.8900e-003	0.1214		1,760.3026	1,760.3026	0.0852		1,762.4318
Worker	0.8983	0.3956	6.3276	0.0191	2.0335	0.0136	2.0471	0.5428	0.0125	0.5553		1,902.7571	1,902.7571	0.0390		1,903.7316
Total	**1.0433**	**5.8578**	**7.6263**	**0.0357**	**2.4275**	**0.0208**	**2.4482**	**0.6573**	**0.0194**	**0.6767**		**3,663.0597**	**3,663.0597**	**0.1242**		**3,666.1634**

3.4 Improvements for Phase 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Improvements for Phase 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0860	0.0424	0.6337	1.7100e-003	0.3270	1.1500e-003	0.3282	0.0837	1.0600e-003	0.0848		169.9680	169.9680	4.2200e-003		170.0734
Total	**0.0860**	**0.0424**	**0.6337**	**1.7100e-003**	**0.3270**	**1.1500e-003**	**0.3282**	**0.0837**	**1.0600e-003**	**0.0848**		**169.9680**	**169.9680**	**4.2200e-003**		**170.0734**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Improvements for Phase 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0860	0.0424	0.6337	1.7100e-003	0.2996	1.1500e-003	0.3008	0.0770	1.0600e-003	0.0781		169.9680	169.9680	4.2200e-003		170.0734
Total	**0.0860**	**0.0424**	**0.6337**	**1.7100e-003**	**0.2996**	**1.1500e-003**	**0.3008**	**0.0770**	**1.0600e-003**	**0.0781**		**169.9680**	**169.9680**	**4.2200e-003**		**170.0734**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.6270	10.3963	27.1001	0.1212	13.6743	0.0575	13.7318	3.6508	0.0534	3.7042		12,354.9060	12,354.9060	0.4232		12,365.4853
Unmitigated	2.6270	10.3963	27.1001	0.1212	13.6743	0.0575	13.7318	3.6508	0.0534	3.7042		12,354.9060	12,354.9060	0.4232		12,365.4853

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.95	11.38	8.37	6,449	6,449
City Park	1.93	23.28	17.13	13,200	13,200
City Park	4.16	50.05	36.83	28,377	28,377
Retirement Community	504.00	426.30	409.50	1,230,193	1,230,193
Single Family Housing	1,875.44	1,952.27	1698.14	4,775,752	4,775,752
Total	2,386.48	2,463.28	2,169.97	6,053,972	6,053,972

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2254	1.9265	0.8198	0.0123		0.1558	0.1558		0.1558	0.1558		2,459.3602	2,459.3602	0.0471	0.0451	2,473.9750
NaturalGas Unmitigated	0.2254	1.9265	0.8198	0.0123		0.1558	0.1558		0.1558	0.1558		2,459.3602	2,459.3602	0.0471	0.0451	2,473.9750

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	6960.91	0.0751	0.6415	0.2730	4.0900e-003		0.0519	0.0519		0.0519	0.0519		818.9303	818.9303	0.0157	0.0150	823.7968
Single Family Housing	13943.7	0.1504	1.2850	0.5468	8.2000e-003		0.1039	0.1039		0.1039	0.1039		1,640.4300	1,640.4300	0.0314	0.0301	1,650.1782
Total		**0.2254**	**1.9265**	**0.8198**	**0.0123**		**0.1558**	**0.1558**		**0.1558**	**0.1558**		**2,459.3602**	**2,459.3602**	**0.0471**	**0.0451**	**2,473.9750**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	6.96091	0.0751	0.6415	0.2730	4.0900e-003		0.0519	0.0519		0.0519	0.0519		818.9303	818.9303	0.0157	0.0150	823.7968
Single Family Housing	13.9437	0.1504	1.2850	0.5468	8.2000e-003		0.1039	0.1039		0.1039	0.1039		1,640.4300	1,640.4300	0.0314	0.0301	1,650.1782
Total		**0.2254**	**1.9265**	**0.8198**	**0.0123**		**0.1558**	**0.1558**		**0.1558**	**0.1558**		**2,459.3602**	**2,459.3602**	**0.0471**	**0.0451**	**2,473.9750**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	15.1943	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862	0.0000	60.4616	60.4616	0.0576	0.0000	61.9005
Unmitigated	15.1943	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862	0.0000	60.4616	60.4616	0.0576	0.0000	61.9005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.9536					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	12.2402					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0005	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862		60.4616	60.4616	0.0576		61.9005
Total	**15.1943**	**0.3860**	**33.4604**	**1.7700e-003**		**0.1862**	**0.1862**		**0.1862**	**0.1862**	**0.0000**	**60.4616**	**60.4616**	**0.0576**	**0.0000**	**61.9005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.9536					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	12.2402					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0005	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862		60.4616	60.4616	0.0576		61.9005
Total	**15.1943**	**0.3860**	**33.4604**	**1.7700e-003**		**0.1862**	**0.1862**		**0.1862**	**0.1862**	**0.0000**	**60.4616**	**60.4616**	**0.0576**	**0.0000**	**61.9005**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Construction Only - Phase 2)

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	197.00	Dwelling Unit	20.87	354,600.00	559
Retirement Community	210.00	Dwelling Unit	25.97	210,000.00	437
City Park	0.50	Acre	1.40	21,780.00	0
City Park	1.02	Acre	1.23	44,576.40	0
City Park	2.20	Acre	2.20	95,832.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction state date of April 2022 for Phase 2 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 2

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - D

Trips and VMT - Default values.

Grading - No grading during Phase 2. Grading for phase 2 occured under Phase 1.

Architectural Coating - Interior VOC limts reduced from 100 g/L to 50 g/L based on SMAQMD Rule 443 that provides a VOC limit for flat coatings of 50 g/L.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust - Project will not have unpaved roads during the project's operational phase. Therefore, project does not use CARB Unmitigated Unpaved Road Statewide Emission Inventory Method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

The Ranch - City of Rancho Cordova (Construction Only - Phase 2) - Sacramento County, Winter

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	75.00	609.00
tblConstructionPhase	NumDays	1,110.00	609.00
tblConstructionPhase	NumDays	75.00	65.00
tblConstructionPhase	PhaseEndDate	8/26/2026	11/28/2025
tblConstructionPhase	PhaseEndDate	1/28/2026	7/31/2025
tblConstructionPhase	PhaseEndDate	5/13/2026	12/30/2022
tblConstructionPhase	PhaseStartDate	5/14/2026	8/1/2023
tblConstructionPhase	PhaseStartDate	10/28/2021	4/1/2023
tblConstructionPhase	PhaseStartDate	1/29/2026	10/1/2022
tblLandUse	LandUseSquareFeet	44,576.25	44,576.40
tblLandUse	LotAcreage	63.96	20.87
tblLandUse	LotAcreage	42.00	25.97
tblLandUse	LotAcreage	0.50	1.40
tblLandUse	LotAcreage	1.02	1.23
tblLandUse	Population	526.00	559.00
tblLandUse	Population	561.00	437.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.7856	15.6680	16.9016	0.0284	0.3270	0.8102	1.1372	0.0837	0.7622	0.8460	0.0000	2,703.6177	2,703.6177	0.7140	0.0000	2,719.0089
2023	10.3764	22.1280	27.2080	0.0681	3.0684	0.7962	3.8645	0.8234	0.7532	1.5765	0.0000	6,745.4260	6,745.4260	0.7690	0.0000	6,764.6509
2024	10.1906	20.9246	26.4563	0.0671	3.0683	0.6990	3.7673	0.8234	0.6610	1.4843	0.0000	6,651.4696	6,651.4696	0.7584	0.0000	6,670.4290
2025	10.0123	19.7138	25.7719	0.0662	3.0683	0.6031	3.6714	0.8233	0.5702	1.3935	0.0000	6,559.0034	6,559.0034	0.7491	0.0000	6,577.7307
Maximum	**10.3764**	**22.1280**	**27.2080**	**0.0681**	**3.0684**	**0.8102**	**3.8645**	**0.8234**	**0.7622**	**1.5765**	**0.0000**	**6,745.4260**	**6,745.4260**	**0.7690**	**0.0000**	**6,764.6509**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.7856	15.6680	16.9016	0.0284	0.2996	0.8102	1.1098	0.0770	0.7622	0.8392	0.0000	2,703.6177	2,703.6177	0.7140	0.0000	2,719.0089
2023	10.3764	22.1280	27.2080	0.0681	2.8342	0.7962	3.6304	0.7659	0.7532	1.5191	0.0000	6,745.4260	6,745.4260	0.7690	0.0000	6,764.6509
2024	10.1906	20.9246	26.4563	0.0671	2.8342	0.6990	3.5332	0.7659	0.6610	1.4268	0.0000	6,651.4696	6,651.4696	0.7584	0.0000	6,670.4290
2025	10.0123	19.7138	25.7719	0.0662	2.8342	0.6031	3.4373	0.7659	0.5702	1.3361	0.0000	6,559.0034	6,559.0034	0.7491	0.0000	6,577.7307
Maximum	**10.3764**	**22.1280**	**27.2080**	**0.0681**	**2.8342**	**0.8102**	**3.6304**	**0.7659**	**0.7622**	**1.5191**	**0.0000**	**6,745.4260**	**6,745.4260**	**0.7690**	**0.0000**	**6,764.6509**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**7.66**	**0.00**	**5.87**	**7.01**	**0.00**	**3.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.1943	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862	0.0000	60.4616	60.4616	0.0576	0.0000	61.9005
Energy	0.2254	1.9265	0.8198	0.0123		0.1558	0.1558		0.1558	0.1558		2,459.3602	2,459.3602	0.0471	0.0451	2,473.9750
Mobile	1.9085	10.8153	24.4919	0.1100	13.6743	0.0577	13.7320	3.6508	0.0537	3.7045		11,227.9875	11,227.9875	0.4292		11,238.7186
Total	**17.3282**	**13.1278**	**58.7720**	**0.1241**	**13.6743**	**0.3997**	**14.0740**	**3.6508**	**0.3956**	**4.0465**	**0.0000**	**13,747.8094**	**13,747.8094**	**0.5339**	**0.0451**	**13,774.5941**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.1943	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862	0.0000	60.4616	60.4616	0.0576	0.0000	61.9005
Energy	0.2254	1.9265	0.8198	0.0123		0.1558	0.1558		0.1558	0.1558		2,459.3602	2,459.3602	0.0471	0.0451	2,473.9750
Mobile	1.9085	10.8153	24.4919	0.1100	13.6743	0.0577	13.7320	3.6508	0.0537	3.7045		11,227.9875	11,227.9875	0.4292		11,238.7186
Total	**17.3282**	**13.1278**	**58.7720**	**0.1241**	**13.6743**	**0.3997**	**14.0740**	**3.6508**	**0.3956**	**4.0465**	**0.0000**	**13,747.8094**	**13,747.8094**	**0.5339**	**0.0451**	**13,774.5941**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	8/1/2023	11/28/2025	5	609	
2	Building Construction	Building Construction	4/1/2023	7/31/2025	5	609	
3	Improvements for Phase 2	Trenching	4/1/2022	9/30/2022	5	131	
4	Paving	Paving	10/1/2022	12/30/2022	5	65	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 1,143,315; Residential Outdoor: 381,105; Non-Residential Indoor: 10,500; Non-Residential Outdoor: 3,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Ranch - City of Rancho Cordova (Construction Only - Phase 2) - Sacramento County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Improvements for Phase 2	Cranes	1	7.00	231	0.29
Improvements for Phase 2	Forklifts	3	8.00	89	0.20
Improvements for Phase 2	Generator Sets	1	8.00	84	0.74
Improvements for Phase 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Improvements for Phase 2	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Improvements for Phase 2	9	23.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	290.00	70.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Improvements for Phase 2	9	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	58.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**7.5096**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.2 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1876	0.1189	1.2434	3.6400e-003	0.4412	2.8300e-003	0.4440	0.1170	2.6100e-003	0.1196		362.3243	362.3243	8.3400e-003		362.5329
Total	**0.1876**	**0.1189**	**1.2434**	**3.6400e-003**	**0.4412**	**2.8300e-003**	**0.4440**	**0.1170**	**2.6100e-003**	**0.1196**		**362.3243**	**362.3243**	**8.3400e-003**		**362.5329**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**7.5096**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.2 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1876	0.1189	1.2434	3.6400e-003	0.4067	2.8300e-003	0.4095	0.1086	2.6100e-003	0.1112		362.3243	362.3243	8.3400e-003		362.5329
Total	**0.1876**	**0.1189**	**1.2434**	**3.6400e-003**	**0.4067**	**2.8300e-003**	**0.4095**	**0.1086**	**2.6100e-003**	**0.1112**		**362.3243**	**362.3243**	**8.3400e-003**		**362.5329**

3.2 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**7.4987**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.2 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1766	0.1074	1.1496	3.4900e-003	0.4412	2.7700e-003	0.4440	0.1170	2.5500e-003	0.1196		348.2453	348.2453	7.5100e-003		348.4331
Total	**0.1766**	**0.1074**	**1.1496**	**3.4900e-003**	**0.4412**	**2.7700e-003**	**0.4440**	**0.1170**	**2.5500e-003**	**0.1196**		**348.2453**	**348.2453**	**7.5100e-003**		**348.4331**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**7.4987**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.2 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1766	0.1074	1.1496	3.4900e-003	0.4067	2.7700e-003	0.4095	0.1086	2.5500e-003	0.1111		348.2453	348.2453	7.5100e-003		348.4331
Total	**0.1766**	**0.1074**	**1.1496**	**3.4900e-003**	**0.4067**	**2.7700e-003**	**0.4095**	**0.1086**	**2.5500e-003**	**0.1111**		**348.2453**	**348.2453**	**7.5100e-003**		**348.4331**

3.2 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**7.4888**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

3.2 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1671	0.0975	1.0636	3.3500e-003	0.4412	2.7200e-003	0.4439	0.1170	2.5000e-003	0.1195		334.3083	334.3083	6.8000e-003		334.4782
Total	**0.1671**	**0.0975**	**1.0636**	**3.3500e-003**	**0.4412**	**2.7200e-003**	**0.4439**	**0.1170**	**2.5000e-003**	**0.1195**		**334.3083**	**334.3083**	**6.8000e-003**		**334.4782**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.3179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**7.4888**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

3.2 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1671	0.0975	1.0636	3.3500e-003	0.4067	2.7200e-003	0.4094	0.1086	2.5000e-003	0.1111		334.3083	334.3083	6.8000e-003		334.4782
Total	**0.1671**	**0.0975**	**1.0636**	**3.3500e-003**	**0.4067**	**2.7200e-003**	**0.4094**	**0.1086**	**2.5000e-003**	**0.1111**		**334.3083**	**334.3083**	**6.8000e-003**		**334.4782**

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1686	5.7270	1.6923	0.0164	0.4211	8.6600e-003	0.4298	0.1212	8.2800e-003	0.1295		1,734.8221	1,734.8221	0.0942		1,737.1783
Worker	0.9379	0.5943	6.2172	0.0182	2.2060	0.0142	2.2202	0.5852	0.0130	0.5982		1,811.6216	1,811.6216	0.0417		1,812.6647
Total	**1.1065**	**6.3212**	**7.9095**	**0.0345**	**2.6271**	**0.0228**	**2.6500**	**0.7063**	**0.0213**	**0.7277**		**3,546.4437**	**3,546.4437**	**0.1360**		**3,549.8429**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1686	5.7270	1.6923	0.0164	0.3940	8.6600e-003	0.4027	0.1145	8.2800e-003	0.1228		1,734.8221	1,734.8221	0.0942		1,737.1783
Worker	0.9379	0.5943	6.2172	0.0182	2.0335	0.0142	2.0476	0.5428	0.0130	0.5559		1,811.6216	1,811.6216	0.0417		1,812.6647
Total	**1.1065**	**6.3212**	**7.9095**	**0.0345**	**2.4275**	**0.0228**	**2.4503**	**0.6573**	**0.0213**	**0.6787**		**3,546.4437**	**3,546.4437**	**0.1360**		**3,549.8429**

3.3 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.3 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1605	5.6175	1.5815	0.0163	0.4211	8.2000e-003	0.4293	0.1212	7.8400e-003	0.1290		1,724.8511	1,724.8511	0.0931		1,727.1786
Worker	0.8832	0.5371	5.7482	0.0175	2.2060	0.0138	2.2199	0.5852	0.0127	0.5979		1,741.2262	1,741.2262	0.0376		1,742.1654
Total	**1.0437**	**6.1546**	**7.3297**	**0.0337**	**2.6271**	**0.0220**	**2.6491**	**0.7063**	**0.0206**	**0.7269**		**3,466.0774**	**3,466.0774**	**0.1307**		**3,469.3440**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.3 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1605	5.6175	1.5815	0.0163	0.3940	8.2000e-003	0.4022	0.1145	7.8400e-003	0.1224		1,724.8511	1,724.8511	0.0931		1,727.1786
Worker	0.8832	0.5371	5.7482	0.0175	2.0335	0.0138	2.0473	0.5428	0.0127	0.5556		1,741.2262	1,741.2262	0.0376		1,742.1654
Total	**1.0437**	**6.1546**	**7.3297**	**0.0337**	**2.4275**	**0.0220**	**2.4495**	**0.6573**	**0.0206**	**0.6779**		**3,466.0774**	**3,466.0774**	**0.1307**		**3,469.3440**

3.3 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.3 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1539	5.5134	1.4967	0.0162	0.4210	7.7600e-003	0.4288	0.1211	7.4200e-003	0.1286		1,715.2315	1,715.2315	0.0920		1,717.5314
Worker	0.8352	0.4876	5.3178	0.0168	2.2060	0.0136	2.2196	0.5852	0.0125	0.5977		1,671.5413	1,671.5413	0.0340		1,672.3912
Total	**0.9891**	**6.0011**	**6.8145**	**0.0329**	**2.6271**	**0.0213**	**2.6484**	**0.7063**	**0.0199**	**0.7262**		**3,386.7727**	**3,386.7727**	**0.1260**		**3,389.9226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.3 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1539	5.5134	1.4967	0.0162	0.3940	7.7600e-003	0.4017	0.1145	7.4200e-003	0.1219		1,715.2315	1,715.2315	0.0920		1,717.5314
Worker	0.8352	0.4876	5.3178	0.0168	2.0335	0.0136	2.0471	0.5428	0.0125	0.5553		1,671.5413	1,671.5413	0.0340		1,672.3912
Total	**0.9891**	**6.0011**	**6.8145**	**0.0329**	**2.4275**	**0.0213**	**2.4488**	**0.6573**	**0.0199**	**0.6772**		**3,386.7727**	**3,386.7727**	**0.1260**		**3,389.9226**

3.4 Improvements for Phase 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Improvements for Phase 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0794	0.0524	0.5382	1.5000e-003	0.3270	1.1500e-003	0.3282	0.0837	1.0600e-003	0.0848		149.2842	149.2842	3.7000e-003		149.3767
Total	**0.0794**	**0.0524**	**0.5382**	**1.5000e-003**	**0.3270**	**1.1500e-003**	**0.3282**	**0.0837**	**1.0600e-003**	**0.0848**		**149.2842**	**149.2842**	**3.7000e-003**		**149.3767**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Improvements for Phase 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0794	0.0524	0.5382	1.5000e-003	0.2996	1.1500e-003	0.3008	0.0770	1.0600e-003	0.0781		149.2842	149.2842	3.7000e-003		149.3767
Total	**0.0794**	**0.0524**	**0.5382**	**1.5000e-003**	**0.2996**	**1.1500e-003**	**0.3008**	**0.0770**	**1.0600e-003**	**0.0781**		**149.2842**	**149.2842**	**3.7000e-003**		**149.3767**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9085	10.8153	24.4919	0.1100	13.6743	0.0577	13.7320	3.6508	0.0537	3.7045		11,227.9875	11,227.9875	0.4292		11,238.7186
Unmitigated	1.9085	10.8153	24.4919	0.1100	13.6743	0.0577	13.7320	3.6508	0.0537	3.7045		11,227.9875	11,227.9875	0.4292		11,238.7186

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.95	11.38	8.37	6,449	6,449
City Park	1.93	23.28	17.13	13,200	13,200
City Park	4.16	50.05	36.83	28,377	28,377
Retirement Community	504.00	426.30	409.50	1,230,193	1,230,193
Single Family Housing	1,875.44	1,952.27	1698.14	4,775,752	4,775,752
Total	2,386.48	2,463.28	2,169.97	6,053,972	6,053,972

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2254	1.9265	0.8198	0.0123		0.1558	0.1558		0.1558	0.1558		2,459.3602	2,459.3602	0.0471	0.0451	2,473.9750
NaturalGas Unmitigated	0.2254	1.9265	0.8198	0.0123		0.1558	0.1558		0.1558	0.1558		2,459.3602	2,459.3602	0.0471	0.0451	2,473.9750

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	6960.91	0.0751	0.6415	0.2730	4.0900e-003		0.0519	0.0519		0.0519	0.0519		818.9303	818.9303	0.0157	0.0150	823.7968
Single Family Housing	13943.7	0.1504	1.2850	0.5468	8.2000e-003		0.1039	0.1039		0.1039	0.1039		1,640.4300	1,640.4300	0.0314	0.0301	1,650.1782
Total		**0.2254**	**1.9265**	**0.8198**	**0.0123**		**0.1558**	**0.1558**		**0.1558**	**0.1558**		**2,459.3602**	**2,459.3602**	**0.0471**	**0.0451**	**2,473.9750**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	6.96091	0.0751	0.6415	0.2730	4.0900e-003		0.0519	0.0519		0.0519	0.0519		818.9303	818.9303	0.0157	0.0150	823.7968
Single Family Housing	13.9437	0.1504	1.2850	0.5468	8.2000e-003		0.1039	0.1039		0.1039	0.1039		1,640.4300	1,640.4300	0.0314	0.0301	1,650.1782
Total		**0.2254**	**1.9265**	**0.8198**	**0.0123**		**0.1558**	**0.1558**		**0.1558**	**0.1558**		**2,459.3602**	**2,459.3602**	**0.0471**	**0.0451**	**2,473.9750**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	15.1943	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862	0.0000	60.4616	60.4616	0.0576	0.0000	61.9005
Unmitigated	15.1943	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862	0.0000	60.4616	60.4616	0.0576	0.0000	61.9005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.9536					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	12.2402					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0005	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862		60.4616	60.4616	0.0576		61.9005
Total	**15.1943**	**0.3860**	**33.4604**	**1.7700e-003**		**0.1862**	**0.1862**		**0.1862**	**0.1862**	**0.0000**	**60.4616**	**60.4616**	**0.0576**	**0.0000**	**61.9005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.9536					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	12.2402					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0005	0.3860	33.4604	1.7700e-003		0.1862	0.1862		0.1862	0.1862		60.4616	60.4616	0.0576		61.9005
Total	**15.1943**	**0.3860**	**33.4604**	**1.7700e-003**		**0.1862**	**0.1862**		**0.1862**	**0.1862**	**0.0000**	**60.4616**	**60.4616**	**0.0576**	**0.0000**	**61.9005**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Construction Only - Phase 3)

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	268.00	Dwelling Unit	28.39	482,400.00	716
Retirement Community	295.00	Dwelling Unit	36.49	295,000.00	788
Apartments Mid Rise	16.00	Dwelling Unit	0.42	16,000.00	33
City Park	1.02	Acre	1.23	44,576.40	0
City Park	1.58	Acre	1.58	68,824.80	0
City Park	9.10	Acre	9.28	396,396.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction state date of February 2025 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 3

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the

applicant)
Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).

Grading - Assume 104.38 acres graded (includes roadways). Assume 25,451 cy of material exported during this phase (total for all construction phases of 152,708 cy net export provided by applicant).

Architectural Coating -

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust - Project will not have unpaved roads during the project's operational phase. Therefore, project does not use CARB Unmitigated Unpaved Road Statewide Emission Inventory Method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9

tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	60.00	43.00
tblConstructionPhase	NumDays	155.00	132.00
tblConstructionPhase	NumDays	110.00	65.00
tblConstructionPhase	NumDays	1,550.00	717.00
tblConstructionPhase	NumDays	110.00	718.00
tblConstructionPhase	NumDays	60.00	196.00
tblConstructionPhase	NumDays	110.00	86.00
tblConstructionPhase	NumDays	60.00	260.00
tblConstructionPhase	PhaseEndDate	4/25/2025	4/2/2025
tblConstructionPhase	PhaseEndDate	11/28/2025	10/28/2025
tblConstructionPhase	PhaseEndDate	4/9/2032	12/31/2025
tblConstructionPhase	PhaseEndDate	11/7/2031	9/29/2028
tblConstructionPhase	PhaseEndDate	9/10/2032	12/29/2028
tblConstructionPhase	PhaseStartDate	4/26/2025	4/28/2025
tblConstructionPhase	PhaseStartDate	11/8/2031	10/2/2025
tblConstructionPhase	PhaseStartDate	11/29/2025	1/1/2026
tblConstructionPhase	PhaseStartDate	4/10/2032	4/1/2026
tblGrading	AcresOfGrading	330.00	104.38
tblGrading	MaterialExported	0.00	25,451.00
tblLandUse	LandUseSquareFeet	44,576.25	44,576.40
tblLandUse	LotAcreage	87.01	28.39
tblLandUse	LotAcreage	59.00	36.49
tblLandUse	LotAcreage	1.02	1.23
tblLandUse	LotAcreage	9.10	9.28
tblLandUse	Population	43.00	33.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00

tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.2842	2.8508	2.6751	6.2900e-003	0.8756	0.1120	0.9875	0.4468	0.1030	0.5498	0.0000	557.2187	557.2187	0.1644	0.0000	561.3275
2026	1.8096	3.3190	4.0041	0.0128	0.7008	0.0795	0.7802	0.1889	0.0750	0.2639	0.0000	1,168.9395	1,168.9395	0.1018	0.0000	1,171.4853
2027	2.5339	6.0806	6.2745	0.0175	2.5129	0.2012	2.7141	1.1732	0.1871	1.3603	0.0000	1,581.9932	1,581.9932	0.2290	0.0000	1,587.7175
2028	2.3969	5.0565	4.9616	0.0139	2.3434	0.1725	2.5159	1.1249	0.1604	1.2853	0.0000	1,250.2872	1,250.2872	0.1885	0.0000	1,255.0004
2029	0.0816	0.8207	0.5903	1.2700e-003	0.5915	0.0353	0.6268	0.3239	0.0325	0.3564	0.0000	111.5191	111.5191	0.0352	0.0000	112.3996
Maximum	**2.5339**	**6.0806**	**6.2745**	**0.0175**	**2.5129**	**0.2012**	**2.7141**	**1.1732**	**0.1871**	**1.3603**	**0.0000**	**1,581.9932**	**1,581.9932**	**0.2290**	**0.0000**	**1,587.7175**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.2842	2.8508	2.6751	6.2900e-003	0.4090	0.1120	0.5210	0.2051	0.1030	0.3081	0.0000	557.2181	557.2181	0.1644	0.0000	561.3269
2026	1.8096	3.3190	4.0041	0.0128	0.6478	0.0795	0.7273	0.1759	0.0750	0.2509	0.0000	1,168.9391	1,168.9391	0.1018	0.0000	1,171.4849
2027	2.5339	6.0806	6.2745	0.0175	1.4830	0.2012	1.6842	0.6242	0.1871	0.8113	0.0000	1,581.9923	1,581.9923	0.2290	0.0000	1,587.7166
2028	2.3969	5.0565	4.9616	0.0139	1.3305	0.1725	1.5030	0.5816	0.1604	0.7419	0.0000	1,250.2865	1,250.2865	0.1885	0.0000	1,254.9997
2029	0.0816	0.8207	0.5903	1.2700e-003	0.2682	0.0353	0.3035	0.1463	0.0325	0.1788	0.0000	111.5189	111.5189	0.0352	0.0000	112.3995
Maximum	**2.5339**	**6.0806**	**6.2745**	**0.0175**	**1.4830**	**0.2012**	**1.6842**	**0.6242**	**0.1871**	**0.8113**	**0.0000**	**1,581.9923**	**1,581.9923**	**0.2290**	**0.0000**	**1,587.7166**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**41.08**	**0.00**	**37.85**	**46.80**	**0.00**	**39.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**2-1-2025**	**4-30-2025**	0.8253	0.8253
2	**5-1-2025**	**7-31-2025**	1.0164	1.0164
3	**8-1-2025**	**10-31-2025**	1.0857	1.0857
4	**11-1-2025**	**1-31-2026**	0.5144	0.5144
5	**2-1-2026**	**4-30-2026**	1.0449	1.0449
6	**5-1-2026**	**7-31-2026**	1.4181	1.4181

7	**8-1-2026**	**10-31-2026**	1.4200	1.4200
8	**11-1-2026**	**1-31-2027**	1.7273	1.7273
9	**2-1-2027**	**4-30-2027**	2.2467	2.2467
10	**5-1-2027**	**7-31-2027**	2.3187	2.3187
11	**8-1-2027**	**10-31-2027**	2.1254	2.1254
12	**11-1-2027**	**1-31-2028**	1.7218	1.7218
13	**2-1-2028**	**4-30-2028**	1.6658	1.6658
14	**5-1-2028**	**7-31-2028**	2.3077	2.3077
15	**8-1-2028**	**10-31-2028**	2.0011	2.0011
16	**11-1-2028**	**1-31-2029**	1.2420	1.2420
17	**2-1-2029**	**4-30-2029**	0.5752	0.5752
		Highest	2.3187	2.3187

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.8083	0.0687	5.9502	3.2000e-004		0.0331	0.0331		0.0331	0.0331	0.0000	9.7539	9.7539	9.2900e-003	0.0000	9.9860
Energy	0.0574	0.4907	0.2088	3.1300e-003		0.0397	0.0397		0.0397	0.0397	0.0000	1,562.4815	1,562.4815	0.0597	0.0205	1,570.0908
Mobile	0.4990	2.5903	5.8155	0.0274	3.2166	0.0140	3.2306	0.8612	0.0130	0.8742	0.0000	2,536.2114	2,536.2114	0.0925	0.0000	2,538.5245
Waste						0.0000	0.0000		0.0000	0.0000	81.5679	0.0000	81.5679	4.8205	0.0000	202.0809
Water						0.0000	0.0000		0.0000	0.0000	13.3469	85.6819	99.0287	0.0502	0.0299	109.1914
Total	**4.3647**	**3.1496**	**11.9745**	**0.0309**	**3.2166**	**0.0868**	**3.3033**	**0.8612**	**0.0858**	**0.9470**	**94.9147**	**4,194.1286**	**4,289.0433**	**5.0322**	**0.0504**	**4,429.8737**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.8083	0.0687	5.9502	3.2000e-004		0.0331	0.0331		0.0331	0.0331	0.0000	9.7539	9.7539	9.2900e-003	0.0000	9.9860
Energy	0.0574	0.4907	0.2088	3.1300e-003		0.0397	0.0397		0.0397	0.0397	0.0000	1,562.4815	1,562.4815	0.0597	0.0205	1,570.0908
Mobile	0.4990	2.5903	5.8155	0.0274	3.2166	0.0140	3.2306	0.8612	0.0130	0.8742	0.0000	2,536.2114	2,536.2114	0.0925	0.0000	2,538.5245
Waste						0.0000	0.0000		0.0000	0.0000	81.5679	0.0000	81.5679	4.8205	0.0000	202.0809
Water						0.0000	0.0000		0.0000	0.0000	13.3469	85.6819	99.0287	0.0502	0.0299	109.1914
Total	**4.3647**	**3.1496**	**11.9745**	**0.0309**	**3.2166**	**0.0868**	**3.3033**	**0.8612**	**0.0858**	**0.9470**	**94.9147**	**4,194.1286**	**4,289.0433**	**5.0322**	**0.0504**	**4,429.8737**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,585.9200
Vegetation Land Change	-1,057.2430
Total	**528.6770**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/1/2025	4/2/2025	5	43	
2	Grading	Grading	4/28/2025	10/28/2025	5	132	
3	Building Construction	Building Construction	1/1/2026	9/29/2028	5	717	
4	Paving	Paving	10/2/2025	12/31/2025	5	65	
5	Architectural Coating	Architectural Coating	4/1/2026	12/29/2028	5	718	
6	Site Preparation and Grading for Rancho Cordova Widening	Site Preparation	1/1/2027	10/1/2027	5	196	
7	Paving for Rancho Cordova Widening	Paving	10/2/2027	1/31/2028	5	86	
8	Site Prepration for Park - Lot D	Site Preparation	4/1/2028	3/30/2029	5	260	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 104.38

Acres of Paving: 0

Residential Indoor: 1,606,635; Residential Outdoor: 535,545; Non-Residential Indoor: 10,500; Non-Residential Outdoor: 3,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Ranch - City of Rancho Cordova (Construction Only - Phase 3) - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving for Rancho Cordova Widening	Pavers	2	8.00	130	0.42
Paving for Rancho Cordova Widening	Paving Equipment	2	8.00	132	0.36
Paving for Rancho Cordova Widening	Rollers	2	8.00	80	0.38
Site Preparation and Grading for Rancho Cordova Widening	Rubber Tired Dozers	3	8.00	247	0.40
Site Prepration for Park - Lot D	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation and Grading for Rancho Cordova Widening	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Prepration for Park - Lot D	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	3,181.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	535.00	145.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	107.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving for Rancho Cordova Widening	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Site Preparation and Grading for Rancho C	7	18.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Site Prepration for Park - Lot D	7	18.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3911	0.0000	0.3911	0.2139	0.0000	0.2139	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0532	0.5425	0.3851	8.2000e-004		0.0234	0.0234		0.0215	0.0215	0.0000	71.9540	71.9540	0.0233	0.0000	72.5358
Total	**0.0532**	**0.5425**	**0.3851**	**8.2000e-004**	**0.3911**	**0.0234**	**0.4144**	**0.2139**	**0.0215**	**0.2354**	**0.0000**	**71.9540**	**71.9540**	**0.0233**	**0.0000**	**72.5358**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9200e-003	0.1818	0.0381	5.0000e-004	9.4000e-003	2.6000e-004	9.6600e-003	2.5800e-003	2.5000e-004	2.8300e-003	0.0000	48.6507	48.6507	3.4500e-003	0.0000	48.7369
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0400e-003	5.8000e-004	7.0900e-003	2.0000e-005	2.8400e-003	2.0000e-005	2.8600e-003	7.6000e-004	2.0000e-005	7.7000e-004	0.0000	2.0828	2.0828	4.0000e-005	0.0000	2.0838
Total	**4.9600e-003**	**0.1824**	**0.0452**	**5.2000e-004**	**0.0122**	**2.8000e-004**	**0.0125**	**3.3400e-003**	**2.7000e-004**	**3.6000e-003**	**0.0000**	**50.7334**	**50.7334**	**3.4900e-003**	**0.0000**	**50.8207**

3.2 Site Preparation - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1760	0.0000	0.1760	0.0963	0.0000	0.0963	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0532	0.5425	0.3851	8.2000e-004		0.0234	0.0234		0.0215	0.0215	0.0000	71.9539	71.9539	0.0233	0.0000	72.5357
Total	**0.0532**	**0.5425**	**0.3851**	**8.2000e-004**	**0.1760**	**0.0234**	**0.1994**	**0.0963**	**0.0215**	**0.1178**	**0.0000**	**71.9539**	**71.9539**	**0.0233**	**0.0000**	**72.5357**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9200e-003	0.1818	0.0381	5.0000e-004	8.7700e-003	2.6000e-004	9.0200e-003	2.4300e-003	2.5000e-004	2.6700e-003	0.0000	48.6507	48.6507	3.4500e-003	0.0000	48.7369
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0400e-003	5.8000e-004	7.0900e-003	2.0000e-005	2.6200e-003	2.0000e-005	2.6400e-003	7.0000e-004	2.0000e-005	7.2000e-004	0.0000	2.0828	2.0828	4.0000e-005	0.0000	2.0838
Total	**4.9600e-003**	**0.1824**	**0.0452**	**5.2000e-004**	**0.0114**	**2.8000e-004**	**0.0117**	**3.1300e-003**	**2.7000e-004**	**3.3900e-003**	**0.0000**	**50.7334**	**50.7334**	**3.4900e-003**	**0.0000**	**50.8207**

3.3 Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4528	0.0000	0.4528	0.2245	0.0000	0.2245	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1915	1.8442	1.7379	4.1000e-003		0.0746	0.0746		0.0687	0.0687	0.0000	359.7410	359.7410	0.1164	0.0000	362.6497
Total	**0.1915**	**1.8442**	**1.7379**	**4.1000e-003**	**0.4528**	**0.0746**	**0.5275**	**0.2245**	**0.0687**	**0.2931**	**0.0000**	**359.7410**	**359.7410**	**0.1164**	**0.0000**	**362.6497**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5500e-003	1.9800e-003	0.0242	8.0000e-005	9.6900e-003	6.0000e-005	9.7600e-003	2.5800e-003	6.0000e-005	2.6400e-003	0.0000	7.1040	7.1040	1.4000e-004	0.0000	7.1076
Total	**3.5500e-003**	**1.9800e-003**	**0.0242**	**8.0000e-005**	**9.6900e-003**	**6.0000e-005**	**9.7600e-003**	**2.5800e-003**	**6.0000e-005**	**2.6400e-003**	**0.0000**	**7.1040**	**7.1040**	**1.4000e-004**	**0.0000**	**7.1076**

3.3 Grading - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2038	0.0000	0.2038	0.1010	0.0000	0.1010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1915	1.8442	1.7379	4.1000e-003		0.0746	0.0746		0.0687	0.0687	0.0000	359.7406	359.7406	0.1164	0.0000	362.6493
Total	**0.1915**	**1.8442**	**1.7379**	**4.1000e-003**	**0.2038**	**0.0746**	**0.2784**	**0.1010**	**0.0687**	**0.1697**	**0.0000**	**359.7406**	**359.7406**	**0.1164**	**0.0000**	**362.6493**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5500e-003	1.9800e-003	0.0242	8.0000e-005	8.9400e-003	6.0000e-005	9.0000e-003	2.3900e-003	6.0000e-005	2.4500e-003	0.0000	7.1040	7.1040	1.4000e-004	0.0000	7.1076
Total	**3.5500e-003**	**1.9800e-003**	**0.0242**	**8.0000e-005**	**8.9400e-003**	**6.0000e-005**	**9.0000e-003**	**2.3900e-003**	**6.0000e-005**	**2.4500e-003**	**0.0000**	**7.1040**	**7.1040**	**1.4000e-004**	**0.0000**	**7.1076**

3.4 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0384	1.4686	0.3565	4.4100e-003	0.1106	1.9000e-003	0.1125	0.0320	1.8200e-003	0.0338	0.0000	424.7338	424.7338	0.0214	0.0000	425.2679
Worker	0.1780	0.0958	1.1906	4.0000e-003	0.5128	3.1700e-003	0.5159	0.1364	2.9200e-003	0.1393	0.0000	361.7867	361.7867	6.9100e-003	0.0000	361.9594
Total	**0.2164**	**1.5644**	**1.5471**	**8.4100e-003**	**0.6234**	**5.0700e-003**	**0.6284**	**0.1683**	**4.7400e-003**	**0.1731**	**0.0000**	**786.5205**	**786.5205**	**0.0283**	**0.0000**	**787.2273**

3.4 Building Construction - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1784	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1784**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0384	1.4686	0.3565	4.4100e-003	0.1036	1.9000e-003	0.1055	0.0302	1.8200e-003	0.0320	0.0000	424.7338	424.7338	0.0214	0.0000	425.2679
Worker	0.1780	0.0958	1.1906	4.0000e-003	0.4729	3.1700e-003	0.4761	0.1266	2.9200e-003	0.1295	0.0000	361.7867	361.7867	6.9100e-003	0.0000	361.9594
Total	**0.2164**	**1.5644**	**1.5471**	**8.4100e-003**	**0.5764**	**5.0700e-003**	**0.5815**	**0.1568**	**4.7400e-003**	**0.1616**	**0.0000**	**786.5205**	**786.5205**	**0.0283**	**0.0000**	**787.2273**

3.4 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0371	1.4439	0.3416	4.3800e-003	0.1106	1.8100e-003	0.1124	0.0320	1.7300e-003	0.0337	0.0000	422.5680	422.5680	0.0211	0.0000	423.0964
Worker	0.1684	0.0877	1.1107	3.8600e-003	0.5128	3.0200e-003	0.5158	0.1364	2.7800e-003	0.1392	0.0000	349.2894	349.2894	6.2900e-003	0.0000	349.4468
Total	**0.2055**	**1.5316**	**1.4523**	**8.2400e-003**	**0.6233**	**4.8300e-003**	**0.6282**	**0.1683**	**4.5100e-003**	**0.1728**	**0.0000**	**771.8574**	**771.8574**	**0.0274**	**0.0000**	**772.5432**

3.4 Building Construction - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1784	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1784**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0371	1.4439	0.3416	4.3800e-003	0.1035	1.8100e-003	0.1054	0.0302	1.7300e-003	0.0320	0.0000	422.5680	422.5680	0.0211	0.0000	423.0964
Worker	0.1684	0.0877	1.1107	3.8600e-003	0.4729	3.0200e-003	0.4759	0.1266	2.7800e-003	0.1294	0.0000	349.2894	349.2894	6.2900e-003	0.0000	349.4468
Total	**0.2055**	**1.5316**	**1.4523**	**8.2400e-003**	**0.5764**	**4.8300e-003**	**0.5813**	**0.1568**	**4.5100e-003**	**0.1613**	**0.0000**	**771.8574**	**771.8574**	**0.0274**	**0.0000**	**772.5432**

3.4 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1333	1.2158	1.5683	2.6300e-003		0.0514	0.0514		0.0484	0.0484	0.0000	226.1215	226.1215	0.0532	0.0000	227.4503
Total	**0.1333**	**1.2158**	**1.5683**	**2.6300e-003**		**0.0514**	**0.0514**		**0.0484**	**0.0484**	**0.0000**	**226.1215**	**226.1215**	**0.0532**	**0.0000**	**227.4503**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0268	1.0631	0.2459	3.2600e-003	0.0826	1.2900e-003	0.0839	0.0239	1.2300e-003	0.0251	0.0000	314.3313	314.3313	0.0156	0.0000	314.7218
Worker	0.1184	0.0601	0.7771	2.7900e-003	0.3831	2.1000e-003	0.3852	0.1019	1.9400e-003	0.1038	0.0000	252.6747	252.6747	4.3100e-003	0.0000	252.7824
Total	**0.1453**	**1.1232**	**1.0230**	**6.0500e-003**	**0.4657**	**3.3900e-003**	**0.4691**	**0.1258**	**3.1700e-003**	**0.1289**	**0.0000**	**567.0060**	**567.0060**	**0.0199**	**0.0000**	**567.5042**

3.4 Building Construction - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1333	1.2158	1.5683	2.6300e-003		0.0514	0.0514		0.0484	0.0484	0.0000	226.1212	226.1212	0.0532	0.0000	227.4501
Total	**0.1333**	**1.2158**	**1.5683**	**2.6300e-003**		**0.0514**	**0.0514**		**0.0484**	**0.0484**	**0.0000**	**226.1212**	**226.1212**	**0.0532**	**0.0000**	**227.4501**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0268	1.0631	0.2459	3.2600e-003	0.0774	1.2900e-003	0.0786	0.0226	1.2300e-003	0.0238	0.0000	314.3313	314.3313	0.0156	0.0000	314.7218
Worker	0.1184	0.0601	0.7771	2.7900e-003	0.3533	2.1000e-003	0.3554	0.0946	1.9400e-003	0.0965	0.0000	252.6747	252.6747	4.3100e-003	0.0000	252.7824
Total	**0.1453**	**1.1232**	**1.0230**	**6.0500e-003**	**0.4307**	**3.3900e-003**	**0.4340**	**0.1172**	**3.1700e-003**	**0.1203**	**0.0000**	**567.0060**	**567.0060**	**0.0199**	**0.0000**	**567.5042**

3.5 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0297	0.2789	0.4738	7.4000e-004		0.0136	0.0136		0.0125	0.0125	0.0000	65.0626	65.0626	0.0210	0.0000	65.5886
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0297**	**0.2789**	**0.4738**	**7.4000e-004**		**0.0136**	**0.0136**		**0.0125**	**0.0125**	**0.0000**	**65.0626**	**65.0626**	**0.0210**	**0.0000**	**65.5886**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	7.3000e-004	8.9300e-003	3.0000e-005	9.7700e-003	2.0000e-005	9.7900e-003	2.4700e-003	2.0000e-005	2.4900e-003	0.0000	2.6237	2.6237	5.0000e-005	0.0000	2.6250
Total	**1.3100e-003**	**7.3000e-004**	**8.9300e-003**	**3.0000e-005**	**9.7700e-003**	**2.0000e-005**	**9.7900e-003**	**2.4700e-003**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**2.6237**	**2.6237**	**5.0000e-005**	**0.0000**	**2.6250**

3.5 Paving - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0297	0.2789	0.4738	7.4000e-004		0.0136	0.0136		0.0125	0.0125	0.0000	65.0625	65.0625	0.0210	0.0000	65.5886
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0297**	**0.2789**	**0.4738**	**7.4000e-004**		**0.0136**	**0.0136**		**0.0125**	**0.0125**	**0.0000**	**65.0625**	**65.0625**	**0.0210**	**0.0000**	**65.5886**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	7.3000e-004	8.9300e-003	3.0000e-005	8.9300e-003	2.0000e-005	8.9600e-003	2.2700e-003	2.0000e-005	2.2900e-003	0.0000	2.6237	2.6237	5.0000e-005	0.0000	2.6250
Total	**1.3100e-003**	**7.3000e-004**	**8.9300e-003**	**3.0000e-005**	**8.9300e-003**	**2.0000e-005**	**8.9600e-003**	**2.2700e-003**	**2.0000e-005**	**2.2900e-003**	**0.0000**	**2.6237**	**2.6237**	**5.0000e-005**	**0.0000**	**2.6250**

3.6 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3710					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0168	0.1128	0.1782	2.9000e-004		5.0700e-003	5.0700e-003		5.0700e-003	5.0700e-003	0.0000	25.1496	25.1496	1.3700e-003	0.0000	25.1839
Total	**1.3879**	**0.1128**	**0.1782**	**2.9000e-004**		**5.0700e-003**	**5.0700e-003**		**5.0700e-003**	**5.0700e-003**	**0.0000**	**25.1496**	**25.1496**	**1.3700e-003**	**0.0000**	**25.1839**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0269	0.0145	0.1797	6.0000e-004	0.0774	4.8000e-004	0.0779	0.0206	4.4000e-004	0.0210	0.0000	54.6146	54.6146	1.0400e-003	0.0000	54.6406
Total	**0.0269**	**0.0145**	**0.1797**	**6.0000e-004**	**0.0774**	**4.8000e-004**	**0.0779**	**0.0206**	**4.4000e-004**	**0.0210**	**0.0000**	**54.6146**	**54.6146**	**1.0400e-003**	**0.0000**	**54.6406**

3.6 Architectural Coating - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3710					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0168	0.1128	0.1782	2.9000e-004		5.0700e-003	5.0700e-003		5.0700e-003	5.0700e-003	0.0000	25.1495	25.1495	1.3700e-003	0.0000	25.1838
Total	**1.3879**	**0.1128**	**0.1782**	**2.9000e-004**		**5.0700e-003**	**5.0700e-003**		**5.0700e-003**	**5.0700e-003**	**0.0000**	**25.1495**	**25.1495**	**1.3700e-003**	**0.0000**	**25.1838**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0269	0.0145	0.1797	6.0000e-004	0.0714	4.8000e-004	0.0719	0.0191	4.4000e-004	0.0196	0.0000	54.6146	54.6146	1.0400e-003	0.0000	54.6406
Total	**0.0269**	**0.0145**	**0.1797**	**6.0000e-004**	**0.0714**	**4.8000e-004**	**0.0719**	**0.0191**	**4.4000e-004**	**0.0196**	**0.0000**	**54.6146**	**54.6146**	**1.0400e-003**	**0.0000**	**54.6406**

3.6 Architectural Coating - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.8164					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0223	0.1495	0.2361	3.9000e-004		6.7200e-003	6.7200e-003		6.7200e-003	6.7200e-003	0.0000	33.3200	33.3200	1.8200e-003	0.0000	33.3654
Total	**1.8387**	**0.1495**	**0.2361**	**3.9000e-004**		**6.7200e-003**	**6.7200e-003**		**6.7200e-003**	**6.7200e-003**	**0.0000**	**33.3200**	**33.3200**	**1.8200e-003**	**0.0000**	**33.3654**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0337	0.0175	0.2221	7.7000e-004	0.1026	6.0000e-004	0.1032	0.0273	5.6000e-004	0.0278	0.0000	69.8579	69.8579	1.2600e-003	0.0000	69.8894
Total	**0.0337**	**0.0175**	**0.2221**	**7.7000e-004**	**0.1026**	**6.0000e-004**	**0.1032**	**0.0273**	**5.6000e-004**	**0.0278**	**0.0000**	**69.8579**	**69.8579**	**1.2600e-003**	**0.0000**	**69.8894**

3.6 Architectural Coating - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.8164					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0223	0.1495	0.2361	3.9000e-004		6.7200e-003	6.7200e-003		6.7200e-003	6.7200e-003	0.0000	33.3199	33.3199	1.8200e-003	0.0000	33.3654
Total	**1.8387**	**0.1495**	**0.2361**	**3.9000e-004**		**6.7200e-003**	**6.7200e-003**		**6.7200e-003**	**6.7200e-003**	**0.0000**	**33.3199**	**33.3199**	**1.8200e-003**	**0.0000**	**33.3654**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0337	0.0175	0.2221	7.7000e-004	0.0946	6.0000e-004	0.0952	0.0253	5.6000e-004	0.0259	0.0000	69.8579	69.8579	1.2600e-003	0.0000	69.8894
Total	**0.0337**	**0.0175**	**0.2221**	**7.7000e-004**	**0.0946**	**6.0000e-004**	**0.0952**	**0.0253**	**5.6000e-004**	**0.0259**	**0.0000**	**69.8579**	**69.8579**	**1.2600e-003**	**0.0000**	**69.8894**

3.6 Architectural Coating - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.8095					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0222	0.1489	0.2352	3.9000e-004		6.7000e-003	6.7000e-003		6.7000e-003	6.7000e-003	0.0000	33.1923	33.1923	1.8100e-003	0.0000	33.2376
Total	**1.8317**	**0.1489**	**0.2352**	**3.9000e-004**		**6.7000e-003**	**6.7000e-003**		**6.7000e-003**	**6.7000e-003**	**0.0000**	**33.1923**	**33.1923**	**1.8100e-003**	**0.0000**	**33.2376**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0316	0.0160	0.2072	7.4000e-004	0.1022	5.6000e-004	0.1027	0.0272	5.2000e-004	0.0277	0.0000	67.3799	67.3799	1.1500e-003	0.0000	67.4086
Total	**0.0316**	**0.0160**	**0.2072**	**7.4000e-004**	**0.1022**	**5.6000e-004**	**0.1027**	**0.0272**	**5.2000e-004**	**0.0277**	**0.0000**	**67.3799**	**67.3799**	**1.1500e-003**	**0.0000**	**67.4086**

3.6 Architectural Coating - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.8095					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0222	0.1489	0.2352	3.9000e-004		6.7000e-003	6.7000e-003		6.7000e-003	6.7000e-003	0.0000	33.1923	33.1923	1.8100e-003	0.0000	33.2375
Total	**1.8317**	**0.1489**	**0.2352**	**3.9000e-004**		**6.7000e-003**	**6.7000e-003**		**6.7000e-003**	**6.7000e-003**	**0.0000**	**33.1923**	**33.1923**	**1.8100e-003**	**0.0000**	**33.2375**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0316	0.0160	0.2072	7.4000e-004	0.0942	5.6000e-004	0.0948	0.0252	5.2000e-004	0.0257	0.0000	67.3799	67.3799	1.1500e-003	0.0000	67.4086
Total	**0.0316**	**0.0160**	**0.2072**	**7.4000e-004**	**0.0942**	**5.6000e-004**	**0.0948**	**0.0252**	**5.2000e-004**	**0.0257**	**0.0000**	**67.3799**	**67.3799**	**1.1500e-003**	**0.0000**	**67.4086**

3.7 Site Preparation and Grading for Rancho Cordova Widening - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.7705	0.0000	1.7705	0.9732	0.0000	0.9732	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2423	2.4729	1.7554	3.7300e-003		0.1065	0.1065		0.0980	0.0980	0.0000	327.9765	327.9765	0.1061	0.0000	330.6283
Total	**0.2423**	**2.4729**	**1.7554**	**3.7300e-003**	**1.7705**	**0.1065**	**1.8770**	**0.9732**	**0.0980**	**1.0712**	**0.0000**	**327.9765**	**327.9765**	**0.1061**	**0.0000**	**330.6283**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2600e-003	2.2200e-003	0.0281	1.0000e-004	0.0130	8.0000e-005	0.0130	3.4500e-003	7.0000e-005	3.5200e-003	0.0000	8.8251	8.8251	1.6000e-004	0.0000	8.8291
Total	**4.2600e-003**	**2.2200e-003**	**0.0281**	**1.0000e-004**	**0.0130**	**8.0000e-005**	**0.0130**	**3.4500e-003**	**7.0000e-005**	**3.5200e-003**	**0.0000**	**8.8251**	**8.8251**	**1.6000e-004**	**0.0000**	**8.8291**

3.7 Site Preparation and Grading for Rancho Cordova Widening - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7967	0.0000	0.7967	0.4379	0.0000	0.4379	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2423	2.4729	1.7554	3.7300e-003		0.1065	0.1065		0.0980	0.0980	0.0000	327.9761	327.9761	0.1061	0.0000	330.6279
Total	**0.2423**	**2.4729**	**1.7554**	**3.7300e-003**	**0.7967**	**0.1065**	**0.9032**	**0.4379**	**0.0980**	**0.5359**	**0.0000**	**327.9761**	**327.9761**	**0.1061**	**0.0000**	**330.6279**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2600e-003	2.2200e-003	0.0281	1.0000e-004	0.0120	8.0000e-005	0.0120	3.2000e-003	7.0000e-005	3.2700e-003	0.0000	8.8251	8.8251	1.6000e-004	0.0000	8.8291
Total	**4.2600e-003**	**2.2200e-003**	**0.0281**	**1.0000e-004**	**0.0120**	**8.0000e-005**	**0.0120**	**3.2000e-003**	**7.0000e-005**	**3.2700e-003**	**0.0000**	**8.8251**	**8.8251**	**1.6000e-004**	**0.0000**	**8.8291**

3.8 Paving for Rancho Cordova Widening - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0297	0.2789	0.4738	7.4000e-004		0.0136	0.0136		0.0125	0.0125	0.0000	65.0626	65.0626	0.0210	0.0000	65.5886
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0297**	**0.2789**	**0.4738**	**7.4000e-004**		**0.0136**	**0.0136**		**0.0125**	**0.0125**	**0.0000**	**65.0626**	**65.0626**	**0.0210**	**0.0000**	**65.5886**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1800e-003	6.1000e-004	7.7600e-003	3.0000e-005	3.5800e-003	2.0000e-005	3.6000e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	2.4389	2.4389	4.0000e-005	0.0000	2.4400
Total	**1.1800e-003**	**6.1000e-004**	**7.7600e-003**	**3.0000e-005**	**3.5800e-003**	**2.0000e-005**	**3.6000e-003**	**9.5000e-004**	**2.0000e-005**	**9.7000e-004**	**0.0000**	**2.4389**	**2.4389**	**4.0000e-005**	**0.0000**	**2.4400**

3.8 Paving for Rancho Cordova Widening - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0297	0.2789	0.4738	7.4000e-004		0.0136	0.0136		0.0125	0.0125	0.0000	65.0625	65.0625	0.0210	0.0000	65.5886
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0297**	**0.2789**	**0.4738**	**7.4000e-004**		**0.0136**	**0.0136**		**0.0125**	**0.0125**	**0.0000**	**65.0625**	**65.0625**	**0.0210**	**0.0000**	**65.5886**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1800e-003	6.1000e-004	7.7600e-003	3.0000e-005	3.3000e-003	2.0000e-005	3.3200e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.4389	2.4389	4.0000e-005	0.0000	2.4400
Total	**1.1800e-003**	**6.1000e-004**	**7.7600e-003**	**3.0000e-005**	**3.3000e-003**	**2.0000e-005**	**3.3200e-003**	**8.8000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**2.4389**	**2.4389**	**4.0000e-005**	**0.0000**	**2.4400**

3.8 Paving for Rancho Cordova Widening - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.6100e-003	0.0901	0.1531	2.4000e-004		4.3900e-003	4.3900e-003		4.0400e-003	4.0400e-003	0.0000	21.0202	21.0202	6.8000e-003	0.0000	21.1902
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.6100e-003**	**0.0901**	**0.1531**	**2.4000e-004**		**4.3900e-003**	**4.3900e-003**		**4.0400e-003**	**4.0400e-003**	**0.0000**	**21.0202**	**21.0202**	**6.8000e-003**	**0.0000**	**21.1902**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	1.8000e-004	2.3500e-003	1.0000e-005	1.1600e-003	1.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	0.7629	0.7629	1.0000e-005	0.0000	0.7633
Total	**3.6000e-004**	**1.8000e-004**	**2.3500e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1600e-003**	**3.1000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**0.7629**	**0.7629**	**1.0000e-005**	**0.0000**	**0.7633**

3.8 Paving for Rancho Cordova Widening - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.6100e-003	0.0901	0.1531	2.4000e-004		4.3900e-003	4.3900e-003		4.0400e-003	4.0400e-003	0.0000	21.0202	21.0202	6.8000e-003	0.0000	21.1902
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.6100e-003**	**0.0901**	**0.1531**	**2.4000e-004**		**4.3900e-003**	**4.3900e-003**		**4.0400e-003**	**4.0400e-003**	**0.0000**	**21.0202**	**21.0202**	**6.8000e-003**	**0.0000**	**21.1902**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	1.8000e-004	2.3500e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0700e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.7629	0.7629	1.0000e-005	0.0000	0.7633
Total	**3.6000e-004**	**1.8000e-004**	**2.3500e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0700e-003**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.7629**	**0.7629**	**1.0000e-005**	**0.0000**	**0.7633**

3.9 Site Prepration for Park - Lot D - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.7615	0.0000	1.7615	0.9682	0.0000	0.9682	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2411	2.4603	1.7464	3.7100e-003		0.1060	0.1060		0.0975	0.0975	0.0000	326.3031	326.3031	0.1055	0.0000	328.9414
Total	**0.2411**	**2.4603**	**1.7464**	**3.7100e-003**	**1.7615**	**0.1060**	**1.8674**	**0.9682**	**0.0975**	**1.0657**	**0.0000**	**326.3031**	**326.3031**	**0.1055**	**0.0000**	**328.9414**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9800e-003	2.0200e-003	0.0262	9.0000e-005	0.0129	7.0000e-005	0.0130	3.4300e-003	7.0000e-005	3.4900e-003	0.0000	8.5012	8.5012	1.4000e-004	0.0000	8.5048
Total	**3.9800e-003**	**2.0200e-003**	**0.0262**	**9.0000e-005**	**0.0129**	**7.0000e-005**	**0.0130**	**3.4300e-003**	**7.0000e-005**	**3.4900e-003**	**0.0000**	**8.5012**	**8.5012**	**1.4000e-004**	**0.0000**	**8.5048**

3.9 Site Prepration for Park - Lot D - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7927	0.0000	0.7927	0.4357	0.0000	0.4357	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2411	2.4603	1.7464	3.7100e-003		0.1060	0.1060		0.0975	0.0975	0.0000	326.3027	326.3027	0.1055	0.0000	328.9411
Total	**0.2411**	**2.4603**	**1.7464**	**3.7100e-003**	**0.7927**	**0.1060**	**0.8986**	**0.4357**	**0.0975**	**0.5332**	**0.0000**	**326.3027**	**326.3027**	**0.1055**	**0.0000**	**328.9411**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9800e-003	2.0200e-003	0.0262	9.0000e-005	0.0119	7.0000e-005	0.0120	3.1800e-003	7.0000e-005	3.2500e-003	0.0000	8.5012	8.5012	1.4000e-004	0.0000	8.5048
Total	**3.9800e-003**	**2.0200e-003**	**0.0262**	**9.0000e-005**	**0.0119**	**7.0000e-005**	**0.0120**	**3.1800e-003**	**7.0000e-005**	**3.2500e-003**	**0.0000**	**8.5012**	**8.5012**	**1.4000e-004**	**0.0000**	**8.5048**

3.9 Site Prepration for Park - Lot D - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5872	0.0000	0.5872	0.3228	0.0000	0.3228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0804	0.8201	0.5821	1.2400e-003		0.0353	0.0353		0.0325	0.0325	0.0000	108.7677	108.7677	0.0352	0.0000	109.6472
Total	**0.0804**	**0.8201**	**0.5821**	**1.2400e-003**	**0.5872**	**0.0353**	**0.6225**	**0.3228**	**0.0325**	**0.3553**	**0.0000**	**108.7677**	**108.7677**	**0.0352**	**0.0000**	**109.6472**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	6.2000e-004	8.1500e-003	3.0000e-005	4.3000e-003	2.0000e-005	4.3200e-003	1.1400e-003	2.0000e-005	1.1600e-003	0.0000	2.7514	2.7514	4.0000e-005	0.0000	2.7525
Total	**1.2400e-003**	**6.2000e-004**	**8.1500e-003**	**3.0000e-005**	**4.3000e-003**	**2.0000e-005**	**4.3200e-003**	**1.1400e-003**	**2.0000e-005**	**1.1600e-003**	**0.0000**	**2.7514**	**2.7514**	**4.0000e-005**	**0.0000**	**2.7525**

3.9 Site Prepration for Park - Lot D - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2642	0.0000	0.2642	0.1452	0.0000	0.1452	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0804	0.8201	0.5821	1.2400e-003		0.0353	0.0353		0.0325	0.0325	0.0000	108.7676	108.7676	0.0352	0.0000	109.6470
Total	**0.0804**	**0.8201**	**0.5821**	**1.2400e-003**	**0.2642**	**0.0353**	**0.2995**	**0.1452**	**0.0325**	**0.1777**	**0.0000**	**108.7676**	**108.7676**	**0.0352**	**0.0000**	**109.6470**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	6.2000e-004	8.1500e-003	3.0000e-005	3.9600e-003	2.0000e-005	3.9800e-003	1.0600e-003	2.0000e-005	1.0800e-003	0.0000	2.7514	2.7514	4.0000e-005	0.0000	2.7525
Total	**1.2400e-003**	**6.2000e-004**	**8.1500e-003**	**3.0000e-005**	**3.9600e-003**	**2.0000e-005**	**3.9800e-003**	**1.0600e-003**	**2.0000e-005**	**1.0800e-003**	**0.0000**	**2.7514**	**2.7514**	**4.0000e-005**	**0.0000**	**2.7525**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4990	2.5903	5.8155	0.0274	3.2166	0.0140	3.2306	0.8612	0.0130	0.8742	0.0000	2,536.2114	2,536.2114	0.0925	0.0000	2,538.5245
Unmitigated	0.4990	2.5903	5.8155	0.0274	3.2166	0.0140	3.2306	0.8612	0.0130	0.8742	0.0000	2,536.2114	2,536.2114	0.0925	0.0000	2,538.5245

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	106.40	102.24	93.76	266,875	266,875
City Park	1.93	23.28	17.13	13,200	13,200
City Park	2.99	35.95	26.45	20,380	20,380
City Park	17.20	207.03	152.33	117,380	117,380
Retirement Community	708.00	598.85	575.25	1,728,128	1,728,128
Single Family Housing	2,551.36	2,655.88	2310.16	6,496,963	6,496,963
Total	3,387.88	3,623.22	3,175.08	8,642,925	8,642,925

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	994.2215	994.2215	0.0488	0.0101	998.4540
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	994.2215	994.2215	0.0488	0.0101	998.4540
NaturalGas Mitigated	0.0574	0.4907	0.2088	3.1300e-003		0.0397	0.0397		0.0397	0.0397	0.0000	568.2599	568.2599	0.0109	0.0104	571.6368
NaturalGas Unmitigated	0.0574	0.4907	0.2088	3.1300e-003		0.0397	0.0397		0.0397	0.0397	0.0000	568.2599	568.2599	0.0109	0.0104	571.6368

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	155970	8.4000e-004	7.1900e-003	3.0600e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	8.3231	8.3231	1.6000e-004	1.5000e-004	8.3726
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	3.56912e+006	0.0193	0.1645	0.0700	1.0500e-003		0.0133	0.0133		0.0133	0.0133	0.0000	190.4620	190.4620	3.6500e-003	3.4900e-003	191.5938
Single Family Housing	6.9237e+006	0.0373	0.3190	0.1358	2.0400e-003		0.0258	0.0258		0.0258	0.0258	0.0000	369.4748	369.4748	7.0800e-003	6.7700e-003	371.6704
Total		**0.0574**	**0.4907**	**0.2088**	**3.1400e-003**		**0.0397**	**0.0397**		**0.0397**	**0.0397**	**0.0000**	**568.2599**	**568.2599**	**0.0109**	**0.0104**	**571.6368**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	155970	8.4000e-004	7.1900e-003	3.0600e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	8.3231	8.3231	1.6000e-004	1.5000e-004	8.3726
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	3.56912e+006	0.0193	0.1645	0.0700	1.0500e-003		0.0133	0.0133		0.0133	0.0133	0.0000	190.4620	190.4620	3.6500e-003	3.4900e-003	191.5938
Single Family Housing	6.9237e+006	0.0373	0.3190	0.1358	2.0400e-003		0.0258	0.0258		0.0258	0.0258	0.0000	369.4748	369.4748	7.0800e-003	6.7700e-003	371.6704
Total		**0.0574**	**0.4907**	**0.2088**	**3.1400e-003**		**0.0397**	**0.0397**		**0.0397**	**0.0397**	**0.0000**	**568.2599**	**568.2599**	**0.0109**	**0.0104**	**571.6368**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	68103.4	18.2354	9.0000e-004	1.9000e-004	18.3130
City Park	0	0.0000	0.0000	0.0000	0.0000
Retirement Community	1.38207e+006	370.0630	0.0182	3.7600e-003	371.6384
Single Family Housing	2.26293e+006	605.9232	0.0298	6.1600e-003	608.5027
Total		**994.2215**	**0.0489**	**0.0101**	**998.4540**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	68103.4	18.2354	9.0000e-004	1.9000e-004	18.3130
City Park	0	0.0000	0.0000	0.0000	0.0000
Retirement Community	1.38207e+006	370.0630	0.0182	3.7600e-003	371.6384
Single Family Housing	2.26293e+006	605.9232	0.0298	6.1600e-003	608.5027
Total		**994.2215**	**0.0489**	**0.0101**	**998.4540**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.8083	0.0687	5.9502	3.2000e-004		0.0331	0.0331		0.0331	0.0331	0.0000	9.7539	9.7539	9.2900e-003	0.0000	9.9860
Unmitigated	3.8083	0.0687	5.9502	3.2000e-004		0.0331	0.0331		0.0331	0.0331	0.0000	9.7539	9.7539	9.2900e-003	0.0000	9.9860

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4997					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.1307					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1779	0.0687	5.9502	3.2000e-004		0.0331	0.0331		0.0331	0.0331	0.0000	9.7539	9.7539	9.2900e-003	0.0000	9.9860
Total	**3.8083**	**0.0687**	**5.9502**	**3.2000e-004**		**0.0331**	**0.0331**		**0.0331**	**0.0331**	**0.0000**	**9.7539**	**9.7539**	**9.2900e-003**	**0.0000**	**9.9860**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4997					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.1307					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1779	0.0687	5.9502	3.2000e-004		0.0331	0.0331		0.0331	0.0331	0.0000	9.7539	9.7539	9.2900e-003	0.0000	9.9860
Total	**3.8083**	**0.0687**	**5.9502**	**3.2000e-004**		**0.0331**	**0.0331**		**0.0331**	**0.0331**	**0.0000**	**9.7539**	**9.7539**	**9.2900e-003**	**0.0000**	**9.9860**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	99.0287	0.0502	0.0299	109.1914
Unmitigated	99.0287	0.0502	0.0299	109.1914

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.04246 / 0.657206	2.3755	1.3700e-003	8.2000e-004	2.6548
City Park	0 / 13.9403	13.0643	6.4000e-004	1.3000e-004	13.1199
Retirement Community	19.2204 / 12.1172	43.7988	0.0252	0.0152	48.9483
Single Family Housing	17.4613 / 11.0082	39.7901	0.0229	0.0138	44.4683
Total		**99.0288**	**0.0501**	**0.0299**	**109.1914**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.04246 / 0.657206	2.3755	1.3700e-003	8.2000e-004	2.6548
City Park	0 / 13.9403	13.0643	6.4000e-004	1.3000e-004	13.1199
Retirement Community	19.2204 / 12.1172	43.7988	0.0252	0.0152	48.9483
Single Family Housing	17.4613 / 11.0082	39.7901	0.0229	0.0138	44.4683
Total		**99.0288**	**0.0501**	**0.0299**	**109.1914**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	81.5679	4.8205	0.0000	202.0809
Unmitigated	81.5679	4.8205	0.0000	202.0809

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	7.36	1.4940	0.0883	0.0000	3.7014
City Park	1.01	0.2050	0.0121	0.0000	0.5079
Retirement Community	135.7	27.5459	1.6279	0.0000	68.2437
Single Family Housing	257.76	52.3230	3.0922	0.0000	129.6279
Total		**81.5679**	**4.8205**	**0.0000**	**202.0809**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	7.36	1.4940	0.0883	0.0000	3.7014
City Park	1.01	0.2050	0.0121	0.0000	0.5079
Retirement Community	135.7	27.5459	1.6279	0.0000	68.2437
Single Family Housing	257.76	52.3230	3.0922	0.0000	129.6279
Total		**81.5679**	**4.8205**	**0.0000**	**202.0809**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	528.6770	0.0000	0.0000	528.6770

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	530.1 / 284.8	-1,057.2430	0.0000	0.0000	-1,057.2430
Total		**-1,057.2430**	**0.0000**	**0.0000**	**-1,057.2430**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2240	1,585.9200	0.0000	0.0000	1,585.9200
Total		**1,585.9200**	**0.0000**	**0.0000**	**1,585.9200**

The Ranch - City of Rancho Cordova (Construction Only - Phase 3)

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	268.00	Dwelling Unit	28.39	482,400.00	716
Retirement Community	295.00	Dwelling Unit	36.49	295,000.00	788
Apartments Mid Rise	16.00	Dwelling Unit	0.42	16,000.00	33
City Park	1.02	Acre	1.23	44,576.40	0
City Park	1.58	Acre	1.58	68,824.80	0
City Park	9.10	Acre	9.28	396,396.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction state date of February 2025 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 3

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the

applicant)
Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).

Grading - Assume 104.38 acres graded (includes roadways). Assume 25,451 cy of material exported during this phase (total for all construction phases of 152,708 cy net export provided by applicant).

Architectural Coating -

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust - Project will not have unpaved roads during the project's operational phase. Therefore, project does not use CARB Unmitigated Unpaved Road Statewide Emission Inventory Method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9

tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	60.00	43.00
tblConstructionPhase	NumDays	155.00	132.00
tblConstructionPhase	NumDays	110.00	65.00
tblConstructionPhase	NumDays	1,550.00	717.00
tblConstructionPhase	NumDays	110.00	718.00
tblConstructionPhase	NumDays	60.00	196.00
tblConstructionPhase	NumDays	110.00	86.00
tblConstructionPhase	NumDays	60.00	260.00
tblConstructionPhase	PhaseEndDate	4/25/2025	4/2/2025
tblConstructionPhase	PhaseEndDate	11/28/2025	10/28/2025
tblConstructionPhase	PhaseEndDate	4/9/2032	12/31/2025
tblConstructionPhase	PhaseEndDate	11/7/2031	9/29/2028
tblConstructionPhase	PhaseEndDate	9/10/2032	12/29/2028
tblConstructionPhase	PhaseStartDate	4/26/2025	4/28/2025
tblConstructionPhase	PhaseStartDate	11/8/2031	10/2/2025
tblConstructionPhase	PhaseStartDate	11/29/2025	1/1/2026
tblConstructionPhase	PhaseStartDate	4/10/2032	4/1/2026
tblGrading	AcresOfGrading	330.00	104.38
tblGrading	MaterialExported	0.00	25,451.00
tblLandUse	LandUseSquareFeet	44,576.25	44,576.40
tblLandUse	LotAcreage	87.01	28.39
tblLandUse	LotAcreage	59.00	36.49
tblLandUse	LotAcreage	1.02	1.23
tblLandUse	LotAcreage	9.10	9.28
tblLandUse	Population	43.00	33.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00

tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	3.9248	36.5723	41.6727	0.0872	18.7765	1.5511	19.8756	10.1090	1.4270	11.1206	0.0000	8,444.6697	8,444.6697	2.6616	0.0000	8,511.2099
2026	17.6287	25.5300	33.5186	0.1048	5.7558	0.6224	6.3782	1.5464	0.5881	2.1345	0.0000	10,520.1479	10,520.1479	0.8694	0.0000	10,541.8832
2027	20.0377	50.5329	50.8083	0.1423	23.9589	1.7079	25.6667	11.5133	1.5868	13.1001	0.0000	14,160.4026	14,160.4026	2.0558	0.0000	14,211.7962
2028	19.9204	50.3138	49.9411	0.1409	23.9588	1.7054	25.6642	11.5133	1.5844	13.0978	0.0000	14,016.8131	14,016.8131	2.0477	0.0000	14,068.0061
2029	2.5164	25.2512	18.2123	0.0391	18.2032	1.0875	19.2907	9.9670	1.0005	10.9675	0.0000	3,792.3297	3,792.3297	1.1948	0.0000	3,822.2000
Maximum	**20.0377**	**50.5329**	**50.8083**	**0.1423**	**23.9589**	**1.7079**	**25.6667**	**11.5133**	**1.5868**	**13.1001**	**0.0000**	**14,160.4026**	**14,160.4026**	**2.6616**	**0.0000**	**14,211.7962**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	3.9248	36.5723	41.6727	0.0872	8.7312	1.5511	9.8304	4.6267	1.4270	5.6384	0.0000	8,444.6697	8,444.6697	2.6616	0.0000	8,511.2099
2026	17.6287	25.5300	33.5186	0.1048	5.3177	0.6224	5.9401	1.4388	0.5881	2.0270	0.0000	10,520.1479	10,520.1479	0.8694	0.0000	10,541.8832
2027	20.0377	50.5329	50.8083	0.1423	13.5737	1.7079	15.2816	5.9413	1.5868	7.5281	0.0000	14,160.4026	14,160.4026	2.0558	0.0000	14,211.7962
2028	19.9204	50.3138	49.9411	0.1409	13.5737	1.7054	15.2790	5.9413	1.5844	7.5258	0.0000	14,016.8131	14,016.8131	2.0477	0.0000	14,068.0061
2029	2.5164	25.2512	18.2123	0.0391	8.2560	1.0875	9.3435	4.5025	1.0005	5.5030	0.0000	3,792.3297	3,792.3297	1.1948	0.0000	3,822.2000
Maximum	**20.0377**	**50.5329**	**50.8083**	**0.1423**	**13.5737**	**1.7079**	**15.2816**	**5.9413**	**1.5868**	**7.5281**	**0.0000**	**14,160.4026**	**14,160.4026**	**2.6616**	**0.0000**	**14,211.7962**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**45.45**	**0.00**	**42.53**	**49.72**	**0.00**	**44.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	21.3159	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649	0.0000	86.0143	86.0143	0.0819	0.0000	88.0615
Energy	0.3146	2.6887	1.1441	0.0172		0.2174	0.2174		0.2174	0.2174		3,432.3252	3,432.3252	0.0658	0.0629	3,452.7218
Mobile	3.8495	15.2286	39.4850	0.1765	19.8919	0.0838	19.9756	5.3108	0.0778	5.3886		17,986.1847	17,986.1847	0.6171		18,001.6123
Total	**25.4800**	**18.4664**	**88.2306**	**0.1962**	**19.8919**	**0.5660**	**20.4579**	**5.3108**	**0.5601**	**5.8709**	**0.0000**	**21,504.5242**	**21,504.5242**	**0.7648**	**0.0629**	**21,542.3956**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	21.3159	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649	0.0000	86.0143	86.0143	0.0819	0.0000	88.0615
Energy	0.3146	2.6887	1.1441	0.0172		0.2174	0.2174		0.2174	0.2174		3,432.3252	3,432.3252	0.0658	0.0629	3,452.7218
Mobile	3.8495	15.2286	39.4850	0.1765	19.8919	0.0838	19.9756	5.3108	0.0778	5.3886		17,986.1847	17,986.1847	0.6171		18,001.6123
Total	**25.4800**	**18.4664**	**88.2306**	**0.1962**	**19.8919**	**0.5660**	**20.4579**	**5.3108**	**0.5601**	**5.8709**	**0.0000**	**21,504.5242**	**21,504.5242**	**0.7648**	**0.0629**	**21,542.3956**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/1/2025	4/2/2025	5	43	
2	Grading	Grading	4/28/2025	10/28/2025	5	132	
3	Building Construction	Building Construction	1/1/2026	9/29/2028	5	717	
4	Paving	Paving	10/2/2025	12/31/2025	5	65	
5	Architectural Coating	Architectural Coating	4/1/2026	12/29/2028	5	718	
6	Site Preparation and Grading for Rancho Cordova Widening	Site Preparation	1/1/2027	10/1/2027	5	196	
7	Paving for Rancho Cordova Widening	Paving	10/2/2027	1/31/2028	5	86	
8	Site Prepration for Park - Lot D	Site Preparation	4/1/2028	3/30/2029	5	260	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 104.38

Acres of Paving: 0

Residential Indoor: 1,606,635; Residential Outdoor: 535,545; Non-Residential Indoor: 10,500; Non-Residential Outdoor: 3,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving for Rancho Cordova Widening	Pavers	2	8.00	130	0.42
Paving for Rancho Cordova Widening	Paving Equipment	2	8.00	132	0.36
Paving for Rancho Cordova Widening	Rollers	2	8.00	80	0.38
Site Preparation and Grading for Rancho Cordova Widening	Rubber Tired Dozers	3	8.00	247	0.40
Site Prepration for Park - Lot D	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation and Grading for Rancho Cordova Widening	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Prepration for Park - Lot D	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

The Ranch - City of Rancho Cordova (Construction Only - Phase 3) - Sacramento County, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	3,181.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	535.00	145.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	107.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving for Rancho Cordova Widening	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Site Preparation and Grading for Rancho C	7	18.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Site Prepration for Park - Lot D	7	18.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.1887	0.0000	18.1887	9.9492	0.0000	9.9492			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**18.1887**	**1.0868**	**19.2755**	**9.9492**	**0.9999**	**10.9491**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1777	8.3941	1.6712	0.0236	0.4509	0.0115	0.4624	0.1234	0.0110	0.1344		2,532.8562	2,532.8562	0.1713		2,537.1381
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0558	0.0246	0.3928	1.1900e-003	0.1369	8.4000e-004	0.1378	0.0363	7.8000e-004	0.0371		118.1022	118.1022	2.4200e-003		118.1627
Total	**0.2335**	**8.4186**	**2.0640**	**0.0248**	**0.5879**	**0.0123**	**0.6002**	**0.1598**	**0.0118**	**0.1715**		**2,650.9584**	**2,650.9584**	**0.1737**		**2,655.3008**

3.2 Site Preparation - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1849	0.0000	8.1849	4.4772	0.0000	4.4772			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**8.1849**	**1.0868**	**9.2717**	**4.4772**	**0.9999**	**5.4770**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1777	8.3941	1.6712	0.0236	0.4201	0.0115	0.4316	0.1159	0.0110	0.1269		2,532.8562	2,532.8562	0.1713		2,537.1381
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0558	0.0246	0.3928	1.1900e-003	0.1262	8.4000e-004	0.1271	0.0337	7.8000e-004	0.0345		118.1022	118.1022	2.4200e-003		118.1627
Total	**0.2335**	**8.4186**	**2.0640**	**0.0248**	**0.5463**	**0.0123**	**0.5587**	**0.1496**	**0.0118**	**0.1614**		**2,650.9584**	**2,650.9584**	**0.1737**		**2,655.3008**

3.3 Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.8607	0.0000	6.8607	3.4008	0.0000	3.4008			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**6.8607**	**1.1309**	**7.9916**	**3.4008**	**1.0404**	**4.4412**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0620	0.0273	0.4364	1.3200e-003	0.1521	9.4000e-004	0.1531	0.0404	8.6000e-004	0.0412		131.2246	131.2246	2.6900e-003		131.2918
Total	**0.0620**	**0.0273**	**0.4364**	**1.3200e-003**	**0.1521**	**9.4000e-004**	**0.1531**	**0.0404**	**8.6000e-004**	**0.0412**		**131.2246**	**131.2246**	**2.6900e-003**		**131.2918**

3.3 Grading - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0873	0.0000	3.0873	1.5304	0.0000	1.5304			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**3.0873**	**1.1309**	**4.2182**	**1.5304**	**1.0404**	**2.5708**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0620	0.0273	0.4364	1.3200e-003	0.1402	9.4000e-004	0.1412	0.0374	8.6000e-004	0.0383		131.2246	131.2246	2.6900e-003		131.2918
Total	**0.0620**	**0.0273**	**0.4364**	**1.3200e-003**	**0.1402**	**9.4000e-004**	**0.1412**	**0.0374**	**8.6000e-004**	**0.0383**		**131.2246**	**131.2246**	**2.6900e-003**		**131.2918**

3.4 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2890	11.1146	2.5677	0.0341	0.8721	0.0141	0.8862	0.2509	0.0135	0.2644		3,626.4907	3,626.4907	0.1745		3,630.8537
Worker	1.5687	0.6668	10.8810	0.0339	4.0697	0.0243	4.0941	1.0795	0.0224	1.1019		3,379.7791	3,379.7791	0.0655		3,381.4163
Total	**1.8577**	**11.7815**	**13.4486**	**0.0680**	**4.9418**	**0.0385**	**4.9803**	**1.3305**	**0.0359**	**1.3664**		**7,006.2697**	**7,006.2697**	**0.2400**		**7,012.2700**

3.4 Building Construction - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2890	11.1146	2.5677	0.0341	0.8160	0.0141	0.8301	0.2372	0.0135	0.2507		3,626.4907	3,626.4907	0.1745		3,630.8537
Worker	1.5687	0.6668	10.8810	0.0339	3.7514	0.0243	3.7758	1.0014	0.0224	1.0238		3,379.7791	3,379.7791	0.0655		3,381.4163
Total	**1.8577**	**11.7815**	**13.4486**	**0.0680**	**4.5674**	**0.0385**	**4.6059**	**1.2386**	**0.0359**	**1.2745**		**7,006.2697**	**7,006.2697**	**0.2400**		**7,012.2700**

3.4 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2790	10.9309	2.4613	0.0339	0.8720	0.0135	0.8855	0.2509	0.0129	0.2638		3,607.8309	3,607.8309	0.1727		3,612.1476
Worker	1.4824	0.6103	10.1661	0.0327	4.0697	0.0231	4.0929	1.0795	0.0213	1.1008		3,263.1316	3,263.1316	0.0597		3,264.6240
Total	**1.7614**	**11.5412**	**12.6274**	**0.0667**	**4.9418**	**0.0366**	**4.9784**	**1.3304**	**0.0342**	**1.3646**		**6,870.9625**	**6,870.9625**	**0.2324**		**6,876.7716**

3.4 Building Construction - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2790	10.9309	2.4613	0.0339	0.8159	0.0135	0.8294	0.2371	0.0129	0.2500		3,607.8309	3,607.8309	0.1727		3,612.1476
Worker	1.4824	0.6103	10.1661	0.0327	3.7514	0.0231	3.7746	1.0014	0.0213	1.0227		3,263.1316	3,263.1316	0.0597		3,264.6240
Total	**1.7614**	**11.5412**	**12.6274**	**0.0667**	**4.5674**	**0.0366**	**4.6040**	**1.2385**	**0.0342**	**1.2727**		**6,870.9625**	**6,870.9625**	**0.2324**		**6,876.7716**

3.4 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2703	10.7737	2.3717	0.0338	0.8720	0.0129	0.8849	0.2509	0.0123	0.2632		3,591.8662	3,591.8662	0.1708		3,596.1360
Worker	1.3943	0.5602	9.5358	0.0317	4.0697	0.0216	4.0913	1.0795	0.0199	1.0994		3,159.6781	3,159.6781	0.0547		3,161.0460
Total	**1.6646**	**11.3339**	**11.9075**	**0.0655**	**4.9417**	**0.0345**	**4.9762**	**1.3304**	**0.0322**	**1.3626**		**6,751.5444**	**6,751.5444**	**0.2255**		**6,757.1820**

3.4 Building Construction - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2703	10.7737	2.3717	0.0338	0.8159	0.0129	0.8288	0.2371	0.0123	0.2494		3,591.8662	3,591.8662	0.1708		3,596.1360
Worker	1.3943	0.5602	9.5358	0.0317	3.7514	0.0216	3.7730	1.0014	0.0199	1.0213		3,159.6781	3,159.6781	0.0547		3,161.0460
Total	**1.6646**	**11.3339**	**11.9075**	**0.0655**	**4.5673**	**0.0345**	**4.6018**	**1.2385**	**0.0322**	**1.2707**		**6,751.5444**	**6,751.5444**	**0.2255**		**6,757.1820**

3.5 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0465	0.0205	0.3273	9.9000e-004	0.3124	7.0000e-004	0.3131	0.0790	6.5000e-004	0.0796		98.4185	98.4185	2.0200e-003		98.4689
Total	**0.0465**	**0.0205**	**0.3273**	**9.9000e-004**	**0.3124**	**7.0000e-004**	**0.3131**	**0.0790**	**6.5000e-004**	**0.0796**		**98.4185**	**98.4185**	**2.0200e-003**		**98.4689**

3.5 Paving - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0465	0.0205	0.3273	9.9000e-004	0.2857	7.0000e-004	0.2864	0.0724	6.5000e-004	0.0730		98.4185	98.4185	2.0200e-003		98.4689
Total	**0.0465**	**0.0205**	**0.3273**	**9.9000e-004**	**0.2857**	**7.0000e-004**	**0.2864**	**0.0724**	**6.5000e-004**	**0.0730**		**98.4185**	**98.4185**	**2.0200e-003**		**98.4689**

3.6 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3137	0.1334	2.1762	6.7800e-003	0.8140	4.8600e-003	0.8188	0.2159	4.4800e-003	0.2204		675.9558	675.9558	0.0131		676.2833
Total	**0.3137**	**0.1334**	**2.1762**	**6.7800e-003**	**0.8140**	**4.8600e-003**	**0.8188**	**0.2159**	**4.4800e-003**	**0.2204**		**675.9558**	**675.9558**	**0.0131**		**676.2833**

3.6 Architectural Coating - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3137	0.1334	2.1762	6.7800e-003	0.7503	4.8600e-003	0.7552	0.2003	4.4800e-003	0.2048		675.9558	675.9558	0.0131		676.2833
Total	**0.3137**	**0.1334**	**2.1762**	**6.7800e-003**	**0.7503**	**4.8600e-003**	**0.7552**	**0.2003**	**4.4800e-003**	**0.2048**		**675.9558**	**675.9558**	**0.0131**		**676.2833**

3.6 Architectural Coating - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2965	0.1221	2.0332	6.5500e-003	0.8140	4.6200e-003	0.8186	0.2159	4.2600e-003	0.2202		652.6263	652.6263	0.0119		652.9248
Total	**0.2965**	**0.1221**	**2.0332**	**6.5500e-003**	**0.8140**	**4.6200e-003**	**0.8186**	**0.2159**	**4.2600e-003**	**0.2202**		**652.6263**	**652.6263**	**0.0119**		**652.9248**

3.6 Architectural Coating - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2965	0.1221	2.0332	6.5500e-003	0.7503	4.6200e-003	0.7549	0.2003	4.2600e-003	0.2045		652.6263	652.6263	0.0119		652.9248
Total	**0.2965**	**0.1221**	**2.0332**	**6.5500e-003**	**0.7503**	**4.6200e-003**	**0.7549**	**0.2003**	**4.2600e-003**	**0.2045**		**652.6263**	**652.6263**	**0.0119**		**652.9248**

3.6 Architectural Coating - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2789	0.1120	1.9072	6.3400e-003	0.8140	4.3200e-003	0.8183	0.2159	3.9700e-003	0.2199		631.9356	631.9356	0.0109		632.2092
Total	**0.2789**	**0.1120**	**1.9072**	**6.3400e-003**	**0.8140**	**4.3200e-003**	**0.8183**	**0.2159**	**3.9700e-003**	**0.2199**		**631.9356**	**631.9356**	**0.0109**		**632.2092**

3.6 Architectural Coating - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2789	0.1120	1.9072	6.3400e-003	0.7503	4.3200e-003	0.7546	0.2003	3.9700e-003	0.2043		631.9356	631.9356	0.0109		632.2092
Total	**0.2789**	**0.1120**	**1.9072**	**6.3400e-003**	**0.7503**	**4.3200e-003**	**0.7546**	**0.2003**	**3.9700e-003**	**0.2043**		**631.9356**	**631.9356**	**0.0109**		**632.2092**

3.7 Site Preparation and Grading for Rancho Cordova Widening - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**18.0663**	**1.0868**	**19.1531**	**9.9307**	**0.9999**	**10.9305**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0499	0.0205	0.3420	1.1000e-003	0.1369	7.8000e-004	0.1377	0.0363	7.2000e-004	0.0370		109.7876	109.7876	2.0100e-003		109.8378
Total	**0.0499**	**0.0205**	**0.3420**	**1.1000e-003**	**0.1369**	**7.8000e-004**	**0.1377**	**0.0363**	**7.2000e-004**	**0.0370**		**109.7876**	**109.7876**	**2.0100e-003**		**109.8378**

3.7 Site Preparation and Grading for Rancho Cordova Widening - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**8.1298**	**1.0868**	**9.2166**	**4.4688**	**0.9999**	**5.4687**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0499	0.0205	0.3420	1.1000e-003	0.1262	7.8000e-004	0.1270	0.0337	7.2000e-004	0.0344		109.7876	109.7876	2.0100e-003		109.8378
Total	**0.0499**	**0.0205**	**0.3420**	**1.1000e-003**	**0.1262**	**7.8000e-004**	**0.1270**	**0.0337**	**7.2000e-004**	**0.0344**		**109.7876**	**109.7876**	**2.0100e-003**		**109.8378**

3.8 Paving for Rancho Cordova Widening - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0416	0.0171	0.2850	9.2000e-004	0.1141	6.5000e-004	0.1148	0.0303	6.0000e-004	0.0309		91.4897	91.4897	1.6700e-003		91.5315
Total	**0.0416**	**0.0171**	**0.2850**	**9.2000e-004**	**0.1141**	**6.5000e-004**	**0.1148**	**0.0303**	**6.0000e-004**	**0.0309**		**91.4897**	**91.4897**	**1.6700e-003**		**91.5315**

3.8 Paving for Rancho Cordova Widening - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0416	0.0171	0.2850	9.2000e-004	0.1052	6.5000e-004	0.1058	0.0281	6.0000e-004	0.0287		91.4897	91.4897	1.6700e-003		91.5315
Total	**0.0416**	**0.0171**	**0.2850**	**9.2000e-004**	**0.1052**	**6.5000e-004**	**0.1058**	**0.0281**	**6.0000e-004**	**0.0287**		**91.4897**	**91.4897**	**1.6700e-003**		**91.5315**

3.8 Paving for Rancho Cordova Widening - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0391	0.0157	0.2674	8.9000e-004	0.1141	6.1000e-004	0.1147	0.0303	5.6000e-004	0.0308		88.5891	88.5891	1.5300e-003		88.6275
Total	**0.0391**	**0.0157**	**0.2674**	**8.9000e-004**	**0.1141**	**6.1000e-004**	**0.1147**	**0.0303**	**5.6000e-004**	**0.0308**		**88.5891**	**88.5891**	**1.5300e-003**		**88.6275**

3.8 Paving for Rancho Cordova Widening - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0391	0.0157	0.2674	8.9000e-004	0.1052	6.1000e-004	0.1058	0.0281	5.6000e-004	0.0286		88.5891	88.5891	1.5300e-003		88.6275
Total	**0.0391**	**0.0157**	**0.2674**	**8.9000e-004**	**0.1052**	**6.1000e-004**	**0.1058**	**0.0281**	**5.6000e-004**	**0.0286**		**88.5891**	**88.5891**	**1.5300e-003**		**88.6275**

3.9 Site Prepration for Park - Lot D - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**18.0663**	**1.0868**	**19.1531**	**9.9307**	**0.9999**	**10.9305**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0469	0.0189	0.3208	1.0700e-003	0.1369	7.3000e-004	0.1377	0.0363	6.7000e-004	0.0370		106.3069	106.3069	1.8400e-003		106.3530
Total	**0.0469**	**0.0189**	**0.3208**	**1.0700e-003**	**0.1369**	**7.3000e-004**	**0.1377**	**0.0363**	**6.7000e-004**	**0.0370**		**106.3069**	**106.3069**	**1.8400e-003**		**106.3530**

3.9 Site Prepration for Park - Lot D - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**8.1298**	**1.0868**	**9.2166**	**4.4688**	**0.9999**	**5.4687**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0469	0.0189	0.3208	1.0700e-003	0.1262	7.3000e-004	0.1269	0.0337	6.7000e-004	0.0344		106.3069	106.3069	1.8400e-003		106.3530
Total	**0.0469**	**0.0189**	**0.3208**	**1.0700e-003**	**0.1262**	**7.3000e-004**	**0.1269**	**0.0337**	**6.7000e-004**	**0.0344**		**106.3069**	**106.3069**	**1.8400e-003**		**106.3530**

3.9 Site Prepration for Park - Lot D - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**18.0663**	**1.0868**	**19.1531**	**9.9307**	**0.0999**	**10.9305**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0437	0.0173	0.3005	1.0400e-003	0.1369	6.8000e-004	0.1376	0.0363	6.2000e-004	0.0369		103.2260	103.2260	1.6800e-003		103.2680
Total	**0.0437**	**0.0173**	**0.3005**	**1.0400e-003**	**0.1369**	**6.8000e-004**	**0.1376**	**0.0363**	**6.2000e-004**	**0.0369**		**103.2260**	**103.2260**	**1.6800e-003**		**103.2680**

3.9 Site Prepration for Park - Lot D - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**8.1298**	**1.0868**	**9.2166**	**4.4688**	**0.9999**	**5.4687**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0437	0.0173	0.3005	1.0400e-003	0.1262	6.8000e-004	0.1269	0.0337	6.2000e-004	0.0343		103.2260	103.2260	1.6800e-003		103.2680
Total	**0.0437**	**0.0173**	**0.3005**	**1.0400e-003**	**0.1262**	**6.8000e-004**	**0.1269**	**0.0337**	**6.2000e-004**	**0.0343**		**103.2260**	**103.2260**	**1.6800e-003**		**103.2680**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.8495	15.2286	39.4850	0.1765	19.8919	0.0838	19.9756	5.3108	0.0778	5.3886		17,986.1847	17,986.1847	0.6171		18,001.6123
Unmitigated	3.8495	15.2286	39.4850	0.1765	19.8919	0.0838	19.9756	5.3108	0.0778	5.3886		17,986.1847	17,986.1847	0.6171		18,001.6123

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	106.40	102.24	93.76	266,875	266,875
City Park	1.93	23.28	17.13	13,200	13,200
City Park	2.99	35.95	26.45	20,380	20,380
City Park	17.20	207.03	152.33	117,380	117,380
Retirement Community	708.00	598.85	575.25	1,728,128	1,728,128
Single Family Housing	2,551.36	2,655.88	2310.16	6,496,963	6,496,963
Total	3,387.88	3,623.22	3,175.08	8,642,925	8,642,925

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3146	2.6887	1.1441	0.0172		0.2174	0.2174		0.2174	0.2174		3,432.3252	3,432.3252	0.0658	0.0629	3,452.7218
NaturalGas Unmitigated	0.3146	2.6887	1.1441	0.0172		0.2174	0.2174		0.2174	0.2174		3,432.3252	3,432.3252	0.0658	0.0629	3,452.7218

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	427.314	4.6100e-003	0.0394	0.0168	2.5000e-004		3.1800e-003	3.1800e-003		3.1800e-003	3.1800e-003		50.2722	50.2722	9.6000e-004	9.2000e-004	50.5710
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	9778.42	0.1055	0.9012	0.3835	5.7500e-003		0.0729	0.0729		0.0729	0.0729		1,150.4021	1,150.4021	0.0221	0.0211	1,157.2383
Single Family Housing	18969	0.2046	1.7481	0.7439	0.0112		0.1413	0.1413		0.1413	0.1413		2,231.6509	2,231.6509	0.0428	0.0409	2,244.9125
Total		**0.3146**	**2.6887**	**1.1441**	**0.0172**		**0.2174**	**0.2174**		**0.2174**	**0.2174**		**3,432.3252**	**3,432.3252**	**0.0658**	**0.0629**	**3,452.7218**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	0.427314	4.6100e-003	0.0394	0.0168	2.5000e-004		3.1800e-003	3.1800e-003		3.1800e-003	3.1800e-003		50.2722	50.2722	9.6000e-004	9.2000e-004	50.5710
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	9.77842	0.1055	0.9012	0.3835	5.7500e-003		0.0729	0.0729		0.0729	0.0729		1,150.4021	1,150.4021	0.0221	0.0211	1,157.2383
Single Family Housing	18.969	0.2046	1.7481	0.7439	0.0112		0.1413	0.1413		0.1413	0.1413		2,231.6509	2,231.6509	0.0428	0.0409	2,244.9125
Total		**0.3146**	**2.6887**	**1.1441**	**0.0172**		**0.2174**	**0.2174**		**0.2174**	**0.2174**		**3,432.3252**	**3,432.3252**	**0.0658**	**0.0629**	**3,452.7218**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	21.3159	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649	0.0000	86.0143	86.0143	0.0819	0.0000	88.0615
Unmitigated	21.3159	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649	0.0000	86.0143	86.0143	0.0819	0.0000	88.0615

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.7381					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	17.1545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4233	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649		86.0143	86.0143	0.0819		88.0615
Total	**21.3159**	**0.5492**	**47.6015**	**2.5200e-003**		**0.2649**	**0.2649**		**0.2649**	**0.2649**	**0.0000**	**86.0143**	**86.0143**	**0.0819**	**0.0000**	**88.0615**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.7381					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	17.1545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4233	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649		86.0143	86.0143	0.0819		88.0615
Total	**21.3159**	**0.5492**	**47.6015**	**2.5200e-003**		**0.2649**	**0.2649**		**0.2649**	**0.2649**	**0.0000**	**86.0143**	**86.0143**	**0.0819**	**0.0000**	**88.0615**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Construction Only - Phase 3)

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	268.00	Dwelling Unit	28.39	482,400.00	716
Retirement Community	295.00	Dwelling Unit	36.49	295,000.00	788
Apartments Mid Rise	16.00	Dwelling Unit	0.42	16,000.00	33
City Park	1.02	Acre	1.23	44,576.40	0
City Park	1.58	Acre	1.58	68,824.80	0
City Park	9.10	Acre	9.28	396,396.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction state date of February 2025 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 3

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the

applicant)
Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).

Grading - Assume 104.38 acres graded (includes roadways). Assume 25,451 cy of material exported during this phase (total for all construction phases of 152,708 cy net export provided by applicant).

Architectural Coating -

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust - Project will not have unpaved roads during the project's operational phase. Therefore, project does not use CARB Unmitigated Unpaved Road Statewide Emission Inventory Method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9

The Ranch - City of Rancho Cordova (Construction Only - Phase 3) - Sacramento County, Winter

tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	60.00	43.00
tblConstructionPhase	NumDays	155.00	132.00
tblConstructionPhase	NumDays	110.00	65.00
tblConstructionPhase	NumDays	1,550.00	717.00
tblConstructionPhase	NumDays	110.00	718.00
tblConstructionPhase	NumDays	60.00	196.00
tblConstructionPhase	NumDays	110.00	86.00
tblConstructionPhase	NumDays	60.00	260.00
tblConstructionPhase	PhaseEndDate	4/25/2025	4/2/2025
tblConstructionPhase	PhaseEndDate	11/28/2025	10/28/2025
tblConstructionPhase	PhaseEndDate	4/9/2032	12/31/2025
tblConstructionPhase	PhaseEndDate	11/7/2031	9/29/2028
tblConstructionPhase	PhaseEndDate	9/10/2032	12/29/2028
tblConstructionPhase	PhaseStartDate	4/26/2025	4/28/2025
tblConstructionPhase	PhaseStartDate	11/8/2031	10/2/2025
tblConstructionPhase	PhaseStartDate	11/29/2025	1/1/2026
tblConstructionPhase	PhaseStartDate	4/10/2032	4/1/2026
tblGrading	AcresOfGrading	330.00	104.38
tblGrading	MaterialExported	0.00	25,451.00
tblLandUse	LandUseSquareFeet	44,576.25	44,576.40
tblLandUse	LotAcreage	87.01	28.39
tblLandUse	LotAcreage	59.00	36.49
tblLandUse	LotAcreage	1.02	1.23
tblLandUse	LotAcreage	9.10	9.28
tblLandUse	Population	43.00	33.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00

tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	3.9172	36.5834	41.5509	0.0869	18.7765	1.5511	19.8768	10.1090	1.4270	11.1217	0.0000	8,416.7643	8,416.7643	2.6610	0.0000	8,483.2896
2026	17.5197	25.8170	31.7945	0.0989	5.7558	0.6234	6.3792	1.5464	0.5891	2.1355	0.0000	9,934.9730	9,934.9730	0.8732	0.0000	9,956.8037
2027	19.9367	50.8038	49.1196	0.1366	23.9589	1.7088	25.6676	11.5133	1.5876	13.1010	0.0000	13,579.6212	13,579.6212	2.0599	0.0000	13,631.1192
2028	19.8282	50.5673	48.3376	0.1353	23.9588	1.7062	25.6650	11.5133	1.5852	13.0985	0.0000	13,452.1262	13,452.1262	2.0524	0.0000	13,503.4366
2029	2.5137	25.2551	18.1615	0.0390	18.2032	1.0875	19.2907	9.9670	1.0005	10.9675	0.0000	3,779.7663	3,779.7663	1.1946	0.0000	3,809.6310
Maximum	**19.9367**	**50.8038**	**49.1196**	**0.1366**	**23.9589**	**1.7088**	**25.6676**	**11.5133**	**1.5876**	**13.1010**	**0.0000**	**13,579.6212**	**13,579.6212**	**2.6610**	**0.0000**	**13,631.1192**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	3.9172	36.5834	41.5509	0.0869	8.7312	1.5511	9.8315	4.6267	1.4270	5.6395	0.0000	8,416.7643	8,416.7643	2.6610	0.0000	8,483.2895
2026	17.5197	25.8170	31.7945	0.0989	5.3177	0.6234	5.9411	1.4388	0.5891	2.0280	0.0000	9,934.9730	9,934.9730	0.8732	0.0000	9,956.8037
2027	19.9367	50.8038	49.1196	0.1366	13.5737	1.7088	15.2825	5.9413	1.5876	7.5289	0.0000	13,579.6212	13,579.6212	2.0599	0.0000	13,631.1192
2028	19.8282	50.5673	48.3376	0.1353	13.5737	1.7062	15.2798	5.9413	1.5852	7.5265	0.0000	13,452.1262	13,452.1262	2.0524	0.0000	13,503.4366
2029	2.5137	25.2551	18.1615	0.0390	8.2560	1.0875	9.3435	4.5025	1.0005	5.5030	0.0000	3,779.7663	3,779.7663	1.1946	0.0000	3,809.6310
Maximum	**19.9367**	**50.8038**	**49.1196**	**0.1366**	**13.5737**	**1.7088**	**15.2825**	**5.9413**	**1.5876**	**7.5289**	**0.0000**	**13,579.6212**	**13,579.6212**	**2.6610**	**0.0000**	**13,631.1192**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**45.45**	**0.00**	**42.53**	**49.72**	**0.00**	**44.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	21.3159	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649	0.0000	86.0143	86.0143	0.0819	0.0000	88.0615
Energy	0.3146	2.6887	1.1441	0.0172		0.2174	0.2174		0.2174	0.2174		3,432.3252	3,432.3252	0.0658	0.0629	3,452.7218
Mobile	2.7932	15.8365	35.7184	0.1601	19.8919	0.0841	19.9760	5.3108	0.0782	5.3890		16,345.5907	16,345.5907	0.6262		16,361.2461
Total	**24.4237**	**19.0744**	**84.4641**	**0.1798**	**19.8919**	**0.5664**	**20.4583**	**5.3108**	**0.5605**	**5.8713**	**0.0000**	**19,863.9302**	**19,863.9302**	**0.7739**	**0.0629**	**19,902.0293**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	21.3159	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649	0.0000	86.0143	86.0143	0.0819	0.0000	88.0615
Energy	0.3146	2.6887	1.1441	0.0172		0.2174	0.2174		0.2174	0.2174		3,432.3252	3,432.3252	0.0658	0.0629	3,452.7218
Mobile	2.7932	15.8365	35.7184	0.1601	19.8919	0.0841	19.9760	5.3108	0.0782	5.3890		16,345.5907	16,345.5907	0.6262		16,361.2461
Total	**24.4237**	**19.0744**	**84.4641**	**0.1798**	**19.8919**	**0.5664**	**20.4583**	**5.3108**	**0.5605**	**5.8713**	**0.0000**	**19,863.9302**	**19,863.9302**	**0.7739**	**0.0629**	**19,902.0293**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/1/2025	4/2/2025	5	43	
2	Grading	Grading	4/28/2025	10/28/2025	5	132	
3	Building Construction	Building Construction	1/1/2026	9/29/2028	5	717	
4	Paving	Paving	10/2/2025	12/31/2025	5	65	
5	Architectural Coating	Architectural Coating	4/1/2026	12/29/2028	5	718	
6	Site Preparation and Grading for Rancho Cordova Widening	Site Preparation	1/1/2027	10/1/2027	5	196	
7	Paving for Rancho Cordova Widening	Paving	10/2/2027	1/31/2028	5	86	
8	Site Prepration for Park - Lot D	Site Preparation	4/1/2028	3/30/2029	5	260	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 104.38

Acres of Paving: 0

Residential Indoor: 1,606,635; Residential Outdoor: 535,545; Non-Residential Indoor: 10,500; Non-Residential Outdoor: 3,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Ranch - City of Rancho Cordova (Construction Only - Phase 3) - Sacramento County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving for Rancho Cordova Widening	Pavers	2	8.00	130	0.42
Paving for Rancho Cordova Widening	Paving Equipment	2	8.00	132	0.36
Paving for Rancho Cordova Widening	Rollers	2	8.00	80	0.38
Site Preparation and Grading for Rancho Cordova Widening	Rubber Tired Dozers	3	8.00	247	0.40
Site Prepration for Park - Lot D	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation and Grading for Rancho Cordova Widening	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Prepration for Park - Lot D	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	3,181.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	535.00	145.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	107.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving for Rancho Cordova Widening	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Site Preparation and Grading for Rancho C	7	18.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Site Prepration for Park - Lot D	7	18.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.1887	0.0000	18.1887	9.9492	0.0000	9.9492			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**18.1887**	**1.0868**	**19.2755**	**9.9492**	**0.9999**	**10.9491**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1889	8.3845	1.9175	0.0227	0.4509	0.0126	0.4636	0.1234	0.0121	0.1355		2,441.1346	2,441.1346	0.1845		2,445.7464
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0518	0.0303	0.3301	1.0400e-003	0.1369	8.4000e-004	0.1378	0.0363	7.8000e-004	0.0371		103.7508	103.7508	2.1100e-003		103.8036
Total	**0.2407**	**8.4147**	**2.2476**	**0.0238**	**0.5879**	**0.0135**	**0.6013**	**0.1598**	**0.0129**	**0.1726**		**2,544.8854**	**2,544.8854**	**0.1866**		**2,549.5500**

3.2 Site Preparation - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1849	0.0000	8.1849	4.4772	0.0000	4.4772			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**8.1849**	**1.0868**	**9.2717**	**4.4772**	**0.9999**	**5.4770**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1889	8.3845	1.9175	0.0227	0.4201	0.0126	0.4328	0.1159	0.0121	0.1280		2,441.1346	2,441.1346	0.1845		2,445.7464
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0518	0.0303	0.3301	1.0400e-003	0.1262	8.4000e-004	0.1271	0.0337	7.8000e-004	0.0345		103.7508	103.7508	2.1100e-003		103.8036
Total	**0.2407**	**8.4147**	**2.2476**	**0.0238**	**0.5463**	**0.0135**	**0.5598**	**0.1496**	**0.0129**	**0.1625**		**2,544.8854**	**2,544.8854**	**0.1866**		**2,549.5500**

3.3 Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.8607	0.0000	6.8607	3.4008	0.0000	3.4008			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**6.8607**	**1.1309**	**7.9916**	**3.4008**	**1.0404**	**4.4412**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0576	0.0336	0.3667	1.1600e-003	0.1521	9.4000e-004	0.1531	0.0404	8.6000e-004	0.0412		115.2787	115.2787	2.3400e-003		115.3373
Total	**0.0576**	**0.0336**	**0.3667**	**1.1600e-003**	**0.1521**	**9.4000e-004**	**0.1531**	**0.0404**	**8.6000e-004**	**0.0412**		**115.2787**	**115.2787**	**2.3400e-003**		**115.3373**

3.3 Grading - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0873	0.0000	3.0873	1.5304	0.0000	1.5304			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**3.0873**	**1.1309**	**4.2182**	**1.5304**	**1.0404**	**2.5708**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0576	0.0336	0.3667	1.1600e-003	0.1402	9.4000e-004	0.1412	0.0374	8.6000e-004	0.0383		115.2787	115.2787	2.3400e-003		115.3373
Total	**0.0576**	**0.0336**	**0.3667**	**1.1600e-003**	**0.1402**	**9.4000e-004**	**0.1412**	**0.0374**	**8.6000e-004**	**0.0383**		**115.2787**	**115.2787**	**2.3400e-003**		**115.3373**

3.4 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3065	11.2157	2.9571	0.0333	0.8721	0.0151	0.8872	0.2509	0.0145	0.2654		3,534.0715	3,534.0715	0.1885		3,538.7841
Worker	1.4633	0.8218	9.1197	0.0298	4.0697	0.0243	4.0941	1.0795	0.0224	1.1019		2,969.1493	2,969.1493	0.0570		2,970.5747
Total	**1.7697**	**12.0374**	**12.0768**	**0.0631**	**4.9418**	**0.0395**	**4.9813**	**1.3305**	**0.0369**	**1.3673**		**6,503.2208**	**6,503.2208**	**0.2455**		**6,509.3588**

3.4 Building Construction - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3065	11.2157	2.9571	0.0333	0.8160	0.0151	0.8311	0.2372	0.0145	0.2516		3,534.0715	3,534.0715	0.1885		3,538.7841
Worker	1.4633	0.8218	9.1197	0.0298	3.7514	0.0243	3.7758	1.0014	0.0224	1.0238		2,969.1493	2,969.1493	0.0570		2,970.5747
Total	**1.7697**	**12.0374**	**12.0768**	**0.0631**	**4.5674**	**0.0395**	**4.6069**	**1.2386**	**0.0369**	**1.2754**		**6,503.2208**	**6,503.2208**	**0.2455**		**6,509.3588**

3.4 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2958	11.0272	2.8324	0.0331	0.8720	0.0144	0.8864	0.2509	0.0137	0.2646		3,516.2804	3,516.2804	0.1865		3,520.9426
Worker	1.3868	0.7519	8.4965	0.0288	4.0697	0.0231	4.0929	1.0795	0.0213	1.1008		2,866.5581	2,866.5581	0.0519		2,867.8551
Total	**1.6826**	**11.7791**	**11.3289**	**0.0618**	**4.9418**	**0.0375**	**4.9792**	**1.3304**	**0.0350**	**1.3655**		**6,382.8385**	**6,382.8385**	**0.2384**		**6,388.7977**

3.4 Building Construction - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2958	11.0272	2.8324	0.0331	0.8159	0.0144	0.8303	0.2371	0.0137	0.2509		3,516.2804	3,516.2804	0.1865		3,520.9426
Worker	1.3868	0.7519	8.4965	0.0288	3.7514	0.0231	3.7746	1.0014	0.0213	1.0227		2,866.5581	2,866.5581	0.0519		2,867.8551
Total	**1.6826**	**11.7791**	**11.3289**	**0.0618**	**4.5674**	**0.0375**	**4.6049**	**1.2385**	**0.0350**	**1.2736**		**6,382.8385**	**6,382.8385**	**0.2384**		**6,388.7977**

3.4 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2863	10.8672	2.7268	0.0329	0.8720	0.0137	0.8857	0.2509	0.0131	0.2640		3,501.1671	3,501.1671	0.1844		3,505.7778
Worker	1.3066	0.6898	7.9482	0.0278	4.0697	0.0216	4.0913	1.0795	0.0199	1.0994		2,775.4609	2,775.4609	0.0475		2,776.6475
Total	**1.5929**	**11.5571**	**10.6750**	**0.0608**	**4.9417**	**0.0353**	**4.9770**	**1.3304**	**0.0330**	**1.3634**		**6,276.6279**	**6,276.6279**	**0.2319**		**6,282.4253**

3.4 Building Construction - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2863	10.8672	2.7268	0.0329	0.8159	0.0137	0.8296	0.2371	0.0131	0.2502		3,501.1671	3,501.1671	0.1844		3,505.7778
Worker	1.3066	0.6898	7.9482	0.0278	3.7514	0.0216	3.7730	1.0014	0.0199	1.0213		2,775.4609	2,775.4609	0.0475		2,776.6475
Total	**1.5929**	**11.5571**	**10.6750**	**0.0608**	**4.5673**	**0.0353**	**4.6026**	**1.2385**	**0.0330**	**1.2715**		**6,276.6279**	**6,276.6279**	**0.2319**		**6,282.4253**

3.5 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0432	0.0252	0.2751	8.7000e-004	0.3124	7.0000e-004	0.3131	0.0790	6.5000e-004	0.0796		86.4590	86.4590	1.7600e-003		86.5030
Total	**0.0432**	**0.0252**	**0.2751**	**8.7000e-004**	**0.3124**	**7.0000e-004**	**0.3131**	**0.0790**	**6.5000e-004**	**0.0796**		**86.4590**	**86.4590**	**1.7600e-003**		**86.5030**

3.5 Paving - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0432	0.0252	0.2751	8.7000e-004	0.2857	7.0000e-004	0.2864	0.0724	6.5000e-004	0.0730		86.4590	86.4590	1.7600e-003		86.5030
Total	**0.0432**	**0.0252**	**0.2751**	**8.7000e-004**	**0.2857**	**7.0000e-004**	**0.2864**	**0.0724**	**6.5000e-004**	**0.0730**		**86.4590**	**86.4590**	**1.7600e-003**		**86.5030**

3.6 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2927	0.1644	1.8240	5.9600e-003	0.8140	4.8600e-003	0.8188	0.2159	4.4800e-003	0.2204		593.8299	593.8299	0.0114		594.1149
Total	**0.2927**	**0.1644**	**1.8240**	**5.9600e-003**	**0.8140**	**4.8600e-003**	**0.8188**	**0.2159**	**4.4800e-003**	**0.2204**		**593.8299**	**593.8299**	**0.0114**		**594.1149**

3.6 Architectural Coating - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2927	0.1644	1.8240	5.9600e-003	0.7503	4.8600e-003	0.7552	0.2003	4.4800e-003	0.2048		593.8299	593.8299	0.0114		594.1149
Total	**0.2927**	**0.1644**	**1.8240**	**5.9600e-003**	**0.7503**	**4.8600e-003**	**0.7552**	**0.2003**	**4.4800e-003**	**0.2048**		**593.8299**	**593.8299**	**0.0114**		**594.1149**

3.6 Architectural Coating - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2774	0.1504	1.6993	5.7500e-003	0.8140	4.6200e-003	0.8186	0.2159	4.2600e-003	0.2202		573.3116	573.3116	0.0104		573.5710
Total	**0.2774**	**0.1504**	**1.6993**	**5.7500e-003**	**0.8140**	**4.6200e-003**	**0.8186**	**0.2159**	**4.2600e-003**	**0.2202**		**573.3116**	**573.3116**	**0.0104**		**573.5710**

3.6 Architectural Coating - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2774	0.1504	1.6993	5.7500e-003	0.7503	4.6200e-003	0.7549	0.2003	4.2600e-003	0.2045		573.3116	573.3116	0.0104		573.5710
Total	**0.2774**	**0.1504**	**1.6993**	**5.7500e-003**	**0.7503**	**4.6200e-003**	**0.7549**	**0.2003**	**4.2600e-003**	**0.2045**		**573.3116**	**573.3116**	**0.0104**		**573.5710**

3.6 Architectural Coating - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2613	0.1380	1.5896	5.5700e-003	0.8140	4.3200e-003	0.8183	0.2159	3.9700e-003	0.2199		555.0922	555.0922	9.4900e-003		555.3295
Total	**0.2613**	**0.1380**	**1.5896**	**5.5700e-003**	**0.8140**	**4.3200e-003**	**0.8183**	**0.2159**	**3.9700e-003**	**0.2199**		**555.0922**	**555.0922**	**9.4900e-003**		**555.3295**

3.6 Architectural Coating - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**14.0899**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2613	0.1380	1.5896	5.5700e-003	0.7503	4.3200e-003	0.7546	0.2003	3.9700e-003	0.2043		555.0922	555.0922	9.4900e-003		555.3295
Total	**0.2613**	**0.1380**	**1.5896**	**5.5700e-003**	**0.7503**	**4.3200e-003**	**0.7546**	**0.2003**	**3.9700e-003**	**0.2043**		**555.0922**	**555.0922**	**9.4900e-003**		**555.3295**

3.7 Site Preparation and Grading for Rancho Cordova Widening - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**18.0663**	**1.0868**	**19.1531**	**9.9307**	**0.0999**	**10.9305**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0467	0.0253	0.2859	9.7000e-004	0.1369	7.8000e-004	0.1377	0.0363	7.2000e-004	0.0370		96.4449	96.4449	1.7500e-003		96.4886
Total	**0.0467**	**0.0253**	**0.2859**	**9.7000e-004**	**0.1369**	**7.8000e-004**	**0.1377**	**0.0363**	**7.2000e-004**	**0.0370**		**96.4449**	**96.4449**	**1.7500e-003**		**96.4886**

3.7 Site Preparation and Grading for Rancho Cordova Widening - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**8.1298**	**1.0868**	**9.2166**	**4.4688**	**0.9999**	**5.4687**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0467	0.0253	0.2859	9.7000e-004	0.1262	7.8000e-004	0.1270	0.0337	7.2000e-004	0.0344		96.4449	96.4449	1.7500e-003		96.4886
Total	**0.0467**	**0.0253**	**0.2859**	**9.7000e-004**	**0.1262**	**7.8000e-004**	**0.1270**	**0.0337**	**7.2000e-004**	**0.0344**		**96.4449**	**96.4449**	**1.7500e-003**		**96.4886**

3.8 Paving for Rancho Cordova Widening - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0389	0.0211	0.2382	8.1000e-004	0.1141	6.5000e-004	0.1148	0.0303	6.0000e-004	0.0309		80.3708	80.3708	1.4500e-003		80.4072
Total	**0.0389**	**0.0211**	**0.2382**	**8.1000e-004**	**0.1141**	**6.5000e-004**	**0.1148**	**0.0303**	**6.0000e-004**	**0.0309**		**80.3708**	**80.3708**	**1.4500e-003**		**80.4072**

3.8 Paving for Rancho Cordova Widening - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0389	0.0211	0.2382	8.1000e-004	0.1052	6.5000e-004	0.1058	0.0281	6.0000e-004	0.0287		80.3708	80.3708	1.4500e-003		80.4072
Total	**0.0389**	**0.0211**	**0.2382**	**8.1000e-004**	**0.1052**	**6.5000e-004**	**0.1058**	**0.0281**	**6.0000e-004**	**0.0287**		**80.3708**	**80.3708**	**1.4500e-003**		**80.4072**

3.8 Paving for Rancho Cordova Widening - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0366	0.0193	0.2229	7.8000e-004	0.1141	6.1000e-004	0.1147	0.0303	5.6000e-004	0.0308		77.8167	77.8167	1.3300e-003		77.8499
Total	**0.0366**	**0.0193**	**0.2229**	**7.8000e-004**	**0.1141**	**6.1000e-004**	**0.1147**	**0.0303**	**5.6000e-004**	**0.0308**		**77.8167**	**77.8167**	**1.3300e-003**		**77.8499**

3.8 Paving for Rancho Cordova Widening - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0366	0.0193	0.2229	7.8000e-004	0.1052	6.1000e-004	0.1058	0.0281	5.6000e-004	0.0286		77.8167	77.8167	1.3300e-003		77.8499
Total	**0.0366**	**0.0193**	**0.2229**	**7.8000e-004**	**0.1052**	**6.1000e-004**	**0.1058**	**0.0281**	**5.6000e-004**	**0.0286**		**77.8167**	**77.8167**	**1.3300e-003**		**77.8499**

3.9 Site Prepration for Park - Lot D - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**18.0663**	**1.0868**	**19.1531**	**9.9307**	**0.9999**	**10.9305**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0440	0.0232	0.2674	9.4000e-004	0.1369	7.3000e-004	0.1377	0.0363	6.7000e-004	0.0370		93.3800	93.3800	1.6000e-003		93.4199
Total	**0.0440**	**0.0232**	**0.2674**	**9.4000e-004**	**0.1369**	**7.3000e-004**	**0.1377**	**0.0363**	**6.7000e-004**	**0.0370**		**93.3800**	**93.3800**	**1.6000e-003**		**93.4199**

3.9 Site Prepration for Park - Lot D - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**8.1298**	**1.0868**	**9.2166**	**4.4688**	**0.9999**	**5.4687**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0440	0.0232	0.2674	9.4000e-004	0.1262	7.3000e-004	0.1269	0.0337	6.7000e-004	0.0344		93.3800	93.3800	1.6000e-003		93.4199
Total	**0.0440**	**0.0232**	**0.2674**	**9.4000e-004**	**0.1262**	**7.3000e-004**	**0.1269**	**0.0337**	**6.7000e-004**	**0.0344**		**93.3800**	**93.3800**	**1.6000e-003**		**93.4199**

3.9 Site Prepration for Park - Lot D - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**18.0663**	**1.0868**	**19.1531**	**9.9307**	**0.9999**	**10.9305**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0410	0.0213	0.2497	9.1000e-004	0.1369	6.8000e-004	0.1376	0.0363	6.2000e-004	0.0369		90.6626	90.6626	1.4600e-003		90.6990
Total	**0.0410**	**0.0213**	**0.2497**	**9.1000e-004**	**0.1369**	**6.8000e-004**	**0.1376**	**0.0363**	**6.2000e-004**	**0.0369**		**90.6626**	**90.6626**	**1.4600e-003**		**90.6990**

3.9 Site Prepration for Park - Lot D - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**8.1298**	**1.0868**	**9.2166**	**4.4688**	**0.9999**	**5.4687**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0410	0.0213	0.2497	9.1000e-004	0.1262	6.8000e-004	0.1269	0.0337	6.2000e-004	0.0343		90.6626	90.6626	1.4600e-003		90.6990
Total	**0.0410**	**0.0213**	**0.2497**	**9.1000e-004**	**0.1262**	**6.8000e-004**	**0.1269**	**0.0337**	**6.2000e-004**	**0.0343**		**90.6626**	**90.6626**	**1.4600e-003**		**90.6990**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.7932	15.8365	35.7184	0.1601	19.8919	0.0841	19.9760	5.3108	0.0782	5.3890		16,345.5907	16,345.5907	0.6262		16,361.2461
Unmitigated	2.7932	15.8365	35.7184	0.1601	19.8919	0.0841	19.9760	5.3108	0.0782	5.3890		16,345.5907	16,345.5907	0.6262		16,361.2461

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	106.40	102.24	93.76	266,875	266,875
City Park	1.93	23.28	17.13	13,200	13,200
City Park	2.99	35.95	26.45	20,380	20,380
City Park	17.20	207.03	152.33	117,380	117,380
Retirement Community	708.00	598.85	575.25	1,728,128	1,728,128
Single Family Housing	2,551.36	2,655.88	2310.16	6,496,963	6,496,963
Total	3,387.88	3,623.22	3,175.08	8,642,925	8,642,925

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3146	2.6887	1.1441	0.0172		0.2174	0.2174		0.2174	0.2174		3,432.3252	3,432.3252	0.0658	0.0629	3,452.7218
NaturalGas Unmitigated	0.3146	2.6887	1.1441	0.0172		0.2174	0.2174		0.2174	0.2174		3,432.3252	3,432.3252	0.0658	0.0629	3,452.7218

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	427.314	4.6100e-003	0.0394	0.0168	2.5000e-004		3.1800e-003	3.1800e-003		3.1800e-003	3.1800e-003		50.2722	50.2722	9.6000e-004	9.2000e-004	50.5710
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	9778.42	0.1055	0.9012	0.3835	5.7500e-003		0.0729	0.0729		0.0729	0.0729		1,150.4021	1,150.4021	0.0221	0.0211	1,157.2383
Single Family Housing	18969	0.2046	1.7481	0.7439	0.0112		0.1413	0.1413		0.1413	0.1413		2,231.6509	2,231.6509	0.0428	0.0409	2,244.9125
Total		**0.3146**	**2.6887**	**1.1441**	**0.0172**		**0.2174**	**0.2174**		**0.2174**	**0.2174**		**3,432.3252**	**3,432.3252**	**0.0658**	**0.0629**	**3,452.7218**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	0.427314	4.6100e-003	0.0394	0.0168	2.5000e-004		3.1800e-003	3.1800e-003		3.1800e-003	3.1800e-003		50.2722	50.2722	9.6000e-004	9.2000e-004	50.5710
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Retirement Community	9.77842	0.1055	0.9012	0.3835	5.7500e-003		0.0729	0.0729		0.0729	0.0729		1,150.4021	1,150.4021	0.0221	0.0211	1,157.2383
Single Family Housing	18.969	0.2046	1.7481	0.7439	0.0112		0.1413	0.1413		0.1413	0.1413		2,231.6509	2,231.6509	0.0428	0.0409	2,244.9125
Total		**0.3146**	**2.6887**	**1.1441**	**0.0172**		**0.2174**	**0.2174**		**0.2174**	**0.2174**		**3,432.3252**	**3,432.3252**	**0.0658**	**0.0629**	**3,452.7218**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	21.3159	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649	0.0000	86.0143	86.0143	0.0819	0.0000	88.0615
Unmitigated	21.3159	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649	0.0000	86.0143	86.0143	0.0819	0.0000	88.0615

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.7381					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	17.1545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4233	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649		86.0143	86.0143	0.0819		88.0615
Total	**21.3159**	**0.5492**	**47.6015**	**2.5200e-003**		**0.2649**	**0.2649**		**0.2649**	**0.2649**	**0.0000**	**86.0143**	**86.0143**	**0.0819**	**0.0000**	**88.0615**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.7381					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	17.1545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4233	0.5492	47.6015	2.5200e-003		0.2649	0.2649		0.2649	0.2649		86.0143	86.0143	0.0819		88.0615
Total	**21.3159**	**0.5492**	**47.6015**	**2.5200e-003**		**0.2649**	**0.2649**		**0.2649**	**0.2649**	**0.0000**	**86.0143**	**86.0143**	**0.0819**	**0.0000**	**88.0615**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Construction Only - Phase 4)

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	215.00	Dwelling Unit	7.17	215,000.00	621
Retirement Community	22.00	Dwelling Unit	0.73	22,000.00	45

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction start date for Phase 4 of March 2030 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 4

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the applicant)

Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).
Grading - Assume 10.66 acres grading during this phase, based on project components to be built during this phase. Net export of cut and fill is 25,451 cy.

Architectural Coating - Assumes interior coatings use flat coatings.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust -

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating -

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	41.00
tblConstructionPhase	NumDays	20.00	85.00
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	230.00	459.00
tblConstructionPhase	NumDays	20.00	108.00
tblGrading	AcresOfGrading	42.50	10.66
tblGrading	MaterialExported	0.00	25,451.00
tblLandUse	LotAcreage	5.66	7.17
tblLandUse	LotAcreage	4.40	0.73
tblLandUse	Population	574.00	621.00
tblLandUse	Population	59.00	45.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripNumber	2,516.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2030	0.1686	0.8434	1.4955	3.5300e-003	0.6687	0.0297	0.6984	0.3543	0.0297	0.3840	0.0000	304.2583	304.2583	0.0134	0.0000	304.5940
2031	0.1637	0.9744	1.8368	4.4400e-003	0.1381	0.0153	0.1534	0.0371	0.0153	0.0523	0.0000	388.3836	388.3836	0.0141	0.0000	388.7355
2032	0.2144	1.2916	2.4254	5.8800e-003	0.1837	0.0203	0.2040	0.0493	0.0203	0.0696	0.0000	514.2273	514.2273	0.0186	0.0000	514.6916
2033	0.9368	0.0476	0.1170	2.5000e-004	0.0135	1.1500e-003	0.0146	3.5900e-003	1.1400e-003	4.7300e-003	0.0000	21.6710	21.6710	6.6000e-004	0.0000	21.6874
Maximum	**0.9368**	**1.2916**	**2.4254**	**5.8800e-003**	**0.6687**	**0.0297**	**0.6984**	**0.3543**	**0.0297**	**0.3840**	**0.0000**	**514.2273**	**514.2273**	**0.0186**	**0.0000**	**514.6916**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2030	0.1686	0.8434	1.4955	3.5300e-003	0.3180	0.0297	0.3477	0.1638	0.0297	0.1935	0.0000	304.2580	304.2580	0.0134	0.0000	304.5936
2031	0.1637	0.9744	1.8368	4.4400e-003	0.1276	0.0153	0.1429	0.0345	0.0153	0.0498	0.0000	388.3833	388.3833	0.0141	0.0000	388.7352
2032	0.2144	1.2916	2.4254	5.8800e-003	0.1696	0.0203	0.1900	0.0459	0.0203	0.0661	0.0000	514.2269	514.2269	0.0186	0.0000	514.6912
2033	0.9368	0.0476	0.1170	2.5000e-004	0.0124	1.1500e-003	0.0136	3.3300e-003	1.1400e-003	4.4700e-003	0.0000	21.6710	21.6710	6.6000e-004	0.0000	21.6874
Maximum	**0.9368**	**1.2916**	**2.4254**	**5.8800e-003**	**0.3180**	**0.0297**	**0.3477**	**0.1638**	**0.0297**	**0.1935**	**0.0000**	**514.2269**	**514.2269**	**0.0186**	**0.0000**	**514.6912**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**37.48**	**0.00**	**35.15**	**44.29**	**0.00**	**38.53**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-1-2030**	**5-31-2030**	0.4434	0.4434
2	**6-1-2030**	**8-31-2030**	0.3751	0.3751
3	**9-1-2030**	**11-30-2030**	0.1884	0.1884
5	**3-1-2031**	**5-31-2031**	0.2519	0.2519
6	**6-1-2031**	**8-31-2031**	0.3800	0.3800
7	**9-1-2031**	**11-30-2031**	0.3765	0.3765
8	**12-1-2031**	**2-29-2032**	0.3754	0.3754
9	**3-1-2032**	**5-31-2032**	0.3783	0.3783

10	**6-1-2032**	**8-31-2032**	0.3780	0.3780
11	**9-1-2032**	**11-30-2032**	0.3745	0.3745
12	**12-1-2032**	**2-28-2033**	0.5054	0.5054
13	**3-1-2033**	**5-31-2033**	0.5992	0.5992
14	**6-1-2033**	**8-31-2033**	0.0065	0.0065
		Highest	0.5992	0.5992

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1467	0.0281	2.4355	1.3000e-004		0.0136	0.0136		0.0136	0.0136	0.0000	3.9924	3.9924	3.8000e-003	0.0000	4.0874
Energy	0.0127	0.1088	0.0463	6.9000e-004		8.8000e-003	8.8000e-003		8.8000e-003	8.8000e-003	0.0000	398.6816	398.6816	0.0158	5.0800e-003	400.5913
Mobile	0.2136	1.1087	2.4964	0.0118	1.3826	6.0100e-003	1.3886	0.3702	5.5900e-003	0.3758	0.0000	1,089.6171	1,089.6171	0.0397	0.0000	1,090.6097
Waste						0.0000	0.0000		0.0000	0.0000	22.1301	0.0000	22.1301	1.3079	0.0000	54.8263
Water						0.0000	0.0000		0.0000	0.0000	5.4632	29.7243	35.1875	0.0203	0.0122	39.3246
Total	**1.3731**	**1.2457**	**4.9782**	**0.0126**	**1.3826**	**0.0284**	**1.4109**	**0.3702**	**0.0279**	**0.3981**	**27.5933**	**1,522.0154**	**1,549.6087**	**1.3874**	**0.0173**	**1,589.4393**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1467	0.0281	2.4355	1.3000e-004		0.0136	0.0136		0.0136	0.0136	0.0000	3.9924	3.9924	3.8000e-003	0.0000	4.0874
Energy	0.0127	0.1088	0.0463	6.9000e-004		8.8000e-003	8.8000e-003		8.8000e-003	8.8000e-003	0.0000	398.6816	398.6816	0.0158	5.0800e-003	400.5913
Mobile	0.2136	1.1087	2.4964	0.0118	1.3826	6.0100e-003	1.3886	0.3702	5.5900e-003	0.3758	0.0000	1,089.6171	1,089.6171	0.0397	0.0000	1,090.6097
Waste						0.0000	0.0000		0.0000	0.0000	22.1301	0.0000	22.1301	1.3079	0.0000	54.8263
Water						0.0000	0.0000		0.0000	0.0000	5.4632	29.7243	35.1875	0.0203	0.0122	39.3246
Total	**1.3731**	**1.2457**	**4.9782**	**0.0126**	**1.3826**	**0.0284**	**1.4109**	**0.3702**	**0.0279**	**0.3981**	**27.5933**	**1,522.0154**	**1,549.6087**	**1.3874**	**0.0173**	**1,589.4393**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,585.9200
Vegetation Land Change	-1,057.2430
Total	**528.6770**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation for Commercial and MFR	Site Preparation	3/1/2030	4/26/2030	5	41	
2	Grading and improvements	Grading	4/28/2030	8/23/2030	5	85	
3	Paving	Paving	8/2/2030	10/31/2030	5	65	
4	Building Construction	Building Construction	4/1/2031	12/31/2032	5	459	
5	Architectural Coating	Architectural Coating	1/2/2033	6/1/2033	5	108	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 479,925; Residential Outdoor: 159,975; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation for Commercial and MFR	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation for Commercial and MFR	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading and improvements	Excavators	1	8.00	158	0.38
Grading and improvements	Graders	1	8.00	187	0.41
Grading and improvements	Rubber Tired Dozers	1	8.00	247	0.40
Grading and improvements	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation for Commercial and MFR	7	18.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Grading and Improvements	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	171.00	25.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation for Commercial and MFR - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3704	0.0000	0.3704	0.2036	0.0000	0.2036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0500	0.2802	0.3340	9.5000e-004		8.9500e-003	8.9500e-003		8.9500e-003	8.9500e-003	0.0000	82.0095	82.0095	4.0500e-003	0.0000	82.1106
Total	**0.0500**	**0.2802**	**0.3340**	**9.5000e-004**	**0.3704**	**8.9500e-003**	**0.3793**	**0.2036**	**8.9500e-003**	**0.2125**	**0.0000**	**82.0095**	**82.0095**	**4.0500e-003**	**0.0000**	**82.1106**

3.2 Site Preparation for Commercial and MFR - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	3.6000e-004	4.8200e-003	2.0000e-005	2.7100e-003	1.0000e-005	2.7200e-003	7.2000e-004	1.0000e-005	7.3000e-004	0.0000	1.6897	1.6897	3.0000e-005	0.0000	1.6903
Total	**7.3000e-004**	**3.6000e-004**	**4.8200e-003**	**2.0000e-005**	**2.7100e-003**	**1.0000e-005**	**2.7200e-003**	**7.2000e-004**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**1.6897**	**1.6897**	**3.0000e-005**	**0.0000**	**1.6903**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1667	0.0000	0.1667	0.0916	0.0000	0.0916	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0500	0.2802	0.3340	9.5000e-004		8.9500e-003	8.9500e-003		8.9500e-003	8.9500e-003	0.0000	82.0094	82.0094	4.0500e-003	0.0000	82.1105
Total	**0.0500**	**0.2802**	**0.3340**	**9.5000e-004**	**0.1667**	**8.9500e-003**	**0.1756**	**0.0916**	**8.9500e-003**	**0.1006**	**0.0000**	**82.0094**	**82.0094**	**4.0500e-003**	**0.0000**	**82.1105**

3.2 Site Preparation for Commercial and MFR - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	3.6000e-004	4.8200e-003	2.0000e-005	2.5000e-003	1.0000e-005	2.5100e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	1.6897	1.6897	3.0000e-005	0.0000	1.6903
Total	**7.3000e-004**	**3.6000e-004**	**4.8200e-003**	**2.0000e-005**	**2.5000e-003**	**1.0000e-005**	**2.5100e-003**	**6.7000e-004**	**1.0000e-005**	**6.8000e-004**	**0.0000**	**1.6897**	**1.6897**	**3.0000e-005**	**0.0000**	**1.6903**

3.3 Grading and improvements - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2616	0.0000	0.2616	0.1413	0.0000	0.1413	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0688	0.3294	0.6142	1.5400e-003		9.9500e-003	9.9500e-003		9.9500e-003	9.9500e-003	0.0000	132.6196	132.6196	5.5400e-003	0.0000	132.7581
Total	**0.0688**	**0.3294**	**0.6142**	**1.5400e-003**	**0.2616**	**9.9500e-003**	**0.2715**	**0.1413**	**9.9500e-003**	**0.1512**	**0.0000**	**132.6196**	**132.6196**	**5.5400e-003**	**0.0000**	**132.7581**

3.3 Grading and improvements - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2500e-003	6.2000e-004	8.3200e-003	3.0000e-005	4.6800e-003	2.0000e-005	4.7000e-003	1.2500e-003	2.0000e-005	1.2700e-003	0.0000	2.9192	2.9192	4.0000e-005	0.0000	2.9203
Total	**1.2500e-003**	**6.2000e-004**	**8.3200e-003**	**3.0000e-005**	**4.6800e-003**	**2.0000e-005**	**4.7000e-003**	**1.2500e-003**	**2.0000e-005**	**1.2700e-003**	**0.0000**	**2.9192**	**2.9192**	**4.0000e-005**	**0.0000**	**2.9203**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1177	0.0000	0.1177	0.0636	0.0000	0.0636	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0688	0.3294	0.6142	1.5400e-003		9.9500e-003	9.9500e-003		9.9500e-003	9.9500e-003	0.0000	132.6195	132.6195	5.5400e-003	0.0000	132.7579
Total	**0.0688**	**0.3294**	**0.6142**	**1.5400e-003**	**0.1177**	**9.9500e-003**	**0.1277**	**0.0636**	**9.9500e-003**	**0.0735**	**0.0000**	**132.6195**	**132.6195**	**5.5400e-003**	**0.0000**	**132.7579**

3.3 Grading and improvements - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2500e-003	6.2000e-004	8.3200e-003	3.0000e-005	4.3200e-003	2.0000e-005	4.3400e-003	1.1600e-003	2.0000e-005	1.1800e-003	0.0000	2.9192	2.9192	4.0000e-005	0.0000	2.9203
Total	**1.2500e-003**	**6.2000e-004**	**8.3200e-003**	**3.0000e-005**	**4.3200e-003**	**2.0000e-005**	**4.3400e-003**	**1.1600e-003**	**2.0000e-005**	**1.1800e-003**	**0.0000**	**2.9192**	**2.9192**	**4.0000e-005**	**0.0000**	**2.9203**

3.4 Paving - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0450	0.2314	0.5151	9.1000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	78.3234	78.3234	3.6700e-003	0.0000	78.4152
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0450**	**0.2314**	**0.5151**	**9.1000e-004**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**78.3234**	**78.3234**	**3.6700e-003**	**0.0000**	**78.4152**

3.4 Paving - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8700e-003	1.4200e-003	0.0191	7.0000e-005	0.0293	5.0000e-005	0.0294	7.4100e-003	5.0000e-005	7.4600e-003	0.0000	6.6969	6.6969	1.0000e-004	0.0000	6.6995
Total	**2.8700e-003**	**1.4200e-003**	**0.0191**	**7.0000e-005**	**0.0293**	**5.0000e-005**	**0.0294**	**7.4100e-003**	**5.0000e-005**	**7.4600e-003**	**0.0000**	**6.6969**	**6.6969**	**1.0000e-004**	**0.0000**	**6.6995**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0450	0.2314	0.5151	9.1000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	78.3233	78.3233	3.6700e-003	0.0000	78.4151
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0450**	**0.2314**	**0.5151**	**9.1000e-004**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**78.3233**	**78.3233**	**3.6700e-003**	**0.0000**	**78.4151**

3.4 Paving - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8700e-003	1.4200e-003	0.0191	7.0000e-005	0.0268	5.0000e-005	0.0269	6.8000e-003	5.0000e-005	6.8500e-003	0.0000	6.6969	6.6969	1.0000e-004	0.0000	6.6995
Total	**2.8700e-003**	**1.4200e-003**	**0.0191**	**7.0000e-005**	**0.0268**	**5.0000e-005**	**0.0269**	**6.8000e-003**	**5.0000e-005**	**6.8500e-003**	**0.0000**	**6.6969**	**6.6969**	**1.0000e-004**	**0.0000**	**6.6995**

3.5 Building Construction - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1290	0.7816	1.5915	3.0500e-003		0.0146	0.0146		0.0146	0.0146	0.0000	258.9181	258.9181	0.0104	0.0000	259.1778
Total	**0.1290**	**0.7816**	**1.5915**	**3.0500e-003**		**0.0146**	**0.0146**		**0.0146**	**0.0146**	**0.0000**	**258.9181**	**258.9181**	**0.0104**	**0.0000**	**259.1778**

3.5 Building Construction - 2031

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3100e-003	0.1779	0.0394	5.6000e-004	0.0144	1.9000e-004	0.0146	4.1600e-003	1.8000e-004	4.3400e-003	0.0000	54.1705	54.1705	2.6300e-003	0.0000	54.2363
Worker	0.0304	0.0149	0.2059	8.3000e-004	0.1237	5.5000e-004	0.1243	0.0329	5.0000e-004	0.0334	0.0000	75.2950	75.2950	1.0600e-003	0.0000	75.3215
Total	**0.0348**	**0.1928**	**0.2453**	**1.3900e-003**	**0.1381**	**7.4000e-004**	**0.1388**	**0.0371**	**6.8000e-004**	**0.0378**	**0.0000**	**129.4655**	**129.4655**	**3.6900e-003**	**0.0000**	**129.5577**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1290	0.7816	1.5915	3.0500e-003		0.0146	0.0146		0.0146	0.0146	0.0000	258.9178	258.9178	0.0104	0.0000	259.1775
Total	**0.1290**	**0.7816**	**1.5915**	**3.0500e-003**		**0.0146**	**0.0146**		**0.0146**	**0.0146**	**0.0000**	**258.9178**	**258.9178**	**0.0104**	**0.0000**	**259.1775**

3.5 Building Construction - 2031

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3100e-003	0.1779	0.0394	5.6000e-004	0.0135	1.9000e-004	0.0137	3.9300e-003	1.8000e-004	4.1200e-003	0.0000	54.1705	54.1705	2.6300e-003	0.0000	54.2363
Worker	0.0304	0.0149	0.2059	8.3000e-004	0.1141	5.5000e-004	0.1146	0.0305	5.0000e-004	0.0310	0.0000	75.2950	75.2950	1.0600e-003	0.0000	75.3215
Total	**0.0348**	**0.1928**	**0.2453**	**1.3900e-003**	**0.1276**	**7.4000e-004**	**0.1283**	**0.0345**	**6.8000e-004**	**0.0352**	**0.0000**	**129.4655**	**129.4655**	**3.6900e-003**	**0.0000**	**129.5577**

3.5 Building Construction - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1715	1.0394	2.1166	4.0600e-003		0.0194	0.0194		0.0194	0.0194	0.0000	344.3479	344.3479	0.0138	0.0000	344.6933
Total	**0.1715**	**1.0394**	**2.1166**	**4.0600e-003**		**0.0194**	**0.0194**		**0.0194**	**0.0194**	**0.0000**	**344.3479**	**344.3479**	**0.0138**	**0.0000**	**344.6933**

3.5 Building Construction - 2032

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.6200e-003	0.2339	0.0514	7.4000e-004	0.0191	2.5000e-004	0.0194	5.5300e-003	2.4000e-004	5.7600e-003	0.0000	71.8635	71.8635	3.4700e-003	0.0000	71.9502
Worker	0.0373	0.0183	0.2574	1.0800e-003	0.1645	6.8000e-004	0.1652	0.0438	6.2000e-004	0.0444	0.0000	98.0159	98.0159	1.2900e-003	0.0000	98.0481
Total	**0.0429**	**0.2521**	**0.3088**	**1.8200e-003**	**0.1837**	**9.3000e-004**	**0.1846**	**0.0493**	**8.6000e-004**	**0.0501**	**0.0000**	**169.8794**	**169.8794**	**4.7600e-003**	**0.0000**	**169.9983**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1715	1.0394	2.1166	4.0600e-003		0.0194	0.0194		0.0194	0.0194	0.0000	344.3475	344.3475	0.0138	0.0000	344.6929
Total	**0.1715**	**1.0394**	**2.1166**	**4.0600e-003**		**0.0194**	**0.0194**		**0.0194**	**0.0194**	**0.0000**	**344.3475**	**344.3475**	**0.0138**	**0.0000**	**344.6929**

3.5 Building Construction - 2032

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.6200e-003	0.2339	0.0514	7.4000e-004	0.0179	2.5000e-004	0.0182	5.2300e-003	2.4000e-004	5.4700e-003	0.0000	71.8635	71.8635	3.4700e-003	0.0000	71.9502
Worker	0.0373	0.0183	0.2574	1.0800e-003	0.1517	6.8000e-004	0.1524	0.0406	6.2000e-004	0.0412	0.0000	98.0159	98.0159	1.2900e-003	0.0000	98.0481
Total	**0.0429**	**0.2521**	**0.3088**	**1.8200e-003**	**0.1696**	**9.3000e-004**	**0.1706**	**0.0459**	**8.6000e-004**	**0.0467**	**0.0000**	**169.8794**	**169.8794**	**4.7600e-003**	**0.0000**	**169.9983**

3.6 Architectural Coating - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9269					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.0600e-003	0.0462	0.0971	1.6000e-004		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	13.7876	13.7876	5.6000e-004	0.0000	13.8015
Total	**0.9339**	**0.0462**	**0.0971**	**1.6000e-004**		**1.1000e-003**	**1.1000e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**13.7876**	**13.7876**	**5.6000e-004**	**0.0000**	**13.8015**

3.6 Architectural Coating - 2033

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8400e-003	1.3900e-003	0.0200	9.0000e-005	0.0135	5.0000e-005	0.0135	3.5900e-003	5.0000e-005	3.6300e-003	0.0000	7.8835	7.8835	1.0000e-004	0.0000	7.8859
Total	**2.8400e-003**	**1.3900e-003**	**0.0200**	**9.0000e-005**	**0.0135**	**5.0000e-005**	**0.0135**	**3.5900e-003**	**5.0000e-005**	**3.6300e-003**	**0.0000**	**7.8835**	**7.8835**	**1.0000e-004**	**0.0000**	**7.8859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9269					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.0600e-003	0.0462	0.0971	1.6000e-004		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	13.7876	13.7876	5.6000e-004	0.0000	13.8015
Total	**0.9339**	**0.0462**	**0.0971**	**1.6000e-004**		**1.1000e-003**	**1.1000e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**13.7876**	**13.7876**	**5.6000e-004**	**0.0000**	**13.8015**

3.6 Architectural Coating - 2033

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8400e-003	1.3900e-003	0.0200	9.0000e-005	0.0124	5.0000e-005	0.0125	3.3300e-003	5.0000e-005	3.3800e-003	0.0000	7.8835	7.8835	1.0000e-004	0.0000	7.8859
Total	**2.8400e-003**	**1.3900e-003**	**0.0200**	**9.0000e-005**	**0.0124**	**5.0000e-005**	**0.0125**	**3.3300e-003**	**5.0000e-005**	**3.3800e-003**	**0.0000**	**7.8835**	**7.8835**	**1.0000e-004**	**0.0000**	**7.8859**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2136	1.1087	2.4964	0.0118	1.3826	6.0100e-003	1.3886	0.3702	5.5900e-003	0.3758	0.0000	1,089.6171	1,089.6171	0.0397	0.0000	1,090.6097
Unmitigated	0.2136	1.1087	2.4964	0.0118	1.3826	6.0100e-003	1.3886	0.3702	5.5900e-003	0.3758	0.0000	1,089.6171	1,089.6171	0.0397	0.0000	1,090.6097

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,429.75	1,373.85	1259.90	3,586,137	3,586,137
Retirement Community	52.80	44.66	42.90	128,877	128,877
Total	1,482.55	1,418.51	1,302.80	3,715,015	3,715,015

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	272.6356	272.6356	0.0134	2.7700e-003	273.7962
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	272.6356	272.6356	0.0134	2.7700e-003	273.7962
NaturalGas Mitigated	0.0127	0.1088	0.0463	6.9000e-004		8.8000e-003	8.8000e-003		8.8000e-003	8.8000e-003	0.0000	126.0460	126.0460	2.4200e-003	2.3100e-003	126.7951
NaturalGas Unmitigated	0.0127	0.1088	0.0463	6.9000e-004		8.8000e-003	8.8000e-003		8.8000e-003	8.8000e-003	0.0000	126.0460	126.0460	2.4200e-003	2.3100e-003	126.7951

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.09584e+006	0.0113	0.0966	0.0411	6.2000e-004		7.8100e-003	7.8100e-003		7.8100e-003	7.8100e-003	0.0000	111.8421	111.8421	2.1400e-003	2.0500e-003	112.5067
Retirement Community	266172	1.4400e-003	0.0123	5.2200e-003	8.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	14.2039	14.2039	2.7000e-004	2.6000e-004	14.2884
Total		**0.0127**	**0.1088**	**0.0463**	**7.0000e-004**		**8.8000e-003**	**8.8000e-003**		**8.8000e-003**	**8.8000e-003**	**0.0000**	**126.0460**	**126.0460**	**2.4100e-003**	**2.3100e-003**	**126.7951**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.09584e+006	0.0113	0.0966	0.0411	6.2000e-004		7.8100e-003	7.8100e-003		7.8100e-003	7.8100e-003	0.0000	111.8421	111.8421	2.1400e-003	2.0500e-003	112.5067
Retirement Community	266172	1.4400e-003	0.0123	5.2200e-003	8.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	14.2039	14.2039	2.7000e-004	2.6000e-004	14.2884
Total		**0.0127**	**0.1088**	**0.0463**	**7.0000e-004**		**8.8000e-003**	**8.8000e-003**		**8.8000e-003**	**8.8000e-003**	**0.0000**	**126.0460**	**126.0460**	**2.4100e-003**	**2.3100e-003**	**126.7951**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	915139	245.0377	0.0120	2.4900e-003	246.0808
Retirement Community	103070	27.5979	1.3600e-003	2.8000e-004	27.7154
Total		**272.6356**	**0.0134**	**2.7700e-003**	**273.7962**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	915139	245.0377	0.0120	2.4900e-003	246.0808
Retirement Community	103070	27.5979	1.3600e-003	2.8000e-004	27.7154
Total		**272.6356**	**0.0134**	**2.7700e-003**	**273.7962**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1467	0.0281	2.4355	1.3000e-004		0.0136	0.0136		0.0136	0.0136	0.0000	3.9924	3.9924	3.8000e-003	0.0000	4.0874
Unmitigated	1.1467	0.0281	2.4355	1.3000e-004		0.0136	0.0136		0.0136	0.0136	0.0000	3.9924	3.9924	3.8000e-003	0.0000	4.0874

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1483					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9256					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0728	0.0281	2.4355	1.3000e-004		0.0136	0.0136		0.0136	0.0136	0.0000	3.9924	3.9924	3.8000e-003	0.0000	4.0874
Total	**1.1467**	**0.0281**	**2.4355**	**1.3000e-004**		**0.0136**	**0.0136**		**0.0136**	**0.0136**	**0.0000**	**3.9924**	**3.9924**	**3.8000e-003**	**0.0000**	**4.0874**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1483					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9256					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0728	0.0281	2.4355	1.3000e-004		0.0136	0.0136		0.0136	0.0136	0.0000	3.9924	3.9924	3.8000e-003	0.0000	4.0874
Total	**1.1467**	**0.0281**	**2.4355**	**1.3000e-004**		**0.0136**	**0.0136**		**0.0136**	**0.0136**	**0.0000**	**3.9924**	**3.9924**	**3.8000e-003**	**0.0000**	**4.0874**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	35.1875	0.0203	0.0122	39.3246
Unmitigated	35.1875	0.0203	0.0122	39.3246

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.0081 / 8.8312	31.9212	0.0184	0.0111	35.6742
Retirement Community	1.43339 / 0.903658	3.2664	1.8800e-003	1.1300e-003	3.6504
Total		**35.1875**	**0.0203**	**0.0122**	**39.3246**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.0081 / 8.8312	31.9212	0.0184	0.0111	35.6742
Retirement Community	1.43339 / 0.903658	3.2664	1.8800e-003	1.1300e-003	3.6504
Total		**35.1875**	**0.0203**	**0.0122**	**39.3246**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	22.1301	1.3079	0.0000	54.8263
Unmitigated	22.1301	1.3079	0.0000	54.8263

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	98.9	20.0758	1.1865	0.0000	49.7370
Retirement Community	10.12	2.0543	0.1214	0.0000	5.0894
Total		**22.1301**	**1.3079**	**0.0000**	**54.8263**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	98.9	20.0758	1.1865	0.0000	49.7370
Retirement Community	10.12	2.0543	0.1214	0.0000	5.0894
Total		**22.1301**	**1.3079**	**0.0000**	**54.8263**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	528.6770	0.0000	0.0000	528.6770

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	530.1 / 284.8	-1,057.2430	0.0000	0.0000	-1,057.2430
Total		**-1,057.2430**	**0.0000**	**0.0000**	**-1,057.2430**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2240	1,585.9200	0.0000	0.0000	1,585.9200
Total		**1,585.9200**	**0.0000**	**0.0000**	**1,585.9200**

The Ranch - City of Rancho Cordova (Construction Only - Phase 4)

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	215.00	Dwelling Unit	7.17	215,000.00	621
Retirement Community	22.00	Dwelling Unit	0.73	22,000.00	45

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction start date for Phase 4 of March 2030 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 4

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the applicant)

Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).
Grading - Assume 10.66 acres grading during this phase, based on project components to be built during this phase. Net export of cut and fill is 25,451 cy.

Architectural Coating - Assumes interior coatings use flat coatings.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust -

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating -

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	41.00
tblConstructionPhase	NumDays	20.00	85.00
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	230.00	459.00
tblConstructionPhase	NumDays	20.00	108.00
tblGrading	AcresOfGrading	42.50	10.66
tblGrading	MaterialExported	0.00	25,451.00
tblLandUse	LotAcreage	5.66	7.17
tblLandUse	LotAcreage	4.40	0.73
tblLandUse	Population	574.00	621.00
tblLandUse	Population	59.00	45.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripNumber	2,516.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2030	3.1377	14.9232	31.2422	0.0677	18.2032	0.5667	18.6405	9.9670	0.5666	10.4042	0.0000	6,431.2842	6,431.2842	0.2733	0.0000	6,438.1174
2031	1.7063	9.8582	19.0507	0.0461	1.4511	0.1556	1.6067	0.3883	0.1551	0.5434	0.0000	4,442.5102	4,442.5102	0.1581	0.0000	4,446.4630
2032	1.6774	9.8268	18.8986	0.0459	1.4511	0.1552	1.6063	0.3883	0.1547	0.5430	0.0000	4,421.3145	4,421.3145	0.1568	0.0000	4,425.2335
2033	17.3550	0.8797	2.2450	4.7500e-003	0.2586	0.0213	0.2799	0.0686	0.0212	0.0898	0.0000	459.5436	459.5436	0.0137	0.0000	459.8848
Maximum	**17.3550**	**14.9232**	**31.2422**	**0.0677**	**18.2032**	**0.5667**	**18.6405**	**9.9670**	**0.5666**	**10.4042**	**0.0000**	**6,431.2842**	**6,431.2842**	**0.2733**	**0.0000**	**6,438.1174**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2030	3.1377	14.9232	31.2422	0.0677	8.2560	0.5667	8.6933	4.5025	0.5666	4.9397	0.0000	6,431.2842	6,431.2842	0.2733	0.0000	6,438.1174
2031	1.7063	9.8582	19.0507	0.0461	1.3397	0.1556	1.4954	0.3610	0.1551	0.5161	0.0000	4,442.5102	4,442.5102	0.1581	0.0000	4,446.4630
2032	1.6774	9.8268	18.8986	0.0459	1.3397	0.1552	1.4949	0.3610	0.1547	0.5156	0.0000	4,421.3145	4,421.3145	0.1568	0.0000	4,425.2335
2033	17.3550	0.8797	2.2450	4.7500e-003	0.2384	0.0213	0.2597	0.0636	0.0212	0.0848	0.0000	459.5436	459.5436	0.0137	0.0000	459.8848
Maximum	**17.3550**	**14.9232**	**31.2422**	**0.0677**	**8.2560**	**0.5667**	**8.6933**	**4.5025**	**0.5666**	**4.9397**	**0.0000**	**6,431.2842**	**6,431.2842**	**0.2733**	**0.0000**	**6,438.1174**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.70**	**0.00**	**46.04**	**51.09**	**0.00**	**47.70**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.4670	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084	0.0000	35.2069	35.2069	0.0335	0.0000	36.0448
Energy	0.0698	0.5964	0.2538	3.8100e-003		0.0482	0.0482		0.0482	0.0482		761.3258	761.3258	0.0146	0.0140	765.8500
Mobile	1.5374	6.0865	15.9394	0.0714	8.0538	0.0338	8.0876	2.1502	0.0314	2.1817		7,271.9791	7,271.9791	0.2487		7,278.1968
Total	**8.0742**	**6.9077**	**35.6772**	**0.0762**	**8.0538**	**0.1905**	**8.2443**	**2.1502**	**0.1881**	**2.3383**	**0.0000**	**8,068.5118**	**8,068.5118**	**0.2968**	**0.0140**	**8,080.0915**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.4670	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084	0.0000	35.2069	35.2069	0.0335	0.0000	36.0448
Energy	0.0698	0.5964	0.2538	3.8100e-003		0.0482	0.0482		0.0482	0.0482		761.3258	761.3258	0.0146	0.0140	765.8500
Mobile	1.5374	6.0865	15.9394	0.0714	8.0538	0.0338	8.0876	2.1502	0.0314	2.1817		7,271.9791	7,271.9791	0.2487		7,278.1968
Total	**8.0742**	**6.9077**	**35.6772**	**0.0762**	**8.0538**	**0.1905**	**8.2443**	**2.1502**	**0.1881**	**2.3383**	**0.0000**	**8,068.5118**	**8,068.5118**	**0.2968**	**0.0140**	**8,080.0915**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation for Commercial and MFR	Site Preparation	3/1/2030	4/26/2030	5	41	
2	Grading and improvements	Grading	4/28/2030	8/23/2030	5	85	
3	Paving	Paving	8/2/2030	10/31/2030	5	65	
4	Building Construction	Building Construction	4/1/2031	12/31/2032	5	459	
5	Architectural Coating	Architectural Coating	1/2/2033	6/1/2033	5	108	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 479,925; Residential Outdoor: 159,975; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Ranch - City of Rancho Cordova (Construction Only - Phase 4) - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation for Commercial and MFR	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation for Commercial and MFR	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading and improvements	Excavators	1	8.00	158	0.38
Grading and improvements	Graders	1	8.00	187	0.41
Grading and improvements	Rubber Tired Dozers	1	8.00	247	0.40
Grading and improvements	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation for Commercial and MFR	7	18.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Grading and Improvements	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	171.00	25.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation for Commercial and MFR - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.4399	13.6680	16.2918	0.0466		0.4367	0.4367		0.4367	0.4367		4,409.7537	4,409.7537	0.2176		4,415.1936
Total	**2.4399**	**13.6680**	**16.2918**	**0.0466**	**18.0663**	**0.4367**	**18.5029**	**9.9307**	**0.4367**	**10.3673**		**4,409.7537**	**4,409.7537**	**0.2176**		**4,415.1936**

3.2 Site Preparation for Commercial and MFR - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0406	0.0159	0.2823	1.0100e-003	0.1369	6.3000e-004	0.1376	0.0363	5.8000e-004	0.0369		100.5142	100.5142	1.5400e-003		100.5527
Total	**0.0406**	**0.0159**	**0.2823**	**1.0100e-003**	**0.1369**	**6.3000e-004**	**0.1376**	**0.0363**	**5.8000e-004**	**0.0369**		**100.5142**	**100.5142**	**1.5400e-003**		**100.5527**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.4399	13.6680	16.2918	0.0466		0.4367	0.4367		0.4367	0.4367	0.0000	4,409.7537	4,409.7537	0.2176		4,415.1936
Total	**2.4399**	**13.6680**	**16.2918**	**0.0466**	**8.1298**	**0.4367**	**8.5665**	**4.4688**	**0.4367**	**4.9055**	**0.0000**	**4,409.7537**	**4,409.7537**	**0.2176**		**4,415.1936**

3.2 Site Preparation for Commercial and MFR - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0406	0.0159	0.2823	1.0100e-003	0.1262	6.3000e-004	0.1269	0.0337	5.8000e-004	0.0343		100.5142	100.5142	1.5400e-003		100.5527
Total	**0.0406**	**0.0159**	**0.2823**	**1.0100e-003**	**0.1262**	**6.3000e-004**	**0.1269**	**0.0337**	**5.8000e-004**	**0.0343**		**100.5142**	**100.5142**	**1.5400e-003**		**100.5527**

3.3 Grading and improvements - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1551	0.0000	6.1551	3.3246	0.0000	3.3246			0.0000			0.0000
Off-Road	1.6179	7.7501	14.4518	0.0363		0.2340	0.2340		0.2340	0.2340		3,439.7201	3,439.7201	0.1437		3,443.3117
Total	**1.6179**	**7.7501**	**14.4518**	**0.0363**	**6.1551**	**0.2340**	**6.3891**	**3.3246**	**0.2340**	**3.5586**		**3,439.7201**	**3,439.7201**	**0.1437**		**3,443.3117**

3.3 Grading and improvements - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0132	0.2352	8.4000e-004	0.1141	5.2000e-004	0.1146	0.0303	4.8000e-004	0.0308		83.7618	83.7618	1.2800e-003		83.7939
Total	**0.0338**	**0.0132**	**0.2352**	**8.4000e-004**	**0.1141**	**5.2000e-004**	**0.1146**	**0.0303**	**4.8000e-004**	**0.0308**		**83.7618**	**83.7618**	**1.2800e-003**		**83.7939**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7698	0.0000	2.7698	1.4961	0.0000	1.4961			0.0000			0.0000
Off-Road	1.6179	7.7501	14.4518	0.0363		0.2340	0.2340		0.2340	0.2340	0.0000	3,439.7201	3,439.7201	0.1437		3,443.3117
Total	**1.6179**	**7.7501**	**14.4518**	**0.0363**	**2.7698**	**0.2340**	**3.0038**	**1.4961**	**0.2340**	**1.7301**	**0.0000**	**3,439.7201**	**3,439.7201**	**0.1437**		**3,443.3117**

3.3 Grading and improvements - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0132	0.2352	8.4000e-004	0.1052	5.2000e-004	0.1057	0.0281	4.8000e-004	0.0286		83.7618	83.7618	1.2800e-003		83.7939
Total	**0.0338**	**0.0132**	**0.2352**	**8.4000e-004**	**0.1052**	**5.2000e-004**	**0.1057**	**0.0281**	**4.8000e-004**	**0.0286**		**83.7618**	**83.7618**	**1.2800e-003**		**83.7939**

3.4 Paving - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306		2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3845**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**		**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

3.4 Paving - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1014	0.0396	0.7057	2.5200e-003	0.9373	1.5700e-003	0.9388	0.2368	1.4500e-003	0.2383		251.2855	251.2855	3.8500e-003		251.3817
Total	**0.1014**	**0.0396**	**0.7057**	**2.5200e-003**	**0.9373**	**1.5700e-003**	**0.9388**	**0.2368**	**1.4500e-003**	**0.2383**		**251.2855**	**251.2855**	**3.8500e-003**		**251.3817**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306	0.0000	2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3845**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**	**0.0000**	**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

3.4 Paving - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1014	0.0396	0.7057	2.5200e-003	0.8570	1.5700e-003	0.8585	0.2171	1.4500e-003	0.2186		251.2855	251.2855	3.8500e-003		251.3817
Total	**0.1014**	**0.0396**	**0.7057**	**2.5200e-003**	**0.8570**	**1.5700e-003**	**0.8585**	**0.2171**	**1.4500e-003**	**0.2186**		**251.2855**	**251.2855**	**3.8500e-003**		**251.3817**

3.5 Building Construction - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.5 Building Construction - 2031

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0430	1.7856	0.3768	5.7600e-003	0.1503	1.9300e-003	0.1522	0.0433	1.8400e-003	0.0451		612.6547	612.6547	0.0285		613.3673
Worker	0.3543	0.1380	2.5169	9.3500e-003	1.3008	5.5700e-003	1.3064	0.3451	5.1200e-003	0.3502		932.3088	932.3088	0.0134		932.6428
Total	**0.3972**	**1.9236**	**2.8937**	**0.0151**	**1.4511**	**7.5000e-003**	**1.4586**	**0.3883**	**6.9600e-003**	**0.3953**		**1,544.9635**	**1,544.9635**	**0.0419**		**1,546.0101**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.5 Building Construction - 2031

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0430	1.7856	0.3768	5.7600e-003	0.1407	1.9300e-003	0.1426	0.0409	1.8400e-003	0.0427		612.6547	612.6547	0.0285		613.3673
Worker	0.3543	0.1380	2.5169	9.3500e-003	1.1991	5.5700e-003	1.2046	0.3201	5.1200e-003	0.3252		932.3088	932.3088	0.0134		932.6428
Total	**0.3972**	**1.9236**	**2.8937**	**0.0151**	**1.3397**	**7.5000e-003**	**1.3472**	**0.3610**	**6.9600e-003**	**0.3679**		**1,544.9635**	**1,544.9635**	**0.0419**		**1,546.0101**

3.5 Building Construction - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.5 Building Construction - 2032

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0421	1.7652	0.3700	5.7400e-003	0.1503	1.8500e-003	0.1522	0.0432	1.7700e-003	0.0450		611.1096	611.1096	0.0283		611.8158
Worker	0.3262	0.1270	2.3717	9.1500e-003	1.3008	5.1800e-003	1.3060	0.3451	4.7600e-003	0.3498		912.6582	912.6582	0.0123		912.9648
Total	**0.3683**	**1.8922**	**2.7417**	**0.0149**	**1.4511**	**7.0300e-003**	**1.4581**	**0.3883**	**6.5300e-003**	**0.3948**		**1,523.7678**	**1,523.7678**	**0.0405**		**1,524.7806**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.5 Building Construction - 2032

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0421	1.7652	0.3700	5.7400e-003	0.1406	1.8500e-003	0.1425	0.0409	1.7700e-003	0.0426		611.1096	611.1096	0.0283		611.8158
Worker	0.3262	0.1270	2.3717	9.1500e-003	1.1991	5.1800e-003	1.2042	0.3201	4.7600e-003	0.3248		912.6582	912.6582	0.0123		912.9648
Total	**0.3683**	**1.8922**	**2.7417**	**0.0149**	**1.3397**	**7.0300e-003**	**1.3467**	**0.3610**	**6.5300e-003**	**0.3675**		**1,523.7678**	**1,523.7678**	**0.0405**		**1,524.7806**

3.6 Architectural Coating - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	17.1640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203		281.4481	281.4481	0.0114		281.7328
Total	**17.2947**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**		**281.4481**	**281.4481**	**0.0114**		**281.7328**

3.6 Architectural Coating - 2033

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0235	0.4472	1.7800e-003	0.2586	9.6000e-004	0.2596	0.0686	8.8000e-004	0.0695		178.0956	178.0956	2.2600e-003		178.1520
Total	**0.0603**	**0.0235**	**0.4472**	**1.7800e-003**	**0.2586**	**9.6000e-004**	**0.2596**	**0.0686**	**8.8000e-004**	**0.0695**		**178.0956**	**178.0956**	**2.2600e-003**		**178.1520**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	17.1640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203	0.0000	281.4481	281.4481	0.0114		281.7328
Total	**17.2947**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**	**0.0000**	**281.4481**	**281.4481**	**0.0114**		**281.7328**

3.6 Architectural Coating - 2033

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0235	0.4472	1.7800e-003	0.2384	9.6000e-004	0.2394	0.0636	8.8000e-004	0.0645		178.0956	178.0956	2.2600e-003		178.1520
Total	**0.0603**	**0.0235**	**0.4472**	**1.7800e-003**	**0.2384**	**9.6000e-004**	**0.2394**	**0.0636**	**8.8000e-004**	**0.0645**		**178.0956**	**178.0956**	**2.2600e-003**		**178.1520**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5374	6.0865	15.9394	0.0714	8.0538	0.0338	8.0876	2.1502	0.0314	2.1817		7,271.9791	7,271.9791	0.2487		7,278.1968
Unmitigated	1.5374	6.0865	15.9394	0.0714	8.0538	0.0338	8.0876	2.1502	0.0314	2.1817		7,271.9791	7,271.9791	0.2487		7,278.1968

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,429.75	1,373.85	1259.90	3,586,137	3,586,137
Retirement Community	52.80	44.66	42.90	128,877	128,877
Total	1,482.55	1,418.51	1,302.80	3,715,015	3,715,015

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0698	0.5964	0.2538	3.8100e-003		0.0482	0.0482		0.0482	0.0482		761.3258	761.3258	0.0146	0.0140	765.8500
NaturalGas Unmitigated	0.0698	0.5964	0.2538	3.8100e-003		0.0482	0.0482		0.0482	0.0482		761.3258	761.3258	0.0146	0.0140	765.8500

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5742.03	0.0619	0.5292	0.2252	3.3800e-003		0.0428	0.0428		0.0428	0.0428		675.5331	675.5331	0.0130	0.0124	679.5475
Retirement Community	729.238	7.8600e-003	0.0672	0.0286	4.3000e-004		5.4300e-003	5.4300e-003		5.4300e-003	5.4300e-003		85.7927	85.7927	1.6400e-003	1.5700e-003	86.3025
Total		**0.0698**	**0.5964**	**0.2538**	**3.8100e-003**		**0.0482**	**0.0482**		**0.0482**	**0.0482**		**761.3258**	**761.3258**	**0.0146**	**0.0140**	**765.8500**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5.74203	0.0619	0.5292	0.2252	3.3800e-003		0.0428	0.0428		0.0428	0.0428		675.5331	675.5331	0.0130	0.0124	679.5475
Retirement Community	0.729238	7.8600e-003	0.0672	0.0286	4.3000e-004		5.4300e-003	5.4300e-003		5.4300e-003	5.4300e-003		85.7927	85.7927	1.6400e-003	1.5700e-003	86.3025
Total		**0.0698**	**0.5964**	**0.2538**	**3.8100e-003**		**0.0482**	**0.0482**		**0.0482**	**0.0482**		**761.3258**	**761.3258**	**0.0146**	**0.0140**	**765.8500**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.4670	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084	0.0000	35.2069	35.2069	0.0335	0.0000	36.0448
Unmitigated	6.4670	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084	0.0000	35.2069	35.2069	0.0335	0.0000	36.0448

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8126					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.0718					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5826	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084		35.2069	35.2069	0.0335		36.0448
Total	**6.4670**	**0.2248**	**19.4841**	**1.0300e-003**		**0.1084**	**0.1084**		**0.1084**	**0.1084**	**0.0000**	**35.2069**	**35.2069**	**0.0335**	**0.0000**	**36.0448**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8126					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.0718					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5826	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084		35.2069	35.2069	0.0335		36.0448
Total	**6.4670**	**0.2248**	**19.4841**	**1.0300e-003**		**0.1084**	**0.1084**		**0.1084**	**0.1084**	**0.0000**	**35.2069**	**35.2069**	**0.0335**	**0.0000**	**36.0448**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Construction Only - Phase 4)

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	215.00	Dwelling Unit	7.17	215,000.00	621
Retirement Community	22.00	Dwelling Unit	0.73	22,000.00	45

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction start date for Phase 4 of March 2030 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 4

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the applicant)

Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -

The Ranch - City of Rancho Cordova (Construction Only - Phase 4) - Sacramento County, Winter

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).
Grading - Assume 10.66 acres grading during this phase, based on project components to be built during this phase. Net export of cut and fill is 25,451 cy.

Architectural Coating - Assumes interior coatings use flat coatings.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust -

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 28.33% - reflects project person/du value (2.523) vs. statewide avg. (2.97) and latest statewide data (ARB). Parking Degreaser EF red. by 57.5% (corrects for walking paths modeled as 'parking lot').

Area Coating -

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	41.00
tblConstructionPhase	NumDays	20.00	85.00
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	230.00	459.00
tblConstructionPhase	NumDays	20.00	108.00
tblGrading	AcresOfGrading	42.50	10.66
tblGrading	MaterialExported	0.00	25,451.00
tblLandUse	LotAcreage	5.66	7.17
tblLandUse	LotAcreage	4.40	0.73
tblLandUse	Population	574.00	621.00
tblLandUse	Population	59.00	45.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	7.00
tblTripsAndVMT	HaulingTripNumber	2,516.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2030	3.1295	14.9354	31.0803	0.0673	18.2032	0.5667	18.6405	9.9670	0.5666	10.4042	0.0000	6,390.4638	6,390.4638	0.2726	0.0000	6,397.2795
2031	1.6879	9.9047	18.6639	0.0448	1.4511	0.1557	1.6068	0.3883	0.1552	0.5435	0.0000	4,313.4743	4,313.4743	0.1585	0.0000	4,317.4371
2032	1.6610	9.8704	18.5279	0.0446	1.4511	0.1553	1.6064	0.3883	0.1548	0.5430	0.0000	4,294.6102	4,294.6102	0.1573	0.0000	4,298.5415
2033	17.3517	0.8851	2.1636	4.5400e-003	0.2586	0.0213	0.2799	0.0686	0.0212	0.0898	0.0000	437.7724	437.7724	0.0133	0.0000	438.1055
Maximum	**17.3517**	**14.9354**	**31.0803**	**0.0673**	**18.2032**	**0.5667**	**18.6405**	**9.9670**	**0.5666**	**10.4042**	**0.0000**	**6,390.4638**	**6,390.4638**	**0.2726**	**0.0000**	**6,397.2795**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2030	3.1295	14.9354	31.0803	0.0673	8.2560	0.5667	8.6933	4.5025	0.5666	4.9397	0.0000	6,390.4638	6,390.4638	0.2726	0.0000	6,397.2795
2031	1.6879	9.9047	18.6639	0.0448	1.3397	0.1557	1.4954	0.3610	0.1552	0.5161	0.0000	4,313.4743	4,313.4743	0.1585	0.0000	4,317.4371
2032	1.6610	9.8704	18.5279	0.0446	1.3397	0.1553	1.4950	0.3610	0.1548	0.5157	0.0000	4,294.6102	4,294.6102	0.1573	0.0000	4,298.5415
2033	17.3517	0.8851	2.1636	4.5400e-003	0.2384	0.0213	0.2597	0.0636	0.0212	0.0848	0.0000	437.7724	437.7724	0.0133	0.0000	438.1054
Maximum	**17.3517**	**14.9354**	**31.0803**	**0.0673**	**8.2560**	**0.5667**	**8.6933**	**4.5025**	**0.5666**	**4.9397**	**0.0000**	**6,390.4638**	**6,390.4638**	**0.2726**	**0.0000**	**6,397.2795**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.70**	**0.00**	**46.04**	**51.09**	**0.00**	**47.70**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.4670	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084	0.0000	35.2069	35.2069	0.0335	0.0000	36.0448
Energy	0.0698	0.5964	0.2538	3.8100e-003		0.0482	0.0482		0.0482	0.0482		761.3258	761.3258	0.0146	0.0140	765.8500
Mobile	1.1182	6.3338	14.3936	0.0648	8.0538	0.0340	8.0878	2.1502	0.0316	2.1818		6,608.6976	6,608.6976	0.2522		6,615.0022
Total	**7.6549**	**7.1549**	**34.1314**	**0.0696**	**8.0538**	**0.1906**	**8.2444**	**2.1502**	**0.1882**	**2.3385**	**0.0000**	**7,405.2303**	**7,405.2303**	**0.3003**	**0.0140**	**7,416.8970**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.4670	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084	0.0000	35.2069	35.2069	0.0335	0.0000	36.0448
Energy	0.0698	0.5964	0.2538	3.8100e-003		0.0482	0.0482		0.0482	0.0482		761.3258	761.3258	0.0146	0.0140	765.8500
Mobile	1.1182	6.3338	14.3936	0.0648	8.0538	0.0340	8.0878	2.1502	0.0316	2.1818		6,608.6976	6,608.6976	0.2522		6,615.0022
Total	**7.6549**	**7.1549**	**34.1314**	**0.0696**	**8.0538**	**0.1906**	**8.2444**	**2.1502**	**0.1882**	**2.3385**	**0.0000**	**7,405.2303**	**7,405.2303**	**0.3003**	**0.0140**	**7,416.8970**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation for Commercial and MFR	Site Preparation	3/1/2030	4/26/2030	5	41	
2	Grading and improvements	Grading	4/28/2030	8/23/2030	5	85	
3	Paving	Paving	8/2/2030	10/31/2030	5	65	
4	Building Construction	Building Construction	4/1/2031	12/31/2032	5	459	
5	Architectural Coating	Architectural Coating	1/2/2033	6/1/2033	5	108	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 479,925; Residential Outdoor: 159,975; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Ranch - City of Rancho Cordova (Construction Only - Phase 4) - Sacramento County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation for Commercial and MFR	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation for Commercial and MFR	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading and improvements	Excavators	1	8.00	158	0.38
Grading and improvements	Graders	1	8.00	187	0.41
Grading and improvements	Rubber Tired Dozers	1	8.00	247	0.40
Grading and improvements	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation for Commercial and MFR	7	18.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Grading and Improvements	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	171.00	25.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	10.00	6.50	7.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation for Commercial and MFR - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.4399	13.6680	16.2918	0.0466		0.4367	0.4367		0.4367	0.4367		4,409.7537	4,409.7537	0.2176		4,415.1936
Total	**2.4399**	**13.6680**	**16.2918**	**0.0466**	**18.0663**	**0.4367**	**18.5029**	**9.9307**	**0.4367**	**10.3673**		**4,409.7537**	**4,409.7537**	**0.2176**		**4,415.1936**

3.2 Site Preparation for Commercial and MFR - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0381	0.0195	0.2337	8.8000e-004	0.1369	6.3000e-004	0.1376	0.0363	5.8000e-004	0.0369		88.2681	88.2681	1.3300e-003		88.3013
Total	**0.0381**	**0.0195**	**0.2337**	**8.8000e-004**	**0.1369**	**6.3000e-004**	**0.1376**	**0.0363**	**5.8000e-004**	**0.0369**		**88.2681**	**88.2681**	**1.3300e-003**		**88.3013**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.4399	13.6680	16.2918	0.0466		0.4367	0.4367		0.4367	0.4367	0.0000	4,409.7537	4,409.7537	0.2176		4,415.1936
Total	**2.4399**	**13.6680**	**16.2918**	**0.0466**	**8.1298**	**0.4367**	**8.5665**	**4.4688**	**0.4367**	**4.9055**	**0.0000**	**4,409.7537**	**4,409.7537**	**0.2176**		**4,415.1936**

3.2 Site Preparation for Commercial and MFR - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0381	0.0195	0.2337	8.8000e-004	0.1262	6.3000e-004	0.1269	0.0337	5.8000e-004	0.0343		88.2681	88.2681	1.3300e-003		88.3013
Total	**0.0381**	**0.0195**	**0.2337**	**8.8000e-004**	**0.1262**	**6.3000e-004**	**0.1269**	**0.0337**	**5.8000e-004**	**0.0343**		**88.2681**	**88.2681**	**1.3300e-003**		**88.3013**

3.3 Grading and improvements - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1551	0.0000	6.1551	3.3246	0.0000	3.3246			0.0000			0.0000
Off-Road	1.6179	7.7501	14.4518	0.0363		0.2340	0.2340		0.2340	0.2340		3,439.7201	3,439.7201	0.1437		3,443.3117
Total	**1.6179**	**7.7501**	**14.4518**	**0.0363**	**6.1551**	**0.2340**	**6.3891**	**3.3246**	**0.2340**	**3.5586**		**3,439.7201**	**3,439.7201**	**0.1437**		**3,443.3117**

3.3 Grading and improvements - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0318	0.0163	0.1948	7.4000e-004	0.1141	5.2000e-004	0.1146	0.0303	4.8000e-004	0.0308		73.5567	73.5567	1.1100e-003		73.5844
Total	**0.0318**	**0.0163**	**0.1948**	**7.4000e-004**	**0.1141**	**5.2000e-004**	**0.1146**	**0.0303**	**4.8000e-004**	**0.0308**		**73.5567**	**73.5567**	**1.1100e-003**		**73.5844**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7698	0.0000	2.7698	1.4961	0.0000	1.4961			0.0000			0.0000
Off-Road	1.6179	7.7501	14.4518	0.0363		0.2340	0.2340		0.2340	0.2340	0.0000	3,439.7201	3,439.7201	0.1437		3,443.3117
Total	**1.6179**	**7.7501**	**14.4518**	**0.0363**	**2.7698**	**0.2340**	**3.0038**	**1.4961**	**0.2340**	**1.7301**	**0.0000**	**3,439.7201**	**3,439.7201**	**0.1437**		**3,443.3117**

3.3 Grading and improvements - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0318	0.0163	0.1948	7.4000e-004	0.1052	5.2000e-004	0.1057	0.0281	4.8000e-004	0.0286		73.5567	73.5567	1.1100e-003		73.5844
Total	**0.0318**	**0.0163**	**0.1948**	**7.4000e-004**	**0.1052**	**5.2000e-004**	**0.1057**	**0.0281**	**4.8000e-004**	**0.0286**		**73.5567**	**73.5567**	**1.1100e-003**		**73.5844**

3.4 Paving - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306		2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3845**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**		**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

3.4 Paving - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0953	0.0488	0.5843	2.2100e-003	0.9373	1.5700e-003	0.9388	0.2368	1.4500e-003	0.2383		220.6702	220.6702	3.3200e-003		220.7533
Total	**0.0953**	**0.0488**	**0.5843**	**2.2100e-003**	**0.9373**	**1.5700e-003**	**0.9388**	**0.2368**	**1.4500e-003**	**0.2383**		**220.6702**	**220.6702**	**3.3200e-003**		**220.7533**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306	0.0000	2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3845**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**	**0.0000**	**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

3.4 Paving - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0953	0.0488	0.5843	2.2100e-003	0.8570	1.5700e-003	0.8585	0.2171	1.4500e-003	0.2186		220.6702	220.6702	3.3200e-003		220.7533
Total	**0.0953**	**0.0488**	**0.5843**	**2.2100e-003**	**0.8570**	**1.5700e-003**	**0.8585**	**0.2171**	**1.4500e-003**	**0.2186**		**220.6702**	**220.6702**	**3.3200e-003**		**220.7533**

3.5 Building Construction - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.5 Building Construction - 2031

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0454	1.8006	0.4318	5.6200e-003	0.1503	2.0100e-003	0.1523	0.0433	1.9200e-003	0.0452		597.3425	597.3425	0.0308		598.1115
Worker	0.3333	0.1695	2.0751	8.2000e-003	1.3008	5.5700e-003	1.3064	0.3451	5.1200e-003	0.3502		818.5851	818.5851	0.0115		818.8727
Total	**0.3787**	**1.9700**	**2.5069**	**0.0138**	**1.4511**	**7.5800e-003**	**1.4587**	**0.3883**	**7.0400e-003**	**0.3953**		**1,415.9276**	**1,415.9276**	**0.0423**		**1,416.9842**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.5 Building Construction - 2031

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0454	1.8006	0.4318	5.6200e-003	0.1407	2.0100e-003	0.1427	0.0409	1.9200e-003	0.0428		597.3425	597.3425	0.0308		598.1115
Worker	0.3333	0.1695	2.0751	8.2000e-003	1.1991	5.5700e-003	1.2046	0.3201	5.1200e-003	0.3252		818.5851	818.5851	0.0115		818.8727
Total	**0.3787**	**1.9700**	**2.5069**	**0.0138**	**1.3397**	**7.5800e-003**	**1.3473**	**0.3610**	**7.0400e-003**	**0.3680**		**1,415.9276**	**1,415.9276**	**0.0423**		**1,416.9842**

3.5 Building Construction - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.5 Building Construction - 2032

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0445	1.7799	0.4236	5.6000e-003	0.1503	1.9300e-003	0.1522	0.0432	1.8400e-003	0.0451		595.8603	595.8603	0.0305		596.6223
Worker	0.3074	0.1558	1.9474	8.0300e-003	1.3008	5.1800e-003	1.3060	0.3451	4.7600e-003	0.3498		801.2032	801.2032	0.0105		801.4663
Total	**0.3519**	**1.9358**	**2.3710**	**0.0136**	**1.4511**	**7.1100e-003**	**1.4582**	**0.3883**	**6.6000e-003**	**0.3949**		**1,397.0635**	**1,397.0635**	**0.0410**		**1,398.0887**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.5 Building Construction - 2032

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0445	1.7799	0.4236	5.6000e-003	0.1406	1.9300e-003	0.1426	0.0409	1.8400e-003	0.0427		595.8603	595.8603	0.0305		596.6223
Worker	0.3074	0.1558	1.9474	8.0300e-003	1.1991	5.1800e-003	1.2042	0.3201	4.7600e-003	0.3248		801.2032	801.2032	0.0105		801.4663
Total	**0.3519**	**1.9358**	**2.3710**	**0.0136**	**1.3397**	**7.1100e-003**	**1.3468**	**0.3610**	**6.6000e-003**	**0.3676**		**1,397.0635**	**1,397.0635**	**0.0410**		**1,398.0887**

3.6 Architectural Coating - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	17.1640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203		281.4481	281.4481	0.0114		281.7328
Total	**17.2947**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**		**281.4481**	**281.4481**	**0.0114**		**281.7328**

3.6 Architectural Coating - 2033

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0569	0.0288	0.3658	1.5700e-003	0.2586	9.6000e-004	0.2596	0.0686	8.8000e-004	0.0695		156.3244	156.3244	1.9300e-003		156.3726
Total	**0.0569**	**0.0288**	**0.3658**	**1.5700e-003**	**0.2586**	**9.6000e-004**	**0.2596**	**0.0686**	**8.8000e-004**	**0.0695**		**156.3244**	**156.3244**	**1.9300e-003**		**156.3726**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	17.1640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203	0.0000	281.4481	281.4481	0.0114		281.7328
Total	**17.2947**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**	**0.0000**	**281.4481**	**281.4481**	**0.0114**		**281.7328**

3.6 Architectural Coating - 2033

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0569	0.0288	0.3658	1.5700e-003	0.2384	9.6000e-004	0.2394	0.0636	8.8000e-004	0.0645		156.3244	156.3244	1.9300e-003		156.3726
Total	**0.0569**	**0.0288**	**0.3658**	**1.5700e-003**	**0.2384**	**9.6000e-004**	**0.2394**	**0.0636**	**8.8000e-004**	**0.0645**		**156.3244**	**156.3244**	**1.9300e-003**		**156.3726**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1182	6.3338	14.3936	0.0648	8.0538	0.0340	8.0878	2.1502	0.0316	2.1818		6,608.6976	6,608.6976	0.2522		6,615.0022
Unmitigated	1.1182	6.3338	14.3936	0.0648	8.0538	0.0340	8.0878	2.1502	0.0316	2.1818		6,608.6976	6,608.6976	0.2522		6,615.0022

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,429.75	1,373.85	1259.90	3,586,137	3,586,137
Retirement Community	52.80	44.66	42.90	128,877	128,877
Total	1,482.55	1,418.51	1,302.80	3,715,015	3,715,015

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0698	0.5964	0.2538	3.8100e-003		0.0482	0.0482		0.0482	0.0482		761.3258	761.3258	0.0146	0.0140	765.8500
NaturalGas Unmitigated	0.0698	0.5964	0.2538	3.8100e-003		0.0482	0.0482		0.0482	0.0482		761.3258	761.3258	0.0146	0.0140	765.8500

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5742.03	0.0619	0.5292	0.2252	3.3800e-003		0.0428	0.0428		0.0428	0.0428		675.5331	675.5331	0.0130	0.0124	679.5475
Retirement Community	729.238	7.8600e-003	0.0672	0.0286	4.3000e-004		5.4300e-003	5.4300e-003		5.4300e-003	5.4300e-003		85.7927	85.7927	1.6400e-003	1.5700e-003	86.3025
Total		**0.0698**	**0.5964**	**0.2538**	**3.8100e-003**		**0.0482**	**0.0482**		**0.0482**	**0.0482**		**761.3258**	**761.3258**	**0.0146**	**0.0140**	**765.8500**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5.74203	0.0619	0.5292	0.2252	3.3800e-003		0.0428	0.0428		0.0428	0.0428		675.5331	675.5331	0.0130	0.0124	679.5475
Retirement Community	0.729238	7.8600e-003	0.0672	0.0286	4.3000e-004		5.4300e-003	5.4300e-003		5.4300e-003	5.4300e-003		85.7927	85.7927	1.6400e-003	1.5700e-003	86.3025
Total		**0.0698**	**0.5964**	**0.2538**	**3.8100e-003**		**0.0482**	**0.0482**		**0.0482**	**0.0482**		**761.3258**	**761.3258**	**0.0146**	**0.0140**	**765.8500**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.4670	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084	0.0000	35.2069	35.2069	0.0335	0.0000	36.0448
Unmitigated	6.4670	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084	0.0000	35.2069	35.2069	0.0335	0.0000	36.0448

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8126					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.0718					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5826	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084		35.2069	35.2069	0.0335		36.0448
Total	**6.4670**	**0.2248**	**19.4841**	**1.0300e-003**		**0.1084**	**0.1084**		**0.1084**	**0.1084**	**0.0000**	**35.2069**	**35.2069**	**0.0335**	**0.0000**	**36.0448**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8126					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.0718					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5826	0.2248	19.4841	1.0300e-003		0.1084	0.1084		0.1084	0.1084		35.2069	35.2069	0.0335		36.0448
Total	**6.4670**	**0.2248**	**19.4841**	**1.0300e-003**		**0.1084**	**0.1084**		**0.1084**	**0.1084**	**0.0000**	**35.2069**	**35.2069**	**0.0335**	**0.0000**	**36.0448**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Construction Only - Phase 5)

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	32.00	1000sqft	5.16	32,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction start date for Phase 5 of March 2034 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 5

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the applicant)

Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).

Grading - Assume 6.96 acres grading during this phase, based on project components to be built during this phase. Net export of cut and fill during this phase is 25,451 cy.

Architectural Coating - It was assumed that flat coatings are used for interior coatings.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust -

Woodstoves - No fireplaces.

Consumer Products -

Area Coating -

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	42.00
tblConstructionPhase	NumDays	20.00	67.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	230.00	260.00
tblConstructionPhase	NumDays	20.00	86.00
tblConstructionPhase	PhaseEndDate	3/14/2034	4/27/2034
tblConstructionPhase	PhaseEndDate	4/11/2034	7/31/2034
tblConstructionPhase	PhaseEndDate	3/27/2035	9/1/2034
tblConstructionPhase	PhaseEndDate	2/27/2035	9/28/2035
tblConstructionPhase	PhaseEndDate	4/24/2035	12/31/2035
tblConstructionPhase	PhaseStartDate	3/15/2034	4/28/2034
tblConstructionPhase	PhaseStartDate	2/28/2035	8/1/2034
tblConstructionPhase	PhaseStartDate	4/12/2034	10/1/2034
tblConstructionPhase	PhaseStartDate	3/28/2035	9/1/2035
tblGrading	AcresOfGrading	33.50	6.96
tblGrading	MaterialExported	0.00	25,451.00
tblLandUse	LotAcreage	0.73	5.16
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	HaulingTripNumber	3,181.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2034	0.1674	0.9026	1.5620	3.6600e-003	0.6081	0.0259	0.6339	0.3256	0.0258	0.3515	0.0000	313.8175	313.8175	0.0136	0.0000	314.1562
2035	0.2187	0.7653	1.6664	3.3000e-003	0.0106	9.3000e-003	0.0199	2.9000e-003	9.3000e-003	0.0122	0.0000	282.3236	282.3236	0.0105	0.0000	282.5862
Maximum	**0.2187**	**0.9026**	**1.6664**	**3.6600e-003**	**0.6081**	**0.0259**	**0.6339**	**0.3256**	**0.0258**	**0.3515**	**0.0000**	**313.8175**	**313.8175**	**0.0136**	**0.0000**	**314.1562**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2034	0.1674	0.9026	1.5620	3.6600e-003	0.2833	0.0259	0.3092	0.1491	0.0258	0.1749	0.0000	313.8171	313.8171	0.0136	0.0000	314.1558
2035	0.2187	0.7653	1.6664	3.3000e-003	9.8500e-003	9.3000e-003	0.0192	2.7000e-003	9.3000e-003	0.0120	0.0000	282.3232	282.3232	0.0105	0.0000	282.5859
Maximum	**0.2187**	**0.9026**	**1.6664**	**3.6600e-003**	**0.2833**	**0.0259**	**0.3092**	**0.1491**	**0.0258**	**0.1749**	**0.0000**	**313.8171**	**313.8171**	**0.0136**	**0.0000**	**314.1558**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**52.62**	**0.00**	**49.79**	**53.80**	**0.00**	**48.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-1-2034	5-31-2034	0.4487	0.4487
2	6-1-2034	8-31-2034	0.3001	0.3001
3	9-1-2034	11-30-2034	0.2128	0.2128
4	12-1-2034	2-28-2035	0.2910	0.2910
5	3-1-2035	5-31-2035	0.2876	0.2876
6	6-1-2035	8-31-2035	0.2875	0.2875
7	9-1-2035	9-30-2035	0.1200	0.1200
		Highest	0.4487	0.4487

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1399	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.5000e-004
Energy	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	108.3909	108.3909	5.0500e-003	1.1800e-003	108.8680
Mobile	0.1587	0.8344	1.4414	6.1900e-003	0.6863	3.3600e-003	0.6897	0.1838	3.1200e-003	0.1869	0.0000	573.1534	573.1534	0.0238	0.0000	573.7474
Waste						0.0000	0.0000		0.0000	0.0000	6.8205	0.0000	6.8205	0.4031	0.0000	16.8975
Water						0.0000	0.0000		0.0000	0.0000	0.8386	4.5238	5.3625	3.1100e-003	1.8700e-003	5.9973
Total	**0.2995**	**0.8429**	**1.4490**	**6.2400e-003**	**0.6863**	**4.0100e-003**	**0.6903**	**0.1838**	**3.7700e-003**	**0.1875**	**7.6591**	**686.0690**	**693.7281**	**0.4350**	**3.0500e-003**	**705.5111**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1399	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.5000e-004
Energy	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	108.3909	108.3909	5.0500e-003	1.1800e-003	108.8680
Mobile	0.1587	0.8344	1.4414	6.1900e-003	0.6863	3.3600e-003	0.6897	0.1838	3.1200e-003	0.1869	0.0000	573.1534	573.1534	0.0238	0.0000	573.7474
Waste						0.0000	0.0000		0.0000	0.0000	6.8205	0.0000	6.8205	0.4031	0.0000	16.8975
Water						0.0000	0.0000		0.0000	0.0000	0.8386	4.5238	5.3625	3.1100e-003	1.8700e-003	5.9973
Total	**0.2995**	**0.8429**	**1.4490**	**6.2400e-003**	**0.6863**	**4.0100e-003**	**0.6903**	**0.1838**	**3.7700e-003**	**0.1875**	**7.6591**	**686.0690**	**693.7281**	**0.4350**	**3.0500e-003**	**705.5111**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,585.9200
Vegetation Land Change	-1,057.2430
Total	**528.6770**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation for Commercial and MFR	Site Preparation	3/1/2034	4/27/2034	5	42	
2	Grading and improvements	Grading	4/28/2034	7/31/2034	5	67	
3	Building Construction	Building Construction	10/1/2034	9/28/2035	5	260	
4	Paving	Paving	8/1/2034	9/1/2034	5	24	
5	Architectural Coating	Architectural Coating	9/1/2035	12/31/2035	5	86	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 48,000; Non-Residential Outdoor: 16,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading and improvements	Excavators	1	8.00	158	0.38
Grading and improvements	Graders	1	8.00	187	0.41
Grading and improvements	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation for Commercial and MFR	Rubber Tired Dozers	3	8.00	247	0.40
Grading and improvements	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation for Commercial and MFR	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	9	10.00	5.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading and improvements	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation for Commercial and MFR	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation for Commercial and MFR - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3794	0.0000	0.3794	0.2085	0.0000	0.2085	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0512	0.2870	0.3421	9.8000e-004		9.1700e-003	9.1700e-003		9.1700e-003	9.1700e-003	0.0000	84.0097	84.0097	4.1500e-003	0.0000	84.1133
Total	**0.0512**	**0.2870**	**0.3421**	**9.8000e-004**	**0.3794**	**9.1700e-003**	**0.3886**	**0.2085**	**9.1700e-003**	**0.2177**	**0.0000**	**84.0097**	**84.0097**	**4.1500e-003**	**0.0000**	**84.1133**

3.2 Site Preparation for Commercial and MFR - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	2.7000e-004	3.8900e-003	2.0000e-005	2.7800e-003	1.0000e-005	2.7900e-003	7.4000e-004	1.0000e-005	7.5000e-004	0.0000	1.5964	1.5964	2.0000e-005	0.0000	1.5969
Total	**5.5000e-004**	**2.7000e-004**	**3.8900e-003**	**2.0000e-005**	**2.7800e-003**	**1.0000e-005**	**2.7900e-003**	**7.4000e-004**	**1.0000e-005**	**7.5000e-004**	**0.0000**	**1.5964**	**1.5964**	**2.0000e-005**	**0.0000**	**1.5969**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1707	0.0000	0.1707	0.0938	0.0000	0.0938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0512	0.2870	0.3421	9.8000e-004		9.1700e-003	9.1700e-003		9.1700e-003	9.1700e-003	0.0000	84.0096	84.0096	4.1500e-003	0.0000	84.1132
Total	**0.0512**	**0.2870**	**0.3421**	**9.8000e-004**	**0.1707**	**9.1700e-003**	**0.1799**	**0.0938**	**9.1700e-003**	**0.1030**	**0.0000**	**84.0096**	**84.0096**	**4.1500e-003**	**0.0000**	**84.1132**

3.2 Site Preparation for Commercial and MFR - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	2.7000e-004	3.8900e-003	2.0000e-005	2.5600e-003	1.0000e-005	2.5700e-003	6.9000e-004	1.0000e-005	6.9000e-004	0.0000	1.5964	1.5964	2.0000e-005	0.0000	1.5969
Total	**5.5000e-004**	**2.7000e-004**	**3.8900e-003**	**2.0000e-005**	**2.5600e-003**	**1.0000e-005**	**2.5700e-003**	**6.9000e-004**	**1.0000e-005**	**6.9000e-004**	**0.0000**	**1.5964**	**1.5964**	**2.0000e-005**	**0.0000**	**1.5969**

3.3 Grading and improvements - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2081	0.0000	0.2081	0.1117	0.0000	0.1117	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0542	0.2596	0.4841	1.2200e-003		7.8400e-003	7.8400e-003		7.8400e-003	7.8400e-003	0.0000	104.5355	104.5355	4.3700e-003	0.0000	104.6446
Total	**0.0542**	**0.2596**	**0.4841**	**1.2200e-003**	**0.2081**	**7.8400e-003**	**0.2159**	**0.1117**	**7.8400e-003**	**0.1195**	**0.0000**	**104.5355**	**104.5355**	**4.3700e-003**	**0.0000**	**104.6446**

3.3 Grading and improvements - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	3.6000e-004	5.1700e-003	2.0000e-005	3.6900e-003	1.0000e-005	3.7000e-003	9.8000e-004	1.0000e-005	9.9000e-004	0.0000	2.1222	2.1222	2.0000e-005	0.0000	2.1228
Total	**7.3000e-004**	**3.6000e-004**	**5.1700e-003**	**2.0000e-005**	**3.6900e-003**	**1.0000e-005**	**3.7000e-003**	**9.8000e-004**	**1.0000e-005**	**9.9000e-004**	**0.0000**	**2.1222**	**2.1222**	**2.0000e-005**	**0.0000**	**2.1228**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0936	0.0000	0.0936	0.0503	0.0000	0.0503	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0542	0.2596	0.4841	1.2200e-003		7.8400e-003	7.8400e-003		7.8400e-003	7.8400e-003	0.0000	104.5353	104.5353	4.3700e-003	0.0000	104.6445
Total	**0.0542**	**0.2596**	**0.4841**	**1.2200e-003**	**0.0936**	**7.8400e-003**	**0.1015**	**0.0503**	**7.8400e-003**	**0.0581**	**0.0000**	**104.5353**	**104.5353**	**4.3700e-003**	**0.0000**	**104.6445**

3.3 Grading and improvements - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	3.6000e-004	5.1700e-003	2.0000e-005	3.4000e-003	1.0000e-005	3.4200e-003	9.1000e-004	1.0000e-005	9.2000e-004	0.0000	2.1222	2.1222	2.0000e-005	0.0000	2.1228
Total	**7.3000e-004**	**3.6000e-004**	**5.1700e-003**	**2.0000e-005**	**3.4000e-003**	**1.0000e-005**	**3.4200e-003**	**9.1000e-004**	**1.0000e-005**	**9.2000e-004**	**0.0000**	**2.1222**	**2.1222**	**2.0000e-005**	**0.0000**	**2.1228**

3.4 Building Construction - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2579	0.5251	1.0100e-003		4.8100e-003	4.8100e-003		4.8100e-003	4.8100e-003	0.0000	85.4298	85.4298	3.4300e-003	0.0000	85.5155
Total	**0.0426**	**0.2579**	**0.5251**	**1.0100e-003**		**4.8100e-003**	**4.8100e-003**		**4.8100e-003**	**4.8100e-003**	**0.0000**	**85.4298**	**85.4298**	**3.4300e-003**	**0.0000**	**85.5155**

3.4 Building Construction - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-004	0.0114	2.4700e-003	4.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.7000e-004	1.0000e-005	2.9000e-004	0.0000	3.5514	3.5514	1.7000e-004	0.0000	3.5556
Worker	4.7000e-004	2.3000e-004	3.3400e-003	2.0000e-005	2.3900e-003	1.0000e-005	2.4000e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	1.3726	1.3726	2.0000e-005	0.0000	1.3730
Total	**7.4000e-004**	**0.0116**	**5.8100e-003**	**6.0000e-005**	**3.3400e-003**	**2.0000e-005**	**3.3600e-003**	**9.0000e-004**	**2.0000e-005**	**9.3000e-004**	**0.0000**	**4.9239**	**4.9239**	**1.9000e-004**	**0.0000**	**4.9286**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2579	0.5251	1.0100e-003		4.8100e-003	4.8100e-003		4.8100e-003	4.8100e-003	0.0000	85.4297	85.4297	3.4300e-003	0.0000	85.5154
Total	**0.0426**	**0.2579**	**0.5251**	**1.0100e-003**		**4.8100e-003**	**4.8100e-003**		**4.8100e-003**	**4.8100e-003**	**0.0000**	**85.4297**	**85.4297**	**3.4300e-003**	**0.0000**	**85.5154**

3.4 Building Construction - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-004	0.0114	2.4700e-003	4.0000e-005	8.9000e-004	1.0000e-005	9.0000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	3.5514	3.5514	1.7000e-004	0.0000	3.5556
Worker	4.7000e-004	2.3000e-004	3.3400e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.3726	1.3726	2.0000e-005	0.0000	1.3730
Total	**7.4000e-004**	**0.0116**	**5.8100e-003**	**6.0000e-005**	**3.0900e-003**	**2.0000e-005**	**3.1100e-003**	**8.5000e-004**	**2.0000e-005**	**8.7000e-004**	**0.0000**	**4.9239**	**4.9239**	**1.9000e-004**	**0.0000**	**4.9286**

3.4 Building Construction - 2035

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1186	0.6982	1.5715	3.0200e-003		8.8200e-003	8.8200e-003		8.8200e-003	8.8200e-003	0.0000	256.2895	256.2895	9.5500e-003	0.0000	256.5281
Total	**0.1186**	**0.6982**	**1.5715**	**3.0200e-003**		**8.8200e-003**	**8.8200e-003**		**8.8200e-003**	**8.8200e-003**	**0.0000**	**256.2895**	**256.2895**	**9.5500e-003**	**0.0000**	**256.5281**

3.4 Building Construction - 2035

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-004	0.0338	7.3300e-003	1.1000e-004	2.8500e-003	3.0000e-005	2.8800e-003	8.2000e-004	3.0000e-005	8.5000e-004	0.0000	10.6379	10.6379	5.0000e-004	0.0000	10.6505
Worker	1.3300e-003	6.5000e-004	9.5400e-003	4.0000e-005	7.1600e-003	2.0000e-005	7.1800e-003	1.9000e-003	2.0000e-005	1.9300e-003	0.0000	4.0592	4.0592	4.0000e-005	0.0000	4.0603
Total	**2.1300e-003**	**0.0345**	**0.0169**	**1.5000e-004**	**0.0100**	**5.0000e-005**	**0.0101**	**2.7200e-003**	**5.0000e-005**	**2.7800e-003**	**0.0000**	**14.6970**	**14.6970**	**5.4000e-004**	**0.0000**	**14.7108**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1186	0.6982	1.5715	3.0200e-003		8.8200e-003	8.8200e-003		8.8200e-003	8.8200e-003	0.0000	256.2892	256.2892	9.5500e-003	0.0000	256.5278
Total	**0.1186**	**0.6982**	**1.5715**	**3.0200e-003**		**8.8200e-003**	**8.8200e-003**		**8.8200e-003**	**8.8200e-003**	**0.0000**	**256.2892**	**256.2892**	**9.5500e-003**	**0.0000**	**256.5278**

3.4 Building Construction - 2035

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-004	0.0338	7.3300e-003	1.1000e-004	2.6700e-003	3.0000e-005	2.7000e-003	7.8000e-004	3.0000e-005	8.1000e-004	0.0000	10.6379	10.6379	5.0000e-004	0.0000	10.6505
Worker	1.3300e-003	6.5000e-004	9.5400e-003	4.0000e-005	6.6000e-003	2.0000e-005	6.6300e-003	1.7700e-003	2.0000e-005	1.7900e-003	0.0000	4.0592	4.0592	4.0000e-005	0.0000	4.0603
Total	**2.1300e-003**	**0.0345**	**0.0169**	**1.5000e-004**	**9.2700e-003**	**5.0000e-005**	**9.3300e-003**	**2.5500e-003**	**5.0000e-005**	**2.6000e-003**	**0.0000**	**14.6970**	**14.6970**	**5.4000e-004**	**0.0000**	**14.7108**

3.5 Paving - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0166	0.0854	0.1902	3.4000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	28.9194	28.9194	1.3600e-003	0.0000	28.9533
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0166**	**0.0854**	**0.1902**	**3.4000e-004**		**3.9700e-003**	**3.9700e-003**		**3.9700e-003**	**3.9700e-003**	**0.0000**	**28.9194**	**28.9194**	**1.3600e-003**	**0.0000**	**28.9533**

3.5 Paving - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.8000e-004	3.8000e-004	5.5600e-003	3.0000e-005	0.0108	1.0000e-005	0.0108	2.7400e-003	1.0000e-005	2.7500e-003	0.0000	2.2806	2.2806	3.0000e-005	0.0000	2.2812
Total	**7.8000e-004**	**3.8000e-004**	**5.5600e-003**	**3.0000e-005**	**0.0108**	**1.0000e-005**	**0.0108**	**2.7400e-003**	**1.0000e-005**	**2.7500e-003**	**0.0000**	**2.2806**	**2.2806**	**3.0000e-005**	**0.0000**	**2.2812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0166	0.0854	0.1902	3.4000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	28.9194	28.9194	1.3600e-003	0.0000	28.9533
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0166**	**0.0854**	**0.1902**	**3.4000e-004**		**3.9700e-003**	**3.9700e-003**		**3.9700e-003**	**3.9700e-003**	**0.0000**	**28.9194**	**28.9194**	**1.3600e-003**	**0.0000**	**28.9533**

3.5 Paving - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.8000e-004	3.8000e-004	5.5600e-003	3.0000e-005	9.9000e-003	1.0000e-005	9.9100e-003	2.5100e-003	1.0000e-005	2.5200e-003	0.0000	2.2806	2.2806	3.0000e-005	0.0000	2.2812
Total	**7.8000e-004**	**3.8000e-004**	**5.5600e-003**	**3.0000e-005**	**9.9000e-003**	**1.0000e-005**	**9.9100e-003**	**2.5100e-003**	**1.0000e-005**	**2.5200e-003**	**0.0000**	**2.2806**	**2.2806**	**3.0000e-005**	**0.0000**	**2.2812**

3.6 Architectural Coating - 2035

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0927					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0700e-003	0.0326	0.0772	1.3000e-004		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	10.9790	10.9790	4.1000e-004	0.0000	10.9891
Total	**0.0978**	**0.0326**	**0.0772**	**1.3000e-004**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**	**0.0000**	**10.9790**	**10.9790**	**4.1000e-004**	**0.0000**	**10.9891**

3.6 Architectural Coating - 2035

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	6.0000e-005	8.4000e-004	0.0000	6.3000e-004	0.0000	6.3000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.3580	0.3580	0.0000	0.0000	0.3581
Total	**1.2000e-004**	**6.0000e-005**	**8.4000e-004**	**0.0000**	**6.3000e-004**	**0.0000**	**6.3000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.3580**	**0.3580**	**0.0000**	**0.0000**	**0.3581**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0927					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0700e-003	0.0326	0.0772	1.3000e-004		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	10.9790	10.9790	4.1000e-004	0.0000	10.9891
Total	**0.0978**	**0.0326**	**0.0772**	**1.3000e-004**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**	**0.0000**	**10.9790**	**10.9790**	**4.1000e-004**	**0.0000**	**10.9891**

3.6 Architectural Coating - 2035

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	6.0000e-005	8.4000e-004	0.0000	5.8000e-004	0.0000	5.8000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.3580	0.3580	0.0000	0.0000	0.3581
Total	**1.2000e-004**	**6.0000e-005**	**8.4000e-004**	**0.0000**	**5.8000e-004**	**0.0000**	**5.8000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.3580**	**0.3580**	**0.0000**	**0.0000**	**0.3581**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1587	0.8344	1.4414	6.1900e-003	0.6863	3.3600e-003	0.6897	0.1838	3.1200e-003	0.1869	0.0000	573.1534	573.1534	0.0238	0.0000	573.7474
Unmitigated	0.1587	0.8344	1.4414	6.1900e-003	0.6863	3.3600e-003	0.6897	0.1838	3.1200e-003	0.1869	0.0000	573.1534	573.1534	0.0238	0.0000	573.7474

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Regional Shopping Center	1,366.40	1,599.04	807.68	1,844,187	1,844,187
Total	1,366.40	1,599.04	807.68	1,844,187	1,844,187

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	99.1355	99.1355	4.8700e-003	1.0100e-003	99.5575
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	99.1355	99.1355	4.8700e-003	1.0100e-003	99.5575
NaturalGas Mitigated	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2554	9.2554	1.8000e-004	1.7000e-004	9.3104
NaturalGas Unmitigated	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2554	9.2554	1.8000e-004	1.7000e-004	9.3104

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Regional Shopping Center	173440	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2554	9.2554	1.8000e-004	1.7000e-004	9.3104
Total		**9.4000e-004**	**8.5000e-003**	**7.1400e-003**	**5.0000e-005**		**6.5000e-004**	**6.5000e-004**		**6.5000e-004**	**6.5000e-004**	**0.0000**	**9.2554**	**9.2554**	**1.8000e-004**	**1.7000e-004**	**9.3104**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Regional Shopping Center	173440	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2554	9.2554	1.8000e-004	1.7000e-004	9.3104
Total		**9.4000e-004**	**8.5000e-003**	**7.1400e-003**	**5.0000e-005**		**6.5000e-004**	**6.5000e-004**		**6.5000e-004**	**6.5000e-004**	**0.0000**	**9.2554**	**9.2554**	**1.8000e-004**	**1.7000e-004**	**9.3104**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Regional Shopping Center	370240	99.1355	4.8700e-003	1.0100e-003	99.5575
Total		**99.1355**	**4.8700e-003**	**1.0100e-003**	**99.5575**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Regional Shopping Center	370240	99.1355	4.8700e-003	1.0100e-003	99.5575
Total		**99.1355**	**4.8700e-003**	**1.0100e-003**	**99.5575**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1399	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.5000e-004
Unmitigated	0.1399	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0148					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1250					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.5000e-004
Total	**0.1399**	**0.0000**	**4.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.9000e-004**	**7.9000e-004**	**0.0000**	**0.0000**	**8.5000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0148					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1250					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.9000e-004	7.9000e-004	0.0000	0.0000	8.5000e-004
Total	**0.1399**	**0.0000**	**4.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.9000e-004**	**7.9000e-004**	**0.0000**	**0.0000**	**8.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.3625	3.1100e-003	1.8700e-003	5.9973
Unmitigated	5.3625	3.1100e-003	1.8700e-003	5.9973

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Regional Shopping Center	2.37032 / 1.45278	5.3625	3.1100e-003	1.8700e-003	5.9973
Total		**5.3625**	**3.1100e-003**	**1.8700e-003**	**5.9973**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Regional Shopping Center	2.37032 / 1.45278	5.3625	3.1100e-003	1.8700e-003	5.9973
Total		**5.3625**	**3.1100e-003**	**1.8700e-003**	**5.9973**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.8205	0.4031	0.0000	16.8975
Unmitigated	6.8205	0.4031	0.0000	16.8975

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Regional Shopping Center	33.6	6.8205	0.4031	0.0000	16.8975
Total		**6.8205**	**0.4031**	**0.0000**	**16.8975**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Regional Shopping Center	33.6	6.8205	0.4031	0.0000	16.8975
Total		**6.8205**	**0.4031**	**0.0000**	**16.8975**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	528.6770	0.0000	0.0000	528.6770

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	530.1 / 284.8	-1,057.2430	0.0000	0.0000	-1,057.2430
Total		**-1,057.2430**	**0.0000**	**0.0000**	**-1,057.2430**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2240	1,585.9200	0.0000	0.0000	1,585.9200
Total		**1,585.9200**	**0.0000**	**0.0000**	**1,585.9200**

The Ranch - City of Rancho Cordova (Construction Only - Phase 5)

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	32.00	1000sqft	5.16	32,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction start date for Phase 5 of March 2034 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 5

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the applicant)

Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).

Grading - Assume 6.96 acres grading during this phase, based on project components to be built during this phase. Net export of cut and fill during this phase is 25,451 cy.

Architectural Coating - It was assumed that flat coatings are used for interior coatings.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust -

Woodstoves - No fireplaces.

Consumer Products -

Area Coating -

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	42.00
tblConstructionPhase	NumDays	20.00	67.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	230.00	260.00
tblConstructionPhase	NumDays	20.00	86.00
tblConstructionPhase	PhaseEndDate	3/14/2034	4/27/2034
tblConstructionPhase	PhaseEndDate	4/11/2034	7/31/2034
tblConstructionPhase	PhaseEndDate	3/27/2035	9/1/2034
tblConstructionPhase	PhaseEndDate	2/27/2035	9/28/2035
tblConstructionPhase	PhaseEndDate	4/24/2035	12/31/2035
tblConstructionPhase	PhaseStartDate	3/15/2034	4/28/2034
tblConstructionPhase	PhaseStartDate	2/28/2035	8/1/2034
tblConstructionPhase	PhaseStartDate	4/12/2034	10/1/2034
tblConstructionPhase	PhaseStartDate	3/28/2035	9/1/2035
tblGrading	AcresOfGrading	33.50	6.96
tblGrading	MaterialExported	0.00	25,451.00
tblLandUse	LotAcreage	0.73	5.16
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	HaulingTripNumber	3,181.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2034	2.4697	13.6796	16.5164	0.0475	18.2032	0.4371	18.6403	9.9670	0.4371	10.4041	0.0000	4,502.4991	4,502.4991	0.2187	0.0000	4,507.9666
2035	3.5171	8.2694	18.1257	0.0357	0.1213	0.1010	0.2223	0.0329	0.1009	0.1338	0.0000	3,361.4948	3,361.4948	0.1245	0.0000	3,364.6081
Maximum	**3.5171**	**13.6796**	**18.1257**	**0.0475**	**18.2032**	**0.4371**	**18.6403**	**9.9670**	**0.4371**	**10.4041**	**0.0000**	**4,502.4991**	**4,502.4991**	**0.2187**	**0.0000**	**4,507.9666**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2034	2.4697	13.6796	16.5164	0.0475	8.2560	0.4371	8.6932	4.5025	0.4371	4.9396	0.0000	4,502.4991	4,502.4991	0.2187	0.0000	4,507.9666
2035	3.5171	8.2694	18.1257	0.0357	0.1123	0.1010	0.2132	0.0306	0.1009	0.1315	0.0000	3,361.4948	3,361.4948	0.1245	0.0000	3,364.6081
Maximum	**3.5171**	**13.6796**	**18.1257**	**0.0475**	**8.2560**	**0.4371**	**8.6932**	**4.5025**	**0.4371**	**4.9396**	**0.0000**	**4,502.4991**	**4,502.4991**	**0.2187**	**0.0000**	**4,507.9666**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.33**	**0.00**	**52.78**	**54.67**	**0.00**	**51.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.7664	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003
Energy	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Mobile	1.4116	5.4795	10.4989	0.0443	4.7301	0.0223	4.7524	1.2629	0.0207	1.2836		4,517.5501	4,517.5501	0.1736		4,521.8909
Total	**2.1831**	**5.5261**	**10.5413**	**0.0446**	**4.7301**	**0.0258**	**4.7559**	**1.2629**	**0.0243**	**1.2871**		**4,573.4604**	**4,573.4604**	**0.1747**	**1.0200e-003**	**4,578.1339**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.7664	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003
Energy	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Mobile	1.4116	5.4795	10.4989	0.0443	4.7301	0.0223	4.7524	1.2629	0.0207	1.2836		4,517.5501	4,517.5501	0.1736		4,521.8909
Total	**2.1831**	**5.5261**	**10.5413**	**0.0446**	**4.7301**	**0.0258**	**4.7559**	**1.2629**	**0.0243**	**1.2871**		**4,573.4604**	**4,573.4604**	**0.1747**	**1.0200e-003**	**4,578.1339**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation for Commercial and MFR	Site Preparation	3/1/2034	4/27/2034	5	42	
2	Grading and improvements	Grading	4/28/2034	7/31/2034	5	67	
3	Building Construction	Building Construction	10/1/2034	9/28/2035	5	260	
4	Paving	Paving	8/1/2034	9/1/2034	5	24	
5	Architectural Coating	Architectural Coating	9/1/2035	12/31/2035	5	86	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 48,000; Non-Residential Outdoor: 16,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Ranch - City of Rancho Cordova (Construction Only - Phase 5) - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading and improvements	Excavators	1	8.00	158	0.38
Grading and improvements	Graders	1	8.00	187	0.41
Grading and improvements	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation for Commercial and MFR	Rubber Tired Dozers	3	8.00	247	0.40
Grading and improvements	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation for Commercial and MFR	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	9	10.00	5.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading and improvements	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation for Commercial and MFR	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation for Commercial and MFR - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.4399	13.6680	16.2918	0.0466		0.4367	0.4367		0.4367	0.4367		4,409.7537	4,409.7537	0.2176		4,415.1936
Total	**2.4399**	**13.6680**	**16.2918**	**0.0466**	**18.0663**	**0.4367**	**18.5029**	**9.9307**	**0.4367**	**10.3673**		**4,409.7537**	**4,409.7537**	**0.2176**		**4,415.1936**

3.2 Site Preparation for Commercial and MFR - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0297	0.0116	0.2246	9.3000e-004	0.1369	4.7000e-004	0.1374	0.0363	4.4000e-004	0.0368		92.7454	92.7454	1.1100e-003		92.7730
Total	**0.0297**	**0.0116**	**0.2246**	**9.3000e-004**	**0.1369**	**4.7000e-004**	**0.1374**	**0.0363**	**4.4000e-004**	**0.0368**		**92.7454**	**92.7454**	**1.1100e-003**		**92.7730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.4399	13.6680	16.2918	0.0466		0.4367	0.4367		0.4367	0.4367	0.0000	4,409.7537	4,409.7537	0.2176		4,415.1936
Total	**2.4399**	**13.6680**	**16.2918**	**0.0466**	**8.1298**	**0.4367**	**8.5665**	**4.4688**	**0.4367**	**4.9055**	**0.0000**	**4,409.7537**	**4,409.7537**	**0.2176**		**4,415.1936**

3.2 Site Preparation for Commercial and MFR - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0297	0.0116	0.2246	9.3000e-004	0.1262	4.7000e-004	0.1267	0.0337	4.4000e-004	0.0341		92.7454	92.7454	1.1100e-003		92.7730
Total	**0.0297**	**0.0116**	**0.2246**	**9.3000e-004**	**0.1262**	**4.7000e-004**	**0.1267**	**0.0337**	**4.4000e-004**	**0.0341**		**92.7454**	**92.7454**	**1.1100e-003**		**92.7730**

3.3 Grading and improvements - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2108	0.0000	6.2108	3.3340	0.0000	3.3340			0.0000			0.0000
Off-Road	1.6179	7.7501	14.4518	0.0363		0.2340	0.2340		0.2340	0.2340		3,439.7201	3,439.7201	0.1437		3,443.3117
Total	**1.6179**	**7.7501**	**14.4518**	**0.0363**	**6.2108**	**0.2340**	**6.4448**	**3.3340**	**0.2340**	**3.5680**		**3,439.7201**	**3,439.7201**	**0.1437**		**3,443.3117**

3.3 Grading and improvements - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0248	9.6800e-003	0.1871	7.7000e-004	0.1141	4.0000e-004	0.1145	0.0303	3.6000e-004	0.0306		77.2878	77.2878	9.2000e-004		77.3109
Total	**0.0248**	**9.6800e-003**	**0.1871**	**7.7000e-004**	**0.1141**	**4.0000e-004**	**0.1145**	**0.0303**	**3.6000e-004**	**0.0306**		**77.2878**	**77.2878**	**9.2000e-004**		**77.3109**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7949	0.0000	2.7949	1.5003	0.0000	1.5003			0.0000			0.0000
Off-Road	1.6179	7.7501	14.4518	0.0363		0.2340	0.2340		0.2340	0.2340	0.0000	3,439.7201	3,439.7201	0.1437		3,443.3117
Total	**1.6179**	**7.7501**	**14.4518**	**0.0363**	**2.7949**	**0.2340**	**3.0289**	**1.5003**	**0.2340**	**1.7343**	**0.0000**	**3,439.7201**	**3,439.7201**	**0.1437**		**3,443.3117**

3.3 Grading and improvements - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0248	9.6800e-003	0.1871	7.7000e-004	0.1052	4.0000e-004	0.1056	0.0281	3.6000e-004	0.0284		77.2878	77.2878	9.2000e-004		77.3109
Total	**0.0248**	**9.6800e-003**	**0.1871**	**7.7000e-004**	**0.1052**	**4.0000e-004**	**0.1056**	**0.0281**	**3.6000e-004**	**0.0284**		**77.2878**	**77.2878**	**9.2000e-004**		**77.3109**

3.4 Building Construction - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.4 Building Construction - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.1400e-003	0.3461	0.0718	1.1400e-003	0.0301	3.5000e-004	0.0304	8.6500e-003	3.3000e-004	8.9800e-003		121.7279	121.7279	5.5600e-003		121.8670
Worker	0.0165	6.4500e-003	0.1248	5.2000e-004	0.0761	2.6000e-004	0.0763	0.0202	2.4000e-004	0.0204		51.5252	51.5252	6.1000e-004		51.5406
Total	**0.0247**	**0.3525**	**0.1965**	**1.6600e-003**	**0.1061**	**6.1000e-004**	**0.1067**	**0.0288**	**5.7000e-004**	**0.0294**		**173.2531**	**173.2531**	**6.1700e-003**		**173.4075**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.4 Building Construction - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.1400e-003	0.3461	0.0718	1.1400e-003	0.0281	3.5000e-004	0.0285	8.1700e-003	3.3000e-004	8.5000e-003		121.7279	121.7279	5.5600e-003		121.8670
Worker	0.0165	6.4500e-003	0.1248	5.2000e-004	0.0701	2.6000e-004	0.0704	0.0187	2.4000e-004	0.0190		51.5252	51.5252	6.1000e-004		51.5406
Total	**0.0247**	**0.3525**	**0.1965**	**1.6600e-003**	**0.0983**	**6.1000e-004**	**0.0989**	**0.0269**	**5.7000e-004**	**0.0275**		**173.2531**	**173.2531**	**6.1700e-003**		**173.4075**

3.4 Building Construction - 2035

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2168	7.1613	16.1178	0.0310		0.0904	0.0904		0.0904	0.0904		2,897.5468	2,897.5468	0.1079		2,900.2448
Total	**1.2168**	**7.1613**	**16.1178**	**0.0310**		**0.0904**	**0.0904**		**0.0904**	**0.0904**		**2,897.5468**	**2,897.5468**	**0.1079**		**2,900.2448**

3.4 Building Construction - 2035

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.0200e-003	0.3431	0.0709	1.1400e-003	0.0301	3.3000e-004	0.0304	8.6500e-003	3.2000e-004	8.9700e-003		121.5433	121.5433	5.5200e-003		121.6814
Worker	0.0155	6.1000e-003	0.1190	5.1000e-004	0.0761	2.5000e-004	0.0763	0.0202	2.3000e-004	0.0204		50.7973	50.7973	5.7000e-004		50.8115
Total	**0.0235**	**0.3492**	**0.1899**	**1.6500e-003**	**0.1061**	**5.8000e-004**	**0.1067**	**0.0288**	**5.5000e-004**	**0.0294**		**172.3406**	**172.3406**	**6.0900e-003**		**172.4930**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2168	7.1613	16.1178	0.0310		0.0904	0.0904		0.0904	0.0904	0.0000	2,897.5468	2,897.5468	0.1079		2,900.2448
Total	**1.2168**	**7.1613**	**16.1178**	**0.0310**		**0.0904**	**0.0904**		**0.0904**	**0.0904**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1079**		**2,900.2448**

3.4 Building Construction - 2035

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.0200e-003	0.3431	0.0709	1.1400e-003	0.0281	3.3000e-004	0.0285	8.1700e-003	3.2000e-004	8.4900e-003		121.5433	121.5433	5.5200e-003		121.6814
Worker	0.0155	6.1000e-003	0.1190	5.1000e-004	0.0701	2.5000e-004	0.0704	0.0187	2.3000e-004	0.0189		50.7973	50.7973	5.7000e-004		50.8115
Total	**0.0235**	**0.3492**	**0.1899**	**1.6500e-003**	**0.0983**	**5.8000e-004**	**0.0988**	**0.0269**	**5.5000e-004**	**0.0274**		**172.3406**	**172.3406**	**6.0900e-003**		**172.4930**

3.5 Paving - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306		2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3845**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**		**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

3.5 Paving - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0743	0.0290	0.5614	2.3200e-003	0.9373	1.1900e-003	0.9385	0.2368	1.0900e-003	0.2379		231.8635	231.8635	2.7600e-003		231.9326
Total	**0.0743**	**0.0290**	**0.5614**	**2.3200e-003**	**0.9373**	**1.1900e-003**	**0.9385**	**0.2368**	**1.0900e-003**	**0.2379**		**231.8635**	**231.8635**	**2.7600e-003**		**231.9326**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306	0.0000	2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3845**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**	**0.0000**	**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

3.5 Paving - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0743	0.0290	0.5614	2.3200e-003	0.8570	1.1900e-003	0.8581	0.2171	1.0900e-003	0.2182		231.8635	231.8635	2.7600e-003		231.9326
Total	**0.0743**	**0.0290**	**0.5614**	**2.3200e-003**	**0.8570**	**1.1900e-003**	**0.8581**	**0.2171**	**1.0900e-003**	**0.2182**		**231.8635**	**231.8635**	**2.7600e-003**		**231.9326**

3.6 Architectural Coating - 2035

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.1558					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1179	0.7577	1.7943	2.9700e-003		9.9000e-003	9.9000e-003		9.9000e-003	9.9000e-003		281.4481	281.4481	0.0104		281.7081
Total	**2.2737**	**0.7577**	**1.7943**	**2.9700e-003**		**9.9000e-003**	**9.9000e-003**		**9.9000e-003**	**9.9000e-003**		**281.4481**	**281.4481**	**0.0104**		**281.7081**

3.6 Architectural Coating - 2035

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	3.0900e-003	1.2200e-003	0.0238	1.0000e-004	0.0152	5.0000e-005	0.0153	4.0400e-003	5.0000e-005	4.0800e-003		10.1595	10.1595	1.1000e-004		10.1623
Total	**3.0900e-003**	**1.2200e-003**	**0.0238**	**1.0000e-004**	**0.0152**	**5.0000e-005**	**0.0153**	**4.0400e-003**	**5.0000e-005**	**4.0800e-003**		**10.1595**	**10.1595**	**1.1000e-004**		**10.1623**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.1558					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1179	0.7577	1.7943	2.9700e-003		9.9000e-003	9.9000e-003		9.9000e-003	9.9000e-003	0.0000	281.4481	281.4481	0.0104		281.7081
Total	**2.2737**	**0.7577**	**1.7943**	**2.9700e-003**		**9.9000e-003**	**9.9000e-003**		**9.9000e-003**	**9.9000e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0104**		**281.7081**

3.6 Architectural Coating - 2035

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	3.0900e-003	1.2200e-003	0.0238	1.0000e-004	0.0140	5.0000e-005	0.0141	3.7400e-003	5.0000e-005	3.7900e-003		10.1595	10.1595	1.1000e-004		10.1623
Total	**3.0900e-003**	**1.2200e-003**	**0.0238**	**1.0000e-004**	**0.0140**	**5.0000e-005**	**0.0141**	**3.7400e-003**	**5.0000e-005**	**3.7900e-003**		**10.1595**	**10.1595**	**1.1000e-004**		**10.1623**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4116	5.4795	10.4989	0.0443	4.7301	0.0223	4.7524	1.2629	0.0207	1.2836		4,517.5501	4,517.5501	0.1736		4,521.8909
Unmitigated	1.4116	5.4795	10.4989	0.0443	4.7301	0.0223	4.7524	1.2629	0.0207	1.2836		4,517.5501	4,517.5501	0.1736		4,521.8909

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Regional Shopping Center	1,366.40	1,599.04	807.68	1,844,187	1,844,187
Total	1,366.40	1,599.04	807.68	1,844,187	1,844,187

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
NaturalGas Unmitigated	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Regional Shopping Center	475.178	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Total		**5.1200e-003**	**0.0466**	**0.0391**	**2.8000e-004**		**3.5400e-003**	**3.5400e-003**		**3.5400e-003**	**3.5400e-003**		**55.9033**	**55.9033**	**1.0700e-003**	**1.0200e-003**	**56.2355**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Regional Shopping Center	0.475178	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Total		**5.1200e-003**	**0.0466**	**0.0391**	**2.8000e-004**		**3.5400e-003**	**3.5400e-003**		**3.5400e-003**	**3.5400e-003**		**55.9033**	**55.9033**	**1.0700e-003**	**1.0200e-003**	**56.2355**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7664	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003
Unmitigated	0.7664	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0813					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6848					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-004	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003
Total	**0.7664**	**3.0000e-005**	**3.2500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.0000e-003**	**7.0000e-003**	**2.0000e-005**		**7.4500e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0813					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6848					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-004	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003
Total	**0.7664**	**3.0000e-005**	**3.2500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.0000e-003**	**7.0000e-003**	**2.0000e-005**		**7.4500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Construction Only - Phase 5)

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	32.00	1000sqft	5.16	32,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated construction start date for Phase 5 of March 2034 (provided by Applicant).

Land Use - This model run provides construction emissions only.

Construction Phase - Phase 5

Off-road Equipment -

Off-road Equipment - For building construction, assumes 1 crane, 2 forklifts, 1 generator set, 1 tractor/loader/backhoe, and 1 welder (as provided by the applicant)

Off-road Equipment -

Off-road Equipment - D

Off-road Equipment -

Trips and VMT - Assume grading truck haul length = 7 miles (Sacramento dump site).

Grading - Assume 6.96 acres grading during this phase, based on project components to be built during this phase. Net export of cut and fill during this phase is 25,451 cy.

Architectural Coating - It was assumed that flat coatings are used for interior coatings.

Vehicle Trips - Operational emissions not modeled under this scenario (construction only)

Road Dust -

Woodstoves - No fireplaces.

Consumer Products -

Area Coating -

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.57-92.01-5.08-0.65-30.40-21.18-18.41 = 284.80

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - Construction mitigation reflects quantification of the SMAQMD Basic Construction Emissions Control Practices: Water Exposed area 2x daily; Unpaved road mitigation = 15 mph; Clean paved road = 9%.

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	42.00
tblConstructionPhase	NumDays	20.00	67.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	230.00	260.00
tblConstructionPhase	NumDays	20.00	86.00
tblConstructionPhase	PhaseEndDate	3/14/2034	4/27/2034
tblConstructionPhase	PhaseEndDate	4/11/2034	7/31/2034
tblConstructionPhase	PhaseEndDate	3/27/2035	9/1/2034
tblConstructionPhase	PhaseEndDate	2/27/2035	9/28/2035
tblConstructionPhase	PhaseEndDate	4/24/2035	12/31/2035
tblConstructionPhase	PhaseStartDate	3/15/2034	4/28/2034
tblConstructionPhase	PhaseStartDate	2/28/2035	8/1/2034
tblConstructionPhase	PhaseStartDate	4/12/2034	10/1/2034
tblConstructionPhase	PhaseStartDate	3/28/2035	9/1/2035
tblGrading	AcresOfGrading	33.50	6.96
tblGrading	MaterialExported	0.00	25,451.00
tblLandUse	LotAcreage	0.73	5.16
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblTripsAndVMT	HaulingTripNumber	3,181.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2034	2.4681	13.6822	16.4748	0.0474	18.2032	0.4371	18.6403	9.9670	0.4371	10.4041	0.0000	4,491.1510	4,491.1510	0.2185	0.0000	4,496.6145
2035	3.5166	8.2739	18.1089	0.0356	0.1213	0.1010	0.2223	0.0329	0.1009	0.1338	0.0000	3,350.9984	3,350.9984	0.1249	0.0000	3,354.1199
Maximum	**3.5166**	**13.6822**	**18.1089**	**0.0474**	**18.2032**	**0.4371**	**18.6403**	**9.9670**	**0.4371**	**10.4041**	**0.0000**	**4,491.1510**	**4,491.1510**	**0.2185**	**0.0000**	**4,496.6145**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2034	2.4681	13.6822	16.4748	0.0474	8.2560	0.4371	8.6932	4.5025	0.4371	4.9396	0.0000	4,491.1510	4,491.1510	0.2185	0.0000	4,496.6145
2035	3.5166	8.2739	18.1089	0.0356	0.1123	0.1010	0.2132	0.0306	0.1009	0.1316	0.0000	3,350.9984	3,350.9984	0.1249	0.0000	3,354.1199
Maximum	**3.5166**	**13.6822**	**18.1089**	**0.0474**	**8.2560**	**0.4371**	**8.6932**	**4.5025**	**0.4371**	**4.9396**	**0.0000**	**4,491.1510**	**4,491.1510**	**0.2185**	**0.0000**	**4,496.6145**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.33**	**0.00**	**52.78**	**54.67**	**0.00**	**51.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.7664	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003
Energy	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Mobile	0.9632	5.5977	10.0904	0.0402	4.7301	0.0225	4.7525	1.2629	0.0209	1.2837		4,104.8843	4,104.8843	0.1807		4,109.4016
Total	**1.7347**	**5.6443**	**10.1327**	**0.0405**	**4.7301**	**0.0260**	**4.7561**	**1.2629**	**0.0244**	**1.2873**		**4,160.7946**	**4,160.7946**	**0.1818**	**1.0200e-003**	**4,165.6445**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.7664	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003
Energy	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Mobile	0.9632	5.5977	10.0904	0.0402	4.7301	0.0225	4.7525	1.2629	0.0209	1.2837		4,104.8843	4,104.8843	0.1807		4,109.4016
Total	**1.7347**	**5.6443**	**10.1327**	**0.0405**	**4.7301**	**0.0260**	**4.7561**	**1.2629**	**0.0244**	**1.2873**		**4,160.7946**	**4,160.7946**	**0.1818**	**1.0200e-003**	**4,165.6445**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation for Commercial and MFR	Site Preparation	3/1/2034	4/27/2034	5	42	
2	Grading and improvements	Grading	4/28/2034	7/31/2034	5	67	
3	Building Construction	Building Construction	10/1/2034	9/28/2035	5	260	
4	Paving	Paving	8/1/2034	9/1/2034	5	24	
5	Architectural Coating	Architectural Coating	9/1/2035	12/31/2035	5	86	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 48,000; Non-Residential Outdoor: 16,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

The Ranch - City of Rancho Cordova (Construction Only - Phase 5) - Sacramento County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading and improvements	Excavators	1	8.00	158	0.38
Grading and improvements	Graders	1	8.00	187	0.41
Grading and improvements	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation for Commercial and MFR	Rubber Tired Dozers	3	8.00	247	0.40
Grading and improvements	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation for Commercial and MFR	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	9	10.00	5.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading and improvements	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation for Commercial and MFR	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation for Commercial and MFR - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.4399	13.6680	16.2918	0.0466		0.4367	0.4367		0.4367	0.4367		4,409.7537	4,409.7537	0.2176		4,415.1936
Total	**2.4399**	**13.6680**	**16.2918**	**0.0466**	**18.0663**	**0.4367**	**18.5029**	**9.9307**	**0.4367**	**10.3673**		**4,409.7537**	**4,409.7537**	**0.2176**		**4,415.1936**

3.2 Site Preparation for Commercial and MFR - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0282	0.0142	0.1830	8.2000e-004	0.1369	4.7000e-004	0.1374	0.0363	4.4000e-004	0.0368		81.3973	81.3973	9.4000e-004		81.4209
Total	**0.0282**	**0.0142**	**0.1830**	**8.2000e-004**	**0.1369**	**4.7000e-004**	**0.1374**	**0.0363**	**4.4000e-004**	**0.0368**		**81.3973**	**81.3973**	**9.4000e-004**		**81.4209**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.4399	13.6680	16.2918	0.0466		0.4367	0.4367		0.4367	0.4367	0.0000	4,409.7537	4,409.7537	0.2176		4,415.1936
Total	**2.4399**	**13.6680**	**16.2918**	**0.0466**	**8.1298**	**0.4367**	**8.5665**	**4.4688**	**0.4367**	**4.9055**	**0.0000**	**4,409.7537**	**4,409.7537**	**0.2176**		**4,415.1936**

3.2 Site Preparation for Commercial and MFR - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0282	0.0142	0.1830	8.2000e-004	0.1262	4.7000e-004	0.1267	0.0337	4.4000e-004	0.0341		81.3973	81.3973	9.4000e-004		81.4209
Total	**0.0282**	**0.0142**	**0.1830**	**8.2000e-004**	**0.1262**	**4.7000e-004**	**0.1267**	**0.0337**	**4.4000e-004**	**0.0341**		**81.3973**	**81.3973**	**9.4000e-004**		**81.4209**

3.3 Grading and improvements - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2108	0.0000	6.2108	3.3340	0.0000	3.3340			0.0000			0.0000
Off-Road	1.6179	7.7501	14.4518	0.0363		0.2340	0.2340		0.2340	0.2340		3,439.7201	3,439.7201	0.1437		3,443.3117
Total	**1.6179**	**7.7501**	**14.4518**	**0.0363**	**6.2108**	**0.2340**	**6.4448**	**3.3340**	**0.2340**	**3.5680**		**3,439.7201**	**3,439.7201**	**0.1437**		**3,443.3117**

3.3 Grading and improvements - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0235	0.0119	0.1525	6.8000e-004	0.1141	4.0000e-004	0.1145	0.0303	3.6000e-004	0.0306		67.8311	67.8311	7.9000e-004		67.8507
Total	**0.0235**	**0.0119**	**0.1525**	**6.8000e-004**	**0.1141**	**4.0000e-004**	**0.1145**	**0.0303**	**3.6000e-004**	**0.0306**		**67.8311**	**67.8311**	**7.9000e-004**		**67.8507**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7949	0.0000	2.7949	1.5003	0.0000	1.5003			0.0000			0.0000
Off-Road	1.6179	7.7501	14.4518	0.0363		0.2340	0.2340		0.2340	0.2340	0.0000	3,439.7201	3,439.7201	0.1437		3,443.3117
Total	**1.6179**	**7.7501**	**14.4518**	**0.0363**	**2.7949**	**0.2340**	**3.0289**	**1.5003**	**0.2340**	**1.7343**	**0.0000**	**3,439.7201**	**3,439.7201**	**0.1437**		**3,443.3117**

3.3 Grading and improvements - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0235	0.0119	0.1525	6.8000e-004	0.1052	4.0000e-004	0.1056	0.0281	3.6000e-004	0.0284		67.8311	67.8311	7.9000e-004		67.8507
Total	**0.0235**	**0.0119**	**0.1525**	**6.8000e-004**	**0.1052**	**4.0000e-004**	**0.1056**	**0.0281**	**3.6000e-004**	**0.0284**		**67.8311**	**67.8311**	**7.9000e-004**		**67.8507**

3.4 Building Construction - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.4 Building Construction - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.5900e-003	0.3489	0.0820	1.1200e-003	0.0301	3.6000e-004	0.0304	8.6500e-003	3.4000e-004	8.9900e-003		118.6923	118.6923	6.0000e-003		118.8424
Worker	0.0157	7.9100e-003	0.1016	4.5000e-004	0.0761	2.6000e-004	0.0763	0.0202	2.4000e-004	0.0204		45.2207	45.2207	5.2000e-004		45.2338
Total	**0.0243**	**0.3568**	**0.1837**	**1.5700e-003**	**0.1061**	**6.2000e-004**	**0.1068**	**0.0288**	**5.8000e-004**	**0.0294**		**163.9131**	**163.9131**	**6.5200e-003**		**164.0762**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

3.4 Building Construction - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.5900e-003	0.3489	0.0820	1.1200e-003	0.0281	3.6000e-004	0.0285	8.1700e-003	3.4000e-004	8.5100e-003		118.6923	118.6923	6.0000e-003		118.8424
Worker	0.0157	7.9100e-003	0.1016	4.5000e-004	0.0701	2.6000e-004	0.0704	0.0187	2.4000e-004	0.0190		45.2207	45.2207	5.2000e-004		45.2338
Total	**0.0243**	**0.3568**	**0.1837**	**1.5700e-003**	**0.0983**	**6.2000e-004**	**0.0989**	**0.0269**	**5.8000e-004**	**0.0275**		**163.9131**	**163.9131**	**6.5200e-003**		**164.0762**

3.4 Building Construction - 2035

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2168	7.1613	16.1178	0.0310		0.0904	0.0904		0.0904	0.0904		2,897.5468	2,897.5468	0.1079		2,900.2448
Total	**1.2168**	**7.1613**	**16.1178**	**0.0310**		**0.0904**	**0.0904**		**0.0904**	**0.0904**		**2,897.5468**	**2,897.5468**	**0.1079**		**2,900.2448**

3.4 Building Construction - 2035

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.4600e-003	0.3459	0.0810	1.1100e-003	0.0301	3.4000e-004	0.0304	8.6500e-003	3.3000e-004	8.9800e-003		118.5111	118.5111	5.9600e-003		118.6600
Worker	0.0147	7.4700e-003	0.0966	4.5000e-004	0.0761	2.5000e-004	0.0763	0.0202	2.3000e-004	0.0204		44.5770	44.5770	4.9000e-004		44.5892
Total	**0.0232**	**0.3534**	**0.1775**	**1.5600e-003**	**0.1061**	**5.9000e-004**	**0.1067**	**0.0288**	**5.6000e-004**	**0.0294**		**163.0881**	**163.0881**	**6.4500e-003**		**163.2492**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2168	7.1613	16.1178	0.0310		0.0904	0.0904		0.0904	0.0904	0.0000	2,897.5468	2,897.5468	0.1079		2,900.2448
Total	**1.2168**	**7.1613**	**16.1178**	**0.0310**		**0.0904**	**0.0904**		**0.0904**	**0.0904**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1079**		**2,900.2448**

3.4 Building Construction - 2035

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.4600e-003	0.3459	0.0810	1.1100e-003	0.0281	3.4000e-004	0.0285	8.1700e-003	3.3000e-004	8.5000e-003		118.5111	118.5111	5.9600e-003		118.6600
Worker	0.0147	7.4700e-003	0.0966	4.5000e-004	0.0701	2.5000e-004	0.0704	0.0187	2.3000e-004	0.0189		44.5770	44.5770	4.9000e-004		44.5892
Total	**0.0232**	**0.3534**	**0.1775**	**1.5600e-003**	**0.0983**	**5.9000e-004**	**0.0988**	**0.0269**	**5.6000e-004**	**0.0274**		**163.0881**	**163.0881**	**6.4500e-003**		**163.2492**

3.5 Paving - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306		2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3845**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**		**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

3.5 Paving - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0705	0.0356	0.4574	2.0400e-003	0.9373	1.1900e-003	0.9385	0.2368	1.0900e-003	0.2379		203.4933	203.4933	2.3600e-003		203.5522
Total	**0.0705**	**0.0356**	**0.4574**	**2.0400e-003**	**0.9373**	**1.1900e-003**	**0.9385**	**0.2368**	**1.0900e-003**	**0.2379**		**203.4933**	**203.4933**	**2.3600e-003**		**203.5522**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306	0.0000	2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3845**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**	**0.0000**	**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

3.5 Paving - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0705	0.0356	0.4574	2.0400e-003	0.8570	1.1900e-003	0.8581	0.2171	1.0900e-003	0.2182		203.4933	203.4933	2.3600e-003		203.5522
Total	**0.0705**	**0.0356**	**0.4574**	**2.0400e-003**	**0.8570**	**1.1900e-003**	**0.8581**	**0.2171**	**1.0900e-003**	**0.2182**		**203.4933**	**203.4933**	**2.3600e-003**		**203.5522**

3.6 Architectural Coating - 2035

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.1558					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1179	0.7577	1.7943	2.9700e-003		9.9000e-003	9.9000e-003		9.9000e-003	9.9000e-003		281.4481	281.4481	0.0104		281.7081
Total	**2.2737**	**0.7577**	**1.7943**	**2.9700e-003**		**9.9000e-003**	**9.9000e-003**		**9.9000e-003**	**9.9000e-003**		**281.4481**	**281.4481**	**0.0104**		**281.7081**

3.6 Architectural Coating - 2035

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.9500e-003	1.4900e-003	0.0193	9.0000e-005	0.0152	5.0000e-005	0.0153	4.0400e-003	5.0000e-005	4.0800e-003		8.9154	8.9154	1.0000e-004		8.9178
Total	**2.9500e-003**	**1.4900e-003**	**0.0193**	**9.0000e-005**	**0.0152**	**5.0000e-005**	**0.0153**	**4.0400e-003**	**5.0000e-005**	**4.0800e-003**		**8.9154**	**8.9154**	**1.0000e-004**		**8.9178**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.1558					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1179	0.7577	1.7943	2.9700e-003		9.9000e-003	9.9000e-003		9.9000e-003	9.9000e-003	0.0000	281.4481	281.4481	0.0104		281.7081
Total	**2.2737**	**0.7577**	**1.7943**	**2.9700e-003**		**9.9000e-003**	**9.9000e-003**		**9.9000e-003**	**9.9000e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0104**		**281.7081**

3.6 Architectural Coating - 2035

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.9500e-003	1.4900e-003	0.0193	9.0000e-005	0.0140	5.0000e-005	0.0141	3.7400e-003	5.0000e-005	3.7900e-003		8.9154	8.9154	1.0000e-004		8.9178
Total	**2.9500e-003**	**1.4900e-003**	**0.0193**	**9.0000e-005**	**0.0140**	**5.0000e-005**	**0.0141**	**3.7400e-003**	**5.0000e-005**	**3.7900e-003**		**8.9154**	**8.9154**	**1.0000e-004**		**8.9178**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9632	5.5977	10.0904	0.0402	4.7301	0.0225	4.7525	1.2629	0.0209	1.2837		4,104.8843	4,104.8843	0.1807		4,109.4016
Unmitigated	0.9632	5.5977	10.0904	0.0402	4.7301	0.0225	4.7525	1.2629	0.0209	1.2837		4,104.8843	4,104.8843	0.1807		4,109.4016

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Regional Shopping Center	1,366.40	1,599.04	807.68	1,844,187	1,844,187
Total	1,366.40	1,599.04	807.68	1,844,187	1,844,187

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
NaturalGas Unmitigated	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Regional Shopping Center	475.178	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Total		**5.1200e-003**	**0.0466**	**0.0391**	**2.8000e-004**		**3.5400e-003**	**3.5400e-003**		**3.5400e-003**	**3.5400e-003**		**55.9033**	**55.9033**	**1.0700e-003**	**1.0200e-003**	**56.2355**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Regional Shopping Center	0.475178	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Total		**5.1200e-003**	**0.0466**	**0.0391**	**2.8000e-004**		**3.5400e-003**	**3.5400e-003**		**3.5400e-003**	**3.5400e-003**		**55.9033**	**55.9033**	**1.0700e-003**	**1.0200e-003**	**56.2355**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7664	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003
Unmitigated	0.7664	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0813					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6848					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-004	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003
Total	**0.7664**	**3.0000e-005**	**3.2500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.0000e-003**	**7.0000e-003**	**2.0000e-005**		**7.4500e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0813					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6848					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-004	3.0000e-005	3.2500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.0000e-003	7.0000e-003	2.0000e-005		7.4500e-003
Total	**0.7664**	**3.0000e-005**	**3.2500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.0000e-003**	**7.0000e-003**	**2.0000e-005**		**7.4500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only) Unmitigated

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Other Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0
Parking Lot	1.50	Acre	1.50	65,340.00	0
City Park	9.10	Acre	9.28	396,396.00	0
City Park	3.07	Acre	3.69	133,729.20	0
City Park	0.50	Acre	1.40	21,780.00	0
Apartments Mid Rise	215.00	Dwelling Unit	7.17	215,000.00	621
Retirement Community	38.00	Dwelling Unit	1.26	38,000.00	78
Retirement Community	737.00	Dwelling Unit	90.91	737,000.00	1533
Single Family Housing	735.00	Dwelling Unit	77.87	1,323,000.00	2087
Regional Shopping Center	32.00	1000sqft	5.16	32,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Buildout Year: 2029

Land Use - Land use info as provided by the unit counts/gross acres/sf provided by applicant. 8,000sf restroom is in the 9.1acre park. 21,000sf clubhouse/restroom is incl. in the 3.07ac city park. Pop. as provided in the Pop & Housing section of the EIR.

Construction Phase - Note - constructed not modeled under this (operational) scenario.

Off-road Equipment -

Trips and VMT -

Grading - Assumes whole project site is graded (except for protected areas) = 319.9 acres. 152,708 CY of material exported from project site (as provided by the Project Applicant).

Architectural Coating -

Vehicle Trips - Trip rates used from Traffic Impact Memo (June, 2019), inclusive of average internal capture rate the traffic consultant applied to AM and PM peak hours. Park trips are assumed to be accounted for by the land uses provided in the Traffic Impact Memo.

Road Dust - Project will not have unpaved roads during the project's operational phase. Since the project is in the SMAQMD jursidiction, project uses the CARB's 2.0 and 0.2 method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 29.1% - reflects project person/du value (2.504) vs. statewide avg. (2.97) and latest statewide data (ARB).

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.87 - 90.91 - 7.17 - 5.16 - 32.3 - 20.59 - 17.34 = 278.76 acres

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - NOTE: This model run reflects operational emissions only.

Mobile Land Use Mitigation - Density = ~6.86 du/acre. Increase walkability design (123.53 int/sq. mile). Improve ped network. Provide traffic calming (50%/50%). 100% increase in transit coverage (current coverage=0). Provide Transit Accessibility (0.25 mile)

Mobile Commute Mitigation -

Area Mitigation - No hearths are to be installed as part of the proposed project. Flat (i.e. non-reflective) paints are assumed for projects building interiors. (see SMAQMD Rule 442 - maximum VOC content for flat paints is 50 g/L).

Energy Mitigation - High-efficiency lighting (LEDs) (71.5% improvement). EE appliances. 95% electricity generated via renewables (on-site or SMUD contract).

Water Mitigation - Installation of low-floor indoor water use fixtures, and use of water-efficient irrigation systems (consistent with the current version of Title 24).

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only) Unmitigated - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Residential_Interior	100	50
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConsumerProducts	ROG_EF	2.14E-05	1.5173E-05
tblLandUse	LotAcreage	0.50	1.40
tblLandUse	LotAcreage	3.07	3.69
tblLandUse	LotAcreage	9.10	9.28
tblLandUse	LotAcreage	5.66	7.17
tblLandUse	LotAcreage	7.60	1.26
tblLandUse	LotAcreage	147.40	90.91
tblLandUse	LotAcreage	238.64	77.87
tblLandUse	LotAcreage	0.73	5.16
tblLandUse	Population	574.00	621.00
tblLandUse	Population	101.00	78.00
tblLandUse	Population	1,968.00	1,533.00
tblLandUse	Population	1,962.00	2,087.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblVehicleTrips	ST_TR	6.39	5.36
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	49.97	28.06
tblVehicleTrips	ST_TR	2.03	3.20
tblVehicleTrips	ST_TR	9.91	8.70
tblVehicleTrips	SU_TR	5.86	5.36
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	25.24	28.06

tblVehicleTrips	SU_TR	1.95	3.20
tblVehicleTrips	SU_TR	8.62	8.70
tblVehicleTrips	WD_TR	6.65	5.36
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	42.70	28.06
tblVehicleTrips	WD_TR	2.40	3.20
tblVehicleTrips	WD_TR	9.52	8.70

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3729	3.8217	1.9811	3.5400e-003	1.6379	0.1979	1.8357	0.8969	0.1820	1.0790	0.0000	311.4180	311.4180	0.0976	0.0000	313.8582
Maximum	**0.3729**	**3.8217**	**1.9811**	**3.5400e-003**	**1.6379**	**0.1979**	**1.8357**	**0.8969**	**0.1820**	**1.0790**	**0.0000**	**311.4180**	**311.4180**	**0.0976**	**0.0000**	**313.8582**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3729	3.8216	1.9811	3.5400e-003	1.6369	0.1979	1.8348	0.8967	0.1820	1.0787	0.0000	311.4177	311.4177	0.0976	0.0000	313.8579
Maximum	**0.3729**	**3.8216**	**1.9811**	**3.5400e-003**	**1.6369**	**0.1979**	**1.8348**	**0.8967**	**0.1820**	**1.0787**	**0.0000**	**311.4177**	**311.4177**	**0.0976**	**0.0000**	**313.8579**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.06**	**0.00**	**0.05**	**0.03**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2020**	**3-31-2020**	1.5150	1.5150
2	**4-1-2020**	**6-30-2020**	1.5149	1.5149
3	**7-1-2020**	**9-30-2020**	1.1653	1.1653
		Highest	1.5150	1.5150

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0481	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Energy	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	4,619.0251	4,619.0251	0.1779	0.0603	4,641.4440
Mobile	1.5875	8.2466	18.2704	0.0857	10.0427	0.0439	10.0866	2.6889	0.0408	2.7297	0.0000	7,936.6038	7,936.6038	0.2912	0.0000	7,943.8825
Waste						0.0000	0.0000		0.0000	0.0000	251.9950	0.0000	251.9950	14.8925	0.0000	624.3070
Water						0.0000	0.0000		0.0000	0.0000	40.6026	235.0189	275.6215	0.1513	0.0907	306.4284
Total	**9.8008**	**9.8632**	**36.6023**	**0.0957**	**10.0427**	**0.2567**	**10.2994**	**2.6889**	**0.2536**	**2.9425**	**292.5976**	**12,819.7076**	**13,112.3053**	**15.5405**	**0.1510**	**13,545.8133**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0481	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Energy	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	1,758.6933	1,758.6933	0.0374	0.0312	1,768.9354
Mobile	1.4929	7.7839	16.0811	0.0738	8.5363	0.0384	8.5746	2.2855	0.0356	2.3212	0.0000	6,834.0313	6,834.0313	0.2585	0.0000	6,840.4943
Waste						0.0000	0.0000		0.0000	0.0000	251.9950	0.0000	251.9950	14.8925	0.0000	624.3070
Water						0.0000	0.0000		0.0000	0.0000	32.4821	199.4008	231.8829	0.1216	0.0727	256.5769
Total	**9.7062**	**9.4005**	**34.4129**	**0.0838**	**8.5363**	**0.2511**	**8.7874**	**2.2855**	**0.2484**	**2.5339**	**284.4771**	**8,821.1851**	**9,105.6622**	**15.3377**	**0.1039**	**9,520.0649**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.97**	**4.69**	**5.98**	**12.47**	**15.00**	**2.17**	**14.68**	**15.00**	**2.05**	**13.88**	**2.78**	**31.19**	**30.56**	**1.31**	**31.19**	**29.72**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,585.9200
Vegetation Land Change	-1,083.2754
Total	**502.6446**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Placeholder (see Construction model for Construction Emissions)	Site Preparation	1/1/2020	9/8/2020	5	180	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Placeholder (see Construction model for Construction Emissions)	Rubber Tired Dozers	3	8.00	247	0.40
Placeholder (see Construction model for Construction Emissions)	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Placeholder (see Construction model for	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6260	0.0000	1.6260	0.8938	0.0000	0.8938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3669	3.8176	1.9362	3.4200e-003		0.1978	0.1978		0.1820	0.1820	0.0000	300.8761	300.8761	0.0973	0.0000	303.3089
Total	**0.3669**	**3.8176**	**1.9362**	**3.4200e-003**	**1.6260**	**0.1978**	**1.8237**	**0.8938**	**0.1820**	**1.0757**	**0.0000**	**300.8761**	**300.8761**	**0.0973**	**0.0000**	**303.3089**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0300e-003	4.0900e-003	0.0448	1.2000e-004	0.0119	9.0000e-005	0.0120	3.1600e-003	8.0000e-005	3.2400e-003	0.0000	10.5419	10.5419	3.0000e-004	0.0000	10.5494
Total	**6.0300e-003**	**4.0900e-003**	**0.0448**	**1.2000e-004**	**0.0119**	**9.0000e-005**	**0.0120**	**3.1600e-003**	**8.0000e-005**	**3.2400e-003**	**0.0000**	**10.5419**	**10.5419**	**3.0000e-004**	**0.0000**	**10.5494**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6260	0.0000	1.6260	0.8938	0.0000	0.8938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3669	3.8176	1.9362	3.4200e-003		0.1978	0.1978		0.1820	0.1820	0.0000	300.8758	300.8758	0.0973	0.0000	303.3085
Total	**0.3669**	**3.8176**	**1.9362**	**3.4200e-003**	**1.6260**	**0.1978**	**1.8237**	**0.8938**	**0.1820**	**1.0757**	**0.0000**	**300.8758**	**300.8758**	**0.0973**	**0.0000**	**303.3085**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0300e-003	4.0900e-003	0.0448	1.2000e-004	0.0110	9.0000e-005	0.0111	2.9400e-003	8.0000e-005	3.0200e-003	0.0000	10.5419	10.5419	3.0000e-004	0.0000	10.5494
Total	**6.0300e-003**	**4.0900e-003**	**0.0448**	**1.2000e-004**	**0.0110**	**9.0000e-005**	**0.0111**	**2.9400e-003**	**8.0000e-005**	**3.0200e-003**	**0.0000**	**10.5419**	**10.5419**	**3.0000e-004**	**0.0000**	**10.5494**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement NEV Network

Expand Transit Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4929	7.7839	16.0811	0.0738	8.5363	0.0384	8.5746	2.2855	0.0356	2.3212	0.0000	6,834.0313	6,834.0313	0.2585	0.0000	6,840.4943
Unmitigated	1.5875	8.2466	18.2704	0.0857	10.0427	0.0439	10.0866	2.6889	0.0408	2.7297	0.0000	7,936.6038	7,936.6038	0.2912	0.0000	7,943.8825

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,152.40	1,152.40	1152.40	2,957,184	2,661,466
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	897.92	897.92	897.92	1,254,668	1,129,201
Retirement Community	121.60	121.60	121.60	312,039	280,835
Retirement Community	2,358.40	2,358.40	2358.40	6,051,911	5,446,720
Single Family Housing	6,394.50	6,394.50	6394.50	16,408,984	14,768,086
Total	10,924.82	10,924.82	10,924.82	26,984,786	24,286,308

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Other Asphalt Surfaces	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Parking Lot	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Percent of Electricity Use Generated with Renewable Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	123.9311	123.9311	6.0900e-003	1.2600e-003	124.4587
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,984.2630	2,984.2630	0.1466	0.0303	2,996.9672
NaturalGas Mitigated	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	1,634.7622	1,634.7622	0.0313	0.0300	1,644.4768
NaturalGas Unmitigated	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	1,634.7622	1,634.7622	0.0313	0.0300	1,644.4768

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.09584e+006	0.0113	0.0966	0.0411	6.2000e-004		7.8100e-003	7.8100e-003		7.8100e-003	7.8100e-003	0.0000	111.8421	111.8421	2.1400e-003	2.0500e-003	112.5067
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	173440	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2554	9.2554	1.8000e-004	1.7000e-004	9.3104
Retirement Community	459751	2.4800e-003	0.0212	9.0100e-003	1.4000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.5341	24.5341	4.7000e-004	4.5000e-004	24.6799
Retirement Community	8.91676e+006	0.0481	0.4109	0.1748	2.6200e-003		0.0332	0.0332		0.0332	0.0332	0.0000	475.8321	475.8321	9.1200e-003	8.7200e-003	478.6597
Single Family Housing	1.89885e+007	0.1024	0.8750	0.3723	5.5800e-003		0.0707	0.0707		0.0707	0.0707	0.0000	1,013.2985	1,013.2985	0.0194	0.0186	1,019.3201
Total		**0.1652**	**1.4121**	**0.6044**	**9.0100e-003**		**0.1141**	**0.1141**		**0.1141**	**0.1141**	**0.0000**	**1,634.7622**	**1,634.7622**	**0.0313**	**0.0300**	**1,644.4768**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.09584e+006	0.0113	0.0966	0.0411	6.2000e-004		7.8100e-003	7.8100e-003		7.8100e-003	7.8100e-003	0.0000	111.8421	111.8421	2.1400e-003	2.0500e-003	112.5067
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	173440	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2554	9.2554	1.8000e-004	1.7000e-004	9.3104
Retirement Community	459751	2.4800e-003	0.0212	9.0100e-003	1.4000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.5341	24.5341	4.7000e-004	4.5000e-004	24.6799
Retirement Community	8.91676e+006	0.0481	0.4109	0.1748	2.6200e-003		0.0332	0.0332		0.0332	0.0332	0.0000	475.8321	475.8321	9.1200e-003	8.7200e-003	478.6597
Single Family Housing	1.89885e+007	0.1024	0.8750	0.3723	5.5800e-003		0.0707	0.0707		0.0707	0.0707	0.0000	1,013.2985	1,013.2985	0.0194	0.0186	1,019.3201
Total		**0.1652**	**1.4121**	**0.6044**	**9.0100e-003**		**0.1141**	**0.1141**		**0.1141**	**0.1141**	**0.0000**	**1,634.7622**	**1,634.7622**	**0.0313**	**0.0300**	**1,644.4768**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	915139	245.0377	0.0120	2.4900e-003	246.0808
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	22869	6.1234	3.0000e-004	6.0000e-005	6.1495
Regional Shopping Center	370240	99.1355	4.8700e-003	1.0100e-003	99.5575
Retirement Community	178029	47.6691	2.3400e-003	4.8000e-004	47.8721
Retirement Community	3.45283e+006	924.5302	0.0454	9.4000e-003	928.4660
Single Family Housing	6.20618e+006	1,661.7670	0.0816	0.0169	1,668.8413
Total		**2,984.2630**	**0.1466**	**0.0303**	**2,996.9672**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	38916.9	10.4204	5.1000e-004	1.1000e-004	10.4647
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	325.883	0.0873	0.0000	0.0000	0.0876
Regional Shopping Center	12167.3	3.2579	1.6000e-004	3.0000e-005	3.2718
Retirement Community	142243	38.0870	1.8700e-003	3.9000e-004	38.2491
Retirement Community	7334.1	1.9638	1.0000e-004	2.0000e-005	1.9721
Single Family Housing	261857	70.1147	3.4400e-003	7.1000e-004	70.4132
Total		**123.9311**	**6.0800e-003**	**1.2600e-003**	**124.4586**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Non-Residential Interior

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.0481	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Unmitigated	8.0481	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9253					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.5928					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5301	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Total	**8.0481**	**0.2045**	**17.7274**	**9.4000e-004**		**0.0987**	**0.0987**		**0.0987**	**0.0987**	**0.0000**	**29.0598**	**29.0598**	**0.0277**	**0.0000**	**29.7514**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9253					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.5928					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5301	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Total	**8.0481**	**0.2045**	**17.7274**	**9.4000e-004**		**0.0987**	**0.0987**		**0.0987**	**0.0987**	**0.0000**	**29.0598**	**29.0598**	**0.0277**	**0.0000**	**29.7514**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Turf Reduction

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	231.8829	0.1216	0.0727	256.5769
Unmitigated	275.6215	0.1513	0.0907	306.4284

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.0081 / 8.8312	31.9212	0.0184	0.0111	35.6742
City Park	0 / 15.0961	14.1474	7.0000e-004	1.4000e-004	14.2077
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	2.37032 / 1.45278	5.3625	3.1100e-003	1.8700e-003	5.9973
Retirement Community	50.4944 / 31.8334	115.0646	0.0663	0.0398	128.5931
Single Family Housing	47.8882 / 30.1904	109.1258	0.0628	0.0378	121.9560
Total		**275.6215**	**0.1513**	**0.0907**	**306.4284**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	11.2065 / 8.2925	26.6873	0.0148	8.8500e-003	29.6947
City Park	0 / 14.1752	13.2844	6.5000e-004	1.4000e-004	13.3410
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.89626 / 1.36416	4.4792	2.5000e-003	1.5000e-003	4.9879
Retirement Community	40.3955 / 29.8916	96.1985	0.0532	0.0319	107.0389
Single Family Housing	38.3106 / 28.3488	91.2334	0.0505	0.0303	101.5143
Total		**231.8829**	**0.1216**	**0.0727**	**256.5769**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	251.9950	14.8925	0.0000	624.3070
Unmitigated	251.9950	14.8925	0.0000	624.3070

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	98.9	20.0758	1.1865	0.0000	49.7370
City Park	1.09	0.2213	0.0131	0.0000	0.5482
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	33.6	6.8205	0.4031	0.0000	16.8975
Retirement Community	356.5	72.3663	4.2767	0.0000	179.2844
Single Family Housing	751.32	152.5112	9.0132	0.0000	377.8400
Total		**251.9950**	**14.8925**	**0.0000**	**624.3070**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	98.9	20.0758	1.1865	0.0000	49.7370
City Park	1.09	0.2213	0.0131	0.0000	0.5482
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	33.6	6.8205	0.4031	0.0000	16.8975
Retirement Community	356.5	72.3663	4.2767	0.0000	179.2844
Single Family Housing	751.32	152.5112	9.0132	0.0000	377.8400
Total		**251.9950**	**14.8925**	**0.0000**	**624.3070**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	502.6446	0.0000	0.0000	502.6446

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	530.1 / 278.76	-1,083.2754	0.0000	0.0000	-1,083.2754
Total		**-1,083.2754**	**0.0000**	**0.0000**	**-1,083.2754**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2240	1,585.9200	0.0000	0.0000	1,585.9200
Total		**1,585.9200**	**0.0000**	**0.0000**	**1,585.9200**

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only) Unmitigated

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Other Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0
Parking Lot	1.50	Acre	1.50	65,340.00	0
City Park	9.10	Acre	9.28	396,396.00	0
City Park	3.07	Acre	3.69	133,729.20	0
City Park	0.50	Acre	1.40	21,780.00	0
Apartments Mid Rise	215.00	Dwelling Unit	7.17	215,000.00	621
Retirement Community	38.00	Dwelling Unit	1.26	38,000.00	78
Retirement Community	737.00	Dwelling Unit	90.91	737,000.00	1533
Single Family Housing	735.00	Dwelling Unit	77.87	1,323,000.00	2087
Regional Shopping Center	32.00	1000sqft	5.16	32,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Buildout Year: 2029

Land Use - Land use info as provided by the unit counts/gross acres/sf provided by applicant. 8,000sf restroom is in the 9.1acre park. 21,000sf clubhouse/restroom is incl. in the 3.07ac city park. Pop. as provided in the Pop & Housing section of the EIR.

Construction Phase - Note - constructed not modeled under this (operational) scenario.

Off-road Equipment -

Trips and VMT -

Grading - Assumes whole project site is graded (except for protected areas) = 319.9 acres. 152,708 CY of material exported from project site (as provided by the Project Applicant).

Architectural Coating -

Vehicle Trips - Trip rates used from Traffic Impact Memo (June, 2019), inclusive of average internal capture rate the traffic consultant applied to AM and PM peak hours. Park trips are assumed to be accounted for by the land uses provided in the Traffic Impact Memo.

Road Dust - Project will not have unpaved roads during the project's operational phase. Since the project is in the SMAQMD jursidiction, project uses the CARB's 2.0 and 0.2 method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 29.1% - reflects project person/du value (2.504) vs. statewide avg. (2.97) and latest statewide data (ARB).

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.87 - 90.91 - 7.17 - 5.16 - 32.3 - 20.59 - 17.34 = 278.76 acres

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - NOTE: This model run reflects operational emissions only.

Mobile Land Use Mitigation - Density = ~6.86 du/acre. Increase walkability design (123.53 int/sq. mile). Improve ped network. Provide traffic calming (50%/50%). 100% increase in transit coverage (current coverage=0). Provide Transit Accessibility (0.25 mile)

Mobile Commute Mitigation -

Area Mitigation - No hearths are to be installed as part of the proposed project. Flat (i.e. non-reflective) paints are assumed for projects building interiors. (see SMAQMD Rule 442 - maximum VOC content for flat paints is 50 g/L).

Energy Mitigation - High-efficiency lighting (LEDs) (71.5% improvement). EE appliances. 95% electricity generated via renewables (on-site or SMUD contract).

Water Mitigation - Installation of low-floor indoor water use fixtures, and use of water-efficient irrigation systems (consistent with the current version of Title 24).

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only) Unmitigated - Sacramento County, Summer

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Residential_Interior	100	50
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConsumerProducts	ROG_EF	2.14E-05	1.5173E-05
tblLandUse	LotAcreage	0.50	1.40
tblLandUse	LotAcreage	3.07	3.69
tblLandUse	LotAcreage	9.10	9.28
tblLandUse	LotAcreage	5.66	7.17
tblLandUse	LotAcreage	7.60	1.26
tblLandUse	LotAcreage	147.40	90.91
tblLandUse	LotAcreage	238.64	77.87
tblLandUse	LotAcreage	0.73	5.16
tblLandUse	Population	574.00	621.00
tblLandUse	Population	101.00	78.00
tblLandUse	Population	1,968.00	1,533.00
tblLandUse	Population	1,962.00	2,087.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblVehicleTrips	ST_TR	6.39	5.36
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	49.97	28.06
tblVehicleTrips	ST_TR	2.03	3.20
tblVehicleTrips	ST_TR	9.91	8.70
tblVehicleTrips	SU_TR	5.86	5.36
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	25.24	28.06

tblVehicleTrips	SU_TR	1.95	3.20
tblVehicleTrips	SU_TR	8.62	8.70
tblVehicleTrips	WD_TR	6.65	5.36
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	42.70	28.06
tblVehicleTrips	WD_TR	2.40	3.20
tblVehicleTrips	WD_TR	9.52	8.70

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1541	42.4585	22.1013	0.0395	18.2032	2.1984	20.4016	9.9670	2.0225	11.9895	0.0000	3,827.9339	3,827.9339	1.1959	0.0000	3,857.8321
Maximum	**4.1541**	**42.4585**	**22.1013**	**0.0395**	**18.2032**	**2.1984**	**20.4016**	**9.9670**	**2.0225**	**11.9895**	**0.0000**	**3,827.9339**	**3,827.9339**	**1.1959**	**0.0000**	**3,857.8321**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1541	42.4585	22.1013	0.0395	18.1925	2.1984	20.3908	9.9644	2.0225	11.9869	0.0000	3,827.9339	3,827.9339	1.1959	0.0000	3,857.8321
Maximum	**4.1541**	**42.4585**	**22.1013**	**0.0395**	**18.1925**	**2.1984**	**20.3908**	**9.9644**	**2.0225**	**11.9869**	**0.0000**	**3,827.9339**	**3,827.9339**	**1.1959**	**0.0000**	**3,857.8321**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.06**	**0.00**	**0.05**	**0.03**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	45.4354	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892	0.0000	256.2636	256.2636	0.2440	0.0000	262.3627
Energy	0.9051	7.7375	3.3119	0.0494		0.6254	0.6254		0.6254	0.6254		9,874.0650	9,874.0650	0.1893	0.1810	9,932.7416
Mobile	11.1907	44.2416	113.6978	0.5075	57.1263	0.2412	57.3674	15.2518	0.2241	15.4759		51,719.1982	51,719.1982	1.7796		51,763.6877
Total	**57.5312**	**53.6153**	**258.8291**	**0.5644**	**57.1263**	**1.6558**	**58.7820**	**15.2518**	**1.6387**	**16.8905**	**0.0000**	**61,849.5268**	**61,849.5268**	**2.2128**	**0.1810**	**61,958.7920**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	45.4354	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892	0.0000	256.2636	256.2636	0.2440	0.0000	262.3627
Energy	0.9051	7.7375	3.3119	0.0494		0.6254	0.6254		0.6254	0.6254		9,874.0650	9,874.0650	0.1893	0.1810	9,932.7416
Mobile	10.6565	41.8912	99.2027	0.4367	48.5573	0.2105	48.7678	12.9641	0.1955	13.1596		44,516.2929	44,516.2929	1.5747		44,555.6592
Total	**56.9970**	**51.2649**	**244.3340**	**0.4936**	**48.5573**	**1.6251**	**50.1824**	**12.9641**	**1.6101**	**14.5742**	**0.0000**	**54,646.6215**	**54,646.6215**	**2.0079**	**0.1810**	**54,750.7636**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.93**	**4.38**	**5.60**	**12.54**	**15.00**	**1.85**	**14.63**	**15.00**	**1.74**	**13.71**	**0.00**	**11.65**	**11.65**	**9.26**	**0.00**	**11.63**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Placeholder (see Construction model for Construction Emissions)	Site Preparation	1/1/2020	9/8/2020	5	180	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Placeholder (see Construction model for Construction Emissions)	Rubber Tired Dozers	3	8.00	247	0.40
Placeholder (see Construction model for Construction Emissions)	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Placeholder (see Construction model for	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346
Total	**0.0776**	**0.0412**	**0.5877**	**1.4400e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**142.8323**	**142.8323**	**4.0900e-003**		**142.9346**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1262	9.5000e-004	0.1272	0.0337	8.8000e-004	0.0346		142.8323	142.8323	4.0900e-003		142.9346
Total	**0.0776**	**0.0412**	**0.5877**	**1.4400e-003**	**0.1262**	**9.5000e-004**	**0.1272**	**0.0337**	**8.8000e-004**	**0.0346**		**142.8323**	**142.8323**	**4.0900e-003**		**142.9346**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement NEV Network

Expand Transit Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.6565	41.8912	99.2027	0.4367	48.5573	0.2105	48.7678	12.9641	0.1955	13.1596		44,516.2929	44,516.2929	1.5747		44,555.6592
Unmitigated	11.1907	44.2416	113.6978	0.5075	57.1263	0.2412	57.3674	15.2518	0.2241	15.4759		51,719.1982	51,719.1982	1.7796		51,763.6877

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,152.40	1,152.40	1152.40	2,957,184	2,661,466
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	897.92	897.92	897.92	1,254,668	1,129,201
Retirement Community	121.60	121.60	121.60	312,039	280,835
Retirement Community	2,358.40	2,358.40	2358.40	6,051,911	5,446,720
Single Family Housing	6,394.50	6,394.50	6394.50	16,408,984	14,768,086
Total	10,924.82	10,924.82	10,924.82	26,984,786	24,286,308

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Other Asphalt Surfaces	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Parking Lot	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Percent of Electricity Use Generated with Renewable Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.9051	7.7375	3.3119	0.0494		0.6254	0.6254		0.6254	0.6254		9,874.0650	9,874.0650	0.1893	0.1810	9,932.7416
NaturalGas Unmitigated	0.9051	7.7375	3.3119	0.0494		0.6254	0.6254		0.6254	0.6254		9,874.0650	9,874.0650	0.1893	0.1810	9,932.7416

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5742.03	0.0619	0.5292	0.2252	3.3800e-003		0.0428	0.0428		0.0428	0.0428		675.5331	675.5331	0.0130	0.0124	679.5475
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	475.178	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Retirement Community	1259.59	0.0136	0.1161	0.0494	7.4000e-004		9.3900e-003	9.3900e-003		9.3900e-003	9.3900e-003		148.1874	148.1874	2.8400e-003	2.7200e-003	149.0680
Retirement Community	24429.5	0.2635	2.2513	0.9580	0.0144		0.1820	0.1820		0.1820	0.1820		2,874.0553	2,874.0553	0.0551	0.0527	2,891.1344
Single Family Housing	52023.3	0.5610	4.7943	2.0401	0.0306		0.3876	0.3876		0.3876	0.3876		6,120.3859	6,120.3859	0.1173	0.1122	6,156.7563
Total		**0.9051**	**7.7375**	**3.3119**	**0.0494**		**0.6254**	**0.6254**		**0.6254**	**0.6254**		**9,874.0650**	**9,874.0650**	**0.1893**	**0.1810**	**9,932.7416**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5.74203	0.0619	0.5292	0.2252	3.3800e-003		0.0428	0.0428		0.0428	0.0428		675.5331	675.5331	0.0130	0.0124	679.5475
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.475178	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Retirement Community	1.25959	0.0136	0.1161	0.0494	7.4000e-004		9.3900e-003	9.3900e-003		9.3900e-003	9.3900e-003		148.1874	148.1874	2.8400e-003	2.7200e-003	149.0680
Retirement Community	24.4295	0.2635	2.2513	0.9580	0.0144		0.1820	0.1820		0.1820	0.1820		2,874.0553	2,874.0553	0.0551	0.0527	2,891.1344
Single Family Housing	52.0233	0.5610	4.7943	2.0401	0.0306		0.3876	0.3876		0.3876	0.3876		6,120.3859	6,120.3859	0.1173	0.1122	6,156.7563
Total		**0.9051**	**7.7375**	**3.3119**	**0.0494**		**0.6254**	**0.6254**		**0.6254**	**0.6254**		**9,874.0650**	**9,874.0650**	**0.1893**	**0.1810**	**9,932.7416**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Non-Residential Interior

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	45.4354	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892	0.0000	256.2636	256.2636	0.2440	0.0000	262.3627
Unmitigated	45.4354	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892	0.0000	256.2636	256.2636	0.2440	0.0000	262.3627

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.0699					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	36.1248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2407	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892		256.2636	256.2636	0.2440		262.3627
Total	**45.4354**	**1.6362**	**141.8195**	**7.5200e-003**		**0.7892**	**0.7892**		**0.7892**	**0.7892**	**0.0000**	**256.2636**	**256.2636**	**0.2440**	**0.0000**	**262.3627**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.0699					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	36.1248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2407	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892		256.2636	256.2636	0.2440		262.3627
Total	**45.4354**	**1.6362**	**141.8195**	**7.5200e-003**		**0.7892**	**0.7892**		**0.7892**	**0.7892**	**0.0000**	**256.2636**	**256.2636**	**0.2440**	**0.0000**	**262.3627**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Turf Reduction

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only) Unmitigated

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Other Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0
Parking Lot	1.50	Acre	1.50	65,340.00	0
City Park	9.10	Acre	9.28	396,396.00	0
City Park	3.07	Acre	3.69	133,729.20	0
City Park	0.50	Acre	1.40	21,780.00	0
Apartments Mid Rise	215.00	Dwelling Unit	7.17	215,000.00	621
Retirement Community	38.00	Dwelling Unit	1.26	38,000.00	78
Retirement Community	737.00	Dwelling Unit	90.91	737,000.00	1533
Single Family Housing	735.00	Dwelling Unit	77.87	1,323,000.00	2087
Regional Shopping Center	32.00	1000sqft	5.16	32,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Buildout Year: 2029

Land Use - Land use info as provided by the unit counts/gross acres/sf provided by applicant. 8,000sf restroom is in the 9.1acre park. 21,000sf clubhouse/restroom is incl. in the 3.07ac city park. Pop. as provided in the Pop & Housing section of the EIR.

Construction Phase - Note - constructed not modeled under this (operational) scenario.

Off-road Equipment -

Trips and VMT -

Grading - Assumes whole project site is graded (except for protected areas) = 319.9 acres. 152,708 CY of material exported from project site (as provided by the Project Applicant).

Architectural Coating -

Vehicle Trips - Trip rates used from Traffic Impact Memo (June, 2019), inclusive of average internal capture rate the traffic consultant applied to AM and PM peak hours. Park trips are assumed to be accounted for by the land uses provided in the Traffic Impact Memo.

Road Dust - Project will not have unpaved roads during the project's operational phase. Since the project is in the SMAQMD jursidiction, project uses the CARB's 2.0 and 0.2 method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 29.1% - reflects project person/du value (2.504) vs. statewide avg. (2.97) and latest statewide data (ARB).

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.87 - 90.91 - 7.17 - 5.16 - 32.3 - 20.59 - 17.34 = 278.76 acres

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - NOTE: This model run reflects operational emissions only.

Mobile Land Use Mitigation - Density = ~6.86 du/acre. Increase walkability design (123.53 int/sq. mile). Improve ped network. Provide traffic calming (50%/50%). 100% increase in transit coverage (current coverage=0). Provide Transit Accessibility (0.25 mile)

Mobile Commute Mitigation -

Area Mitigation - No hearths are to be installed as part of the proposed project. Flat (i.e. non-reflective) paints are assumed for projects building interiors. (see SMAQMD Rule 442 - maximum VOC content for flat paints is 50 g/L).

Energy Mitigation - High-efficiency lighting (LEDs) (71.5% improvement). EE appliances. 95% electricity generated via renewables (on-site or SMUD contract).

Water Mitigation - Installation of low-floor indoor water use fixtures, and use of water-efficient irrigation systems (consistent with the current version of Title 24).

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only) Unmitigated - Sacramento County, Winter

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Residential_Interior	100	50
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConsumerProducts	ROG_EF	2.14E-05	1.5173E-05
tblLandUse	LotAcreage	0.50	1.40
tblLandUse	LotAcreage	3.07	3.69
tblLandUse	LotAcreage	9.10	9.28
tblLandUse	LotAcreage	5.66	7.17
tblLandUse	LotAcreage	7.60	1.26
tblLandUse	LotAcreage	147.40	90.91
tblLandUse	LotAcreage	238.64	77.87
tblLandUse	LotAcreage	0.73	5.16
tblLandUse	Population	574.00	621.00
tblLandUse	Population	101.00	78.00
tblLandUse	Population	1,968.00	1,533.00
tblLandUse	Population	1,962.00	2,087.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblVehicleTrips	ST_TR	6.39	5.36
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	49.97	28.06
tblVehicleTrips	ST_TR	2.03	3.20
tblVehicleTrips	ST_TR	9.91	8.70
tblVehicleTrips	SU_TR	5.86	5.36
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	25.24	28.06

tblVehicleTrips	SU_TR	1.95	3.20
tblVehicleTrips	SU_TR	8.62	8.70
tblVehicleTrips	WD_TR	6.65	5.36
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	42.70	28.06
tblVehicleTrips	WD_TR	2.40	3.20
tblVehicleTrips	WD_TR	9.52	8.70

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1479	42.4682	22.0168	0.0393	18.2032	2.1984	20.4016	9.9670	2.0225	11.9895	0.0000	3,810.5415	3,810.5415	1.1955	0.0000	3,840.4276
Maximum	**4.1479**	**42.4682**	**22.0168**	**0.0393**	**18.2032**	**2.1984**	**20.4016**	**9.9670**	**2.0225**	**11.9895**	**0.0000**	**3,810.5415**	**3,810.5415**	**1.1955**	**0.0000**	**3,840.4276**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1479	42.4682	22.0168	0.0393	18.1925	2.1984	20.3908	9.9644	2.0225	11.9869	0.0000	3,810.5415	3,810.5415	1.1955	0.0000	3,840.4276
Maximum	**4.1479**	**42.4682**	**22.0168**	**0.0393**	**18.1925**	**2.1984**	**20.3908**	**9.9644**	**2.0225**	**11.9869**	**0.0000**	**3,810.5415**	**3,810.5415**	**1.1955**	**0.0000**	**3,840.4276**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.06**	**0.00**	**0.05**	**0.03**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	45.4354	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892	0.0000	256.2636	256.2636	0.2440	0.0000	262.3627
Energy	0.9051	7.7375	3.3119	0.0494		0.6254	0.6254		0.6254	0.6254		9,874.0650	9,874.0650	0.1893	0.1810	9,932.7416
Mobile	8.1033	45.9804	103.0139	0.4605	57.1263	0.2423	57.3686	15.2518	0.2252	15.4770		47,001.5129	47,001.5129	1.8071		47,046.6896
Total	**54.4438**	**55.3541**	**248.1452**	**0.5174**	**57.1263**	**1.6569**	**58.7832**	**15.2518**	**1.6398**	**16.8916**	**0.0000**	**57,131.8415**	**57,131.8415**	**2.2403**	**0.1810**	**57,241.7940**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	45.4354	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892	0.0000	256.2636	256.2636	0.2440	0.0000	262.3627
Energy	0.9051	7.7375	3.3119	0.0494		0.6254	0.6254		0.6254	0.6254		9,874.0650	9,874.0650	0.1893	0.1810	9,932.7416
Mobile	7.5774	43.3084	91.2448	0.3963	48.5573	0.2116	48.7689	12.9641	0.1966	13.1607		40,454.2516	40,454.2516	1.6093		40,494.4845
Total	**53.9179**	**52.6821**	**236.3761**	**0.4532**	**48.5573**	**1.6262**	**50.1835**	**12.9641**	**1.6112**	**14.5753**	**0.0000**	**50,584.5802**	**50,584.5802**	**2.0425**	**0.1810**	**50,689.5888**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.97**	**4.83**	**4.74**	**12.41**	**15.00**	**1.85**	**14.63**	**15.00**	**1.74**	**13.71**	**0.00**	**11.46**	**11.46**	**8.83**	**0.00**	**11.45**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Placeholder (see Construction model for Construction Emissions)	Site Preparation	1/1/2020	9/8/2020	5	180	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Placeholder (see Construction model for Construction Emissions)	Rubber Tired Dozers	3	8.00	247	0.40
Placeholder (see Construction model for Construction Emissions)	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Placeholder (see Construction model for	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0714	0.0509	0.5032	1.2600e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		125.4399	125.4399	3.6100e-003		125.5301
Total	**0.0714**	**0.0509**	**0.5032**	**1.2600e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**125.4399**	**125.4399**	**3.6100e-003**		**125.5301**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0714	0.0509	0.5032	1.2600e-003	0.1262	9.5000e-004	0.1272	0.0337	8.8000e-004	0.0346		125.4399	125.4399	3.6100e-003		125.5301
Total	**0.0714**	**0.0509**	**0.5032**	**1.2600e-003**	**0.1262**	**9.5000e-004**	**0.1272**	**0.0337**	**8.8000e-004**	**0.0346**		**125.4399**	**125.4399**	**3.6100e-003**		**125.5301**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement NEV Network

Expand Transit Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.5774	43.3084	91.2448	0.3963	48.5573	0.2116	48.7689	12.9641	0.1966	13.1607		40,454.2516	40,454.2516	1.6093		40,494.4845
Unmitigated	8.1033	45.9804	103.0139	0.4605	57.1263	0.2423	57.3686	15.2518	0.2252	15.4770		47,001.5129	47,001.5129	1.8071		47,046.6896

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,152.40	1,152.40	1152.40	2,957,184	2,661,466
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	897.92	897.92	897.92	1,254,668	1,129,201
Retirement Community	121.60	121.60	121.60	312,039	280,835
Retirement Community	2,358.40	2,358.40	2358.40	6,051,911	5,446,720
Single Family Housing	6,394.50	6,394.50	6394.50	16,408,984	14,768,086
Total	10,924.82	10,924.82	10,924.82	26,984,786	24,286,308

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Other Asphalt Surfaces	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Parking Lot	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Percent of Electricity Use Generated with Renewable Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.9051	7.7375	3.3119	0.0494		0.6254	0.6254		0.6254	0.6254		9,874.0650	9,874.0650	0.1893	0.1810	9,932.7416
NaturalGas Unmitigated	0.9051	7.7375	3.3119	0.0494		0.6254	0.6254		0.6254	0.6254		9,874.0650	9,874.0650	0.1893	0.1810	9,932.7416

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5742.03	0.0619	0.5292	0.2252	3.3800e-003		0.0428	0.0428		0.0428	0.0428		675.5331	675.5331	0.0130	0.0124	679.5475
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	475.178	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Retirement Community	1259.59	0.0136	0.1161	0.0494	7.4000e-004		9.3900e-003	9.3900e-003		9.3900e-003	9.3900e-003		148.1874	148.1874	2.8400e-003	2.7200e-003	149.0680
Retirement Community	24429.5	0.2635	2.2513	0.9580	0.0144		0.1820	0.1820		0.1820	0.1820		2,874.0553	2,874.0553	0.0551	0.0527	2,891.1344
Single Family Housing	52023.3	0.5610	4.7943	2.0401	0.0306		0.3876	0.3876		0.3876	0.3876		6,120.3859	6,120.3859	0.1173	0.1122	6,156.7563
Total		**0.9051**	**7.7375**	**3.3119**	**0.0494**		**0.6254**	**0.6254**		**0.6254**	**0.6254**		**9,874.0650**	**9,874.0650**	**0.1893**	**0.1810**	**9,932.7416**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5.74203	0.0619	0.5292	0.2252	3.3800e-003		0.0428	0.0428		0.0428	0.0428		675.5331	675.5331	0.0130	0.0124	679.5475
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.475178	5.1200e-003	0.0466	0.0391	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003		55.9033	55.9033	1.0700e-003	1.0200e-003	56.2355
Retirement Community	1.25959	0.0136	0.1161	0.0494	7.4000e-004		9.3900e-003	9.3900e-003		9.3900e-003	9.3900e-003		148.1874	148.1874	2.8400e-003	2.7200e-003	149.0680
Retirement Community	24.4295	0.2635	2.2513	0.9580	0.0144		0.1820	0.1820		0.1820	0.1820		2,874.0553	2,874.0553	0.0551	0.0527	2,891.1344
Single Family Housing	52.0233	0.5610	4.7943	2.0401	0.0306		0.3876	0.3876		0.3876	0.3876		6,120.3859	6,120.3859	0.1173	0.1122	6,156.7563
Total		**0.9051**	**7.7375**	**3.3119**	**0.0494**		**0.6254**	**0.6254**		**0.6254**	**0.6254**		**9,874.0650**	**9,874.0650**	**0.1893**	**0.1810**	**9,932.7416**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Non-Residential Interior

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	45.4354	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892	0.0000	256.2636	256.2636	0.2440	0.0000	262.3627
Unmitigated	45.4354	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892	0.0000	256.2636	256.2636	0.2440	0.0000	262.3627

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.0699					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	36.1248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2407	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892		256.2636	256.2636	0.2440		262.3627
Total	**45.4354**	**1.6362**	**141.8195**	**7.5200e-003**		**0.7892**	**0.7892**		**0.7892**	**0.7892**	**0.0000**	**256.2636**	**256.2636**	**0.2440**	**0.0000**	**262.3627**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.0699					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	36.1248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2407	1.6362	141.8195	7.5200e-003		0.7892	0.7892		0.7892	0.7892		256.2636	256.2636	0.2440		262.3627
Total	**45.4354**	**1.6362**	**141.8195**	**7.5200e-003**		**0.7892**	**0.7892**		**0.7892**	**0.7892**	**0.0000**	**256.2636**	**256.2636**	**0.2440**	**0.0000**	**262.3627**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Turf Reduction

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only) Mitigated

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Other Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0
Parking Lot	1.50	Acre	1.50	65,340.00	0
City Park	9.10	Acre	9.28	396,396.00	0
City Park	3.07	Acre	3.69	133,729.20	0
City Park	0.50	Acre	1.40	21,780.00	0
Apartments Mid Rise	215.00	Dwelling Unit	7.17	215,000.00	621
Retirement Community	38.00	Dwelling Unit	1.26	38,000.00	78
Retirement Community	737.00	Dwelling Unit	90.91	737,000.00	1533
Single Family Housing	735.00	Dwelling Unit	77.87	1,323,000.00	2087
Regional Shopping Center	32.00	1000sqft	5.16	32,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Buildout Year: 2035

Land Use - Land use info as provided by the unit counts/gross acres/sf provided by applicant. 8,000sf restroom is in the 9.1acre park. 21,000sf clubhouse/restroom is incl. in the 3.07ac city park. Pop. as provided in the Pop & Housing section of the EIR.

Construction Phase - Note - constructed not modeled under this (operational) scenario.

Off-road Equipment -

Trips and VMT -

Grading - Assumes whole project site is graded (except for protected areas) = 319.9 acres. 152,708 CY of material exported from project site (as provided by the Project Applicant).

Architectural Coating -

Vehicle Trips - Trip rates used from Traffic Impact Memo (June, 2019), inclusive of average internal capture rate the traffic consultant applied to AM and PM peak hours. Park trips are assumed to be accounted for by the land uses provided in the Traffic Impact Memo.

Road Dust - Project will not have unpaved roads during the project's operational phase. Since the project is in the SMAQMD jursidiction, project uses the CARB's 2.0 and 0.2 method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 29.1% - reflects project person/du value (2.504) vs. statewide avg. (2.97) and latest statewide data (ARB).

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.87 - 90.91 - 7.17 - 5.16 - 32.3 - 20.59 - 17.34 = 278.76 acres

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - NOTE: This model run reflects operational emissions only.

Mobile Land Use Mitigation - Density = ~6.86 du/acre. Increase walkability design (123.53 int/sq. mile). Improve ped network. Provide traffic calming (50%/50%). 100% increase in transit coverage (current coverage=0). Provide Transit Accessibility (0.25 mile)

Mobile Commute Mitigation - Mitigation: Implement Trip Reduction Program (100% employee eligilbe; voluntary).

Area Mitigation - No hearths are to be installed as part of the proposed project. Flat (i.e. non-reflective) paints are assumed for projects building interiors. (see SMAQMD Rule 442 - maximum VOC content for flat paints is 50 g/L).

Energy Mitigation - High-efficiency lighting (LEDs) (71.5% improvement). EE appliances. 95% electricity generated via renewables (on-site or SMUD contract). Mitigation: Exceed Title 24 by 2%.

Water Mitigation - Install low-floor indoor water use fixtures, and use water-efficient irrigation systems (=current version of Title 24). Mitigation: Apply water conservation strategy (50% native or drought-resistant trees outdoors - assume 25% reduction outdoor).

Fleet Mix -

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only) Mitigated - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Residential_Interior	100	50
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConsumerProducts	ROG_EF	2.14E-05	1.52E-05
tblLandUse	LotAcreage	0.50	1.40
tblLandUse	LotAcreage	3.07	3.69
tblLandUse	LotAcreage	9.10	9.28
tblLandUse	LotAcreage	5.66	7.17
tblLandUse	LotAcreage	7.60	1.26
tblLandUse	LotAcreage	147.40	90.91
tblLandUse	LotAcreage	238.64	77.87
tblLandUse	LotAcreage	0.73	5.16
tblLandUse	Population	574.00	621.00
tblLandUse	Population	101.00	78.00
tblLandUse	Population	1,968.00	1,533.00
tblLandUse	Population	1,962.00	2,087.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblVehicleTrips	ST_TR	6.39	5.36
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	49.97	28.06
tblVehicleTrips	ST_TR	2.03	3.20
tblVehicleTrips	ST_TR	9.91	8.70
tblVehicleTrips	SU_TR	5.86	5.36
tblVehicleTrips	SU_TR	16.74	0.00

tblVehicleTrips	SU_TR	25.24	28.06
tblVehicleTrips	SU_TR	1.95	3.20
tblVehicleTrips	SU_TR	8.62	8.70
tblVehicleTrips	WD_TR	6.65	5.36
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	42.70	28.06
tblVehicleTrips	WD_TR	2.40	3.20
tblVehicleTrips	WD_TR	9.52	8.70

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3729	3.8217	1.9811	3.5400e-003	1.6379	0.1979	1.8357	0.8969	0.1820	1.0790	0.0000	311.4180	311.4180	0.0976	0.0000	313.8582
Maximum	**0.3729**	**3.8217**	**1.9811**	**3.5400e-003**	**1.6379**	**0.1979**	**1.8357**	**0.8969**	**0.1820**	**1.0790**	**0.0000**	**311.4180**	**311.4180**	**0.0976**	**0.0000**	**313.8582**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3729	3.8216	1.9811	3.5400e-003	1.6369	0.1979	1.8348	0.8967	0.1820	1.0787	0.0000	311.4177	311.4177	0.0976	0.0000	313.8579
Maximum	**0.3729**	**3.8216**	**1.9811**	**3.5400e-003**	**1.6369**	**0.1979**	**1.8348**	**0.8967**	**0.1820**	**1.0787**	**0.0000**	**311.4177**	**311.4177**	**0.0976**	**0.0000**	**313.8579**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.06**	**0.00**	**0.05**	**0.03**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2020**	**3-31-2020**	1.5150	1.5150
2	**4-1-2020**	**6-30-2020**	1.5149	1.5149
3	**7-1-2020**	**9-30-2020**	1.1653	1.1653
		Highest	1.5150	1.5150

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.1240	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Energy	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	4,619.0251	4,619.0251	0.1779	0.0603	4,641.4440
Mobile	1.5875	8.2466	18.2704	0.0857	10.0427	0.0439	10.0866	2.6889	0.0408	2.7297	0.0000	7,936.6038	7,936.6038	0.2912	0.0000	7,943.8825
Waste						0.0000	0.0000		0.0000	0.0000	251.9950	0.0000	251.9950	14.8925	0.0000	624.3070
Water						0.0000	0.0000		0.0000	0.0000	40.6026	235.0189	275.6215	0.1513	0.0907	306.4284
Total	**9.8766**	**9.8632**	**36.6023**	**0.0957**	**10.0427**	**0.2567**	**10.2994**	**2.6889**	**0.2536**	**2.9425**	**292.5976**	**12,819.7076**	**13,112.3053**	**15.5405**	**0.1510**	**13,545.8133**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.1240	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Energy	0.1624	1.3882	0.5942	8.8600e-003		0.1122	0.1122		0.1122	0.1122	0.0000	1,730.6825	1,730.6825	0.0369	0.0307	1,740.7587
Mobile	1.4763	7.7027	15.6969	0.0717	8.2720	0.0374	8.3093	2.2148	0.0347	2.2495	0.0000	6,640.5756	6,640.5756	0.2528	0.0000	6,646.8954
Waste						0.0000	0.0000		0.0000	0.0000	251.9950	0.0000	251.9950	14.8925	0.0000	624.3070
Water						0.0000	0.0000		0.0000	0.0000	40.6026	214.5410	255.1436	0.1503	0.0905	285.8633
Total	**9.7626**	**9.2953**	**34.0185**	**0.0815**	**8.2720**	**0.2482**	**8.5202**	**2.2148**	**0.2456**	**2.4603**	**292.5976**	**8,614.8589**	**8,907.4565**	**15.3601**	**0.1212**	**9,327.5759**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**1.15**	**5.76**	**7.06**	**14.81**	**17.63**	**3.31**	**17.27**	**17.63**	**3.17**	**16.39**	**0.00**	**32.80**	**32.07**	**1.16**	**19.73**	**31.14**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,585.9200
Vegetation Land Change	-1,083.2754
Total	**502.6446**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Placeholder (see Construction model for Construction Emissions)	Site Preparation	1/1/2020	9/8/2020	5	180	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Placeholder (see Construction model for Construction Emissions)	Rubber Tired Dozers	3	8.00	247	0.40
Placeholder (see Construction model for Construction Emissions)	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Placeholder (see Construction model for	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6260	0.0000	1.6260	0.8938	0.0000	0.8938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3669	3.8176	1.9362	3.4200e-003		0.1978	0.1978		0.1820	0.1820	0.0000	300.8761	300.8761	0.0973	0.0000	303.3089
Total	**0.3669**	**3.8176**	**1.9362**	**3.4200e-003**	**1.6260**	**0.1978**	**1.8237**	**0.8938**	**0.1820**	**1.0757**	**0.0000**	**300.8761**	**300.8761**	**0.0973**	**0.0000**	**303.3089**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0300e-003	4.0900e-003	0.0448	1.2000e-004	0.0119	9.0000e-005	0.0120	3.1600e-003	8.0000e-005	3.2400e-003	0.0000	10.5419	10.5419	3.0000e-004	0.0000	10.5494
Total	**6.0300e-003**	**4.0900e-003**	**0.0448**	**1.2000e-004**	**0.0119**	**9.0000e-005**	**0.0120**	**3.1600e-003**	**8.0000e-005**	**3.2400e-003**	**0.0000**	**10.5419**	**10.5419**	**3.0000e-004**	**0.0000**	**10.5494**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6260	0.0000	1.6260	0.8938	0.0000	0.8938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3669	3.8176	1.9362	3.4200e-003		0.1978	0.1978		0.1820	0.1820	0.0000	300.8758	300.8758	0.0973	0.0000	303.3085
Total	**0.3669**	**3.8176**	**1.9362**	**3.4200e-003**	**1.6260**	**0.1978**	**1.8237**	**0.8938**	**0.1820**	**1.0757**	**0.0000**	**300.8758**	**300.8758**	**0.0973**	**0.0000**	**303.3085**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0300e-003	4.0900e-003	0.0448	1.2000e-004	0.0110	9.0000e-005	0.0111	2.9400e-003	8.0000e-005	3.0200e-003	0.0000	10.5419	10.5419	3.0000e-004	0.0000	10.5494
Total	**6.0300e-003**	**4.0900e-003**	**0.0448**	**1.2000e-004**	**0.0110**	**9.0000e-005**	**0.0111**	**2.9400e-003**	**8.0000e-005**	**3.0200e-003**	**0.0000**	**10.5419**	**10.5419**	**3.0000e-004**	**0.0000**	**10.5494**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement NEV Network

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4763	7.7027	15.6969	0.0717	8.2720	0.0374	8.3093	2.2148	0.0347	2.2495	0.0000	6,640.5756	6,640.5756	0.2528	0.0000	6,646.8954
Unmitigated	1.5875	8.2466	18.2704	0.0857	10.0427	0.0439	10.0866	2.6889	0.0408	2.7297	0.0000	7,936.6038	7,936.6038	0.2912	0.0000	7,943.8825

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,152.40	1,152.40	1152.40	2,957,184	2,580,422
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	897.92	897.92	897.92	1,254,668	1,082,369
Retirement Community	121.60	121.60	121.60	312,039	272,283
Retirement Community	2,358.40	2,358.40	2358.40	6,051,911	5,280,864
Single Family Housing	6,394.50	6,394.50	6394.50	16,408,984	14,318,387
Total	10,924.82	10,924.82	10,924.82	26,984,786	23,534,324

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
City Park	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Other Asphalt Surfaces	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Parking Lot	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Regional Shopping Center	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Retirement Community	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566
Single Family Housing	0.578893	0.033999	0.212840	0.104491	0.010628	0.004325	0.018736	0.026318	0.001852	0.001362	0.005392	0.000598	0.000566

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Percent of Electricity Use Generated with Renewable Energy

Install Energy Efficient Appliances

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only) Mitigated - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	123.6369	123.6369	6.0700e-003	1.2600e-003	124.1632
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,984.2630	2,984.2630	0.1466	0.0303	2,996.9672
NaturalGas Mitigated	0.1624	1.3882	0.5942	8.8600e-003		0.1122	0.1122		0.1122	0.1122	0.0000	1,607.0456	1,607.0456	0.0308	0.0295	1,616.5955
NaturalGas Unmitigated	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	1,634.7622	1,634.7622	0.0313	0.0300	1,644.4768

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.09584e+006	0.0113	0.0966	0.0411	6.2000e-004		7.8100e-003	7.8100e-003		7.8100e-003	7.8100e-003	0.0000	111.8421	111.8421	2.1400e-003	2.0500e-003	112.5067
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	173440	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2554	9.2554	1.8000e-004	1.7000e-004	9.3104
Retirement Community	459751	2.4800e-003	0.0212	9.0100e-003	1.4000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.5341	24.5341	4.7000e-004	4.5000e-004	24.6799
Retirement Community	8.91676e+006	0.0481	0.4109	0.1748	2.6200e-003		0.0332	0.0332		0.0332	0.0332	0.0000	475.8321	475.8321	9.1200e-003	8.7200e-003	478.6597
Single Family Housing	1.89885e+007	0.1024	0.8750	0.3723	5.5800e-003		0.0707	0.0707		0.0707	0.0707	0.0000	1,013.2985	1,013.2985	0.0194	0.0186	1,019.3201
Total		**0.1652**	**1.4121**	**0.6044**	**9.0100e-003**		**0.1141**	**0.1141**		**0.1141**	**0.1141**	**0.0000**	**1,634.7622**	**1,634.7622**	**0.0313**	**0.0300**	**1,644.4768**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.06548e+006	0.0111	0.0952	0.0405	6.1000e-004		7.6900e-003	7.6900e-003		7.6900e-003	7.6900e-003	0.0000	110.2218	110.2218	2.1100e-003	2.0200e-003	110.8768
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	170566	9.2000e-004	8.3600e-003	7.0200e-003	5.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	9.1021	9.1021	1.7000e-004	1.7000e-004	9.1562
Retirement Community	452598	2.4400e-003	0.0209	8.8700e-003	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003	0.0000	24.1524	24.1524	4.6000e-004	4.4000e-004	24.2959
Retirement Community	8.77803e+006	0.0473	0.4045	0.1721	2.5800e-003		0.0327	0.0327		0.0327	0.0327	0.0000	468.4290	468.4290	8.9800e-003	8.5900e-003	471.2126
Single Family Housing	1.86482e+007	0.1006	0.8593	0.3657	5.4800e-003		0.0695	0.0695		0.0695	0.0695	0.0000	995.1404	995.1404	0.0191	0.0182	1,001.0540
Total		**0.1624**	**1.3882**	**0.5942**	**8.8500e-003**		**0.1122**	**0.1122**		**0.1122**	**0.1122**	**0.0000**	**1,607.0456**	**1,607.0456**	**0.0308**	**0.0295**	**1,616.5955**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	915139	245.0377	0.0120	2.4900e-003	246.0808
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	22869	6.1234	3.0000e-004	6.0000e-005	6.1495
Regional Shopping Center	370240	99.1355	4.8700e-003	1.0100e-003	99.5575
Retirement Community	178029	47.6691	2.3400e-003	4.8000e-004	47.8721
Retirement Community	3.45283e+006	924.5302	0.0454	9.4000e-003	928.4660
Single Family Housing	6.20618e+006	1,661.7670	0.0816	0.0169	1,668.8413
Total		**2,984.2630**	**0.1466**	**0.0303**	**2,996.9672**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	38817.8	10.3939	5.1000e-004	1.1000e-004	10.4381
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	325.883	0.0873	0.0000	0.0000	0.0876
Regional Shopping Center	12063	3.2300	1.6000e-004	3.0000e-005	3.2437
Retirement Community	141866	37.9861	1.8700e-003	3.9000e-004	38.1478
Retirement Community	7314.68	1.9586	1.0000e-004	2.0000e-005	1.9669
Single Family Housing	261358	69.9811	3.4400e-003	7.1000e-004	70.2790
Total		**123.6369**	**6.0800e-003**	**1.2600e-003**	**124.1632**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Non-Residential Interior

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.1240	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Unmitigated	8.1240	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9314					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.6625					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5301	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Total	**8.1240**	**0.2045**	**17.7274**	**9.4000e-004**		**0.0987**	**0.0987**		**0.0987**	**0.0987**	**0.0000**	**29.0598**	**29.0598**	**0.0277**	**0.0000**	**29.7514**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9314					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.6625					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5301	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Total	**8.1240**	**0.2045**	**17.7274**	**9.4000e-004**		**0.0987**	**0.0987**		**0.0987**	**0.0987**	**0.0000**	**29.0598**	**29.0598**	**0.0277**	**0.0000**	**29.7514**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Turf Reduction

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	255.1436	0.1503	0.0905	285.8633
Unmitigated	275.6215	0.1513	0.0907	306.4284

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.0081 / 8.8312	31.9212	0.0184	0.0111	35.6742
City Park	0 / 15.0961	14.1474	7.0000e-004	1.4000e-004	14.2077
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	2.37032 / 1.45278	5.3625	3.1100e-003	1.8700e-003	5.9973
Retirement Community	50.4944 / 31.8334	115.0646	0.0663	0.0398	128.5931
Single Family Housing	47.8882 / 30.1904	109.1258	0.0628	0.0378	121.9560
Total		**275.6215**	**0.1513**	**0.0907**	**306.4284**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.0081 / 6.6234	29.8521	0.0183	0.0110	33.5963
City Park	0 / 11.3221	10.6106	5.2000e-004	1.1000e-004	10.6558
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	2.37032 / 1.08958	5.0221	3.0900e-003	1.8700e-003	5.6555
Retirement Community	50.4944 / 23.8751	107.6064	0.0659	0.0398	121.1031
Single Family Housing	47.8882 / 22.6428	102.0525	0.0625	0.0377	114.8526
Total		**255.1436**	**0.1503**	**0.0905**	**285.8633**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	251.9950	14.8925	0.0000	624.3070
Unmitigated	251.9950	14.8925	0.0000	624.3070

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	98.9	20.0758	1.1865	0.0000	49.7370
City Park	1.09	0.2213	0.0131	0.0000	0.5482
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	33.6	6.8205	0.4031	0.0000	16.8975
Retirement Community	356.5	72.3663	4.2767	0.0000	179.2844
Single Family Housing	751.32	152.5112	9.0132	0.0000	377.8400
Total		**251.9950**	**14.8925**	**0.0000**	**624.3070**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	98.9	20.0758	1.1865	0.0000	49.7370
City Park	1.09	0.2213	0.0131	0.0000	0.5482
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	33.6	6.8205	0.4031	0.0000	16.8975
Retirement Community	356.5	72.3663	4.2767	0.0000	179.2844
Single Family Housing	751.32	152.5112	9.0132	0.0000	377.8400
Total		**251.9950**	**14.8925**	**0.0000**	**624.3070**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	502.6446	0.0000	0.0000	502.6446

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	530.1 / 278.76	-1,083.2754	0.0000	0.0000	-1,083.2754
Total		**-1,083.2754**	**0.0000**	**0.0000**	**-1,083.2754**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2240	1,585.9200	0.0000	0.0000	1,585.9200
Total		**1,585.9200**	**0.0000**	**0.0000**	**1,585.9200**

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only - without passenger cars

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Other Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0
Parking Lot	1.50	Acre	1.50	65,340.00	0
City Park	9.10	Acre	9.28	396,396.00	0
City Park	3.07	Acre	3.69	133,729.20	0
City Park	0.50	Acre	1.40	21,780.00	0
Apartments Mid Rise	215.00	Dwelling Unit	7.17	215,000.00	621
Retirement Community	38.00	Dwelling Unit	1.26	38,000.00	78
Retirement Community	737.00	Dwelling Unit	90.91	737,000.00	1533
Single Family Housing	735.00	Dwelling Unit	77.87	1,323,000.00	2087
Regional Shopping Center	32.00	1000sqft	5.16	32,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Buildout Year: 2035

Land Use - Land use info as provided by the unit counts/gross acres/sf provided by applicant. 8,000sf restroom is in the 9.1acre park. 21,000sf clubhouse/restroom is incl. in the 3.07ac city park. Pop. as provided in the Pop & Housing section of the EIR.

Construction Phase - Note - constructed not modeled under this (operational) scenario.

Off-road Equipment -

Trips and VMT -

Grading - Assumes whole project site is graded (except for protected areas) = 319.9 acres. 152,708 CY of material exported from project site (as provided by the Project Applicant).

Architectural Coating -

Vehicle Trips - Trip rates used from Traffic Impact Memo (June, 2019), inclusive of average internal capture rate the traffic consultant applied to AM and PM peak hours. Park trips are assumed to be accounted for by the land uses provided in the Traffic Impact Memo.

Road Dust - Project will not have unpaved roads during the project's operational phase. Since the project is in the SMAQMD jursidiction, project uses the CARB's 2.0 and 0.2 method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 29.1% - reflects project person/du value (2.504) vs. statewide avg. (2.97) and latest statewide data (ARB).

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.87 - 90.91 - 7.17 - 5.16 - 32.3 - 20.59 - 17.34 = 278.76 acres

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - NOTE: This model run reflects operational emissions only.

Mobile Land Use Mitigation - Density = ~6.86 du/acre. Increase walkability design (123.53 int/sq. mile). Improve ped network. Provide traffic calming (50%/50%). 100% increase in transit coverage (current coverage=0). Provide Transit Accessibility (0.25 mile)

Mobile Commute Mitigation -

Area Mitigation - No hearths are to be installed as part of the proposed project. Flat (i.e. non-reflective) paints are assumed for projects building interiors. (see SMAQMD Rule 442 - maximum VOC content for flat paints is 50 g/L).

Energy Mitigation - High-efficiency lighting (LEDs) (71.5% improvement). EE appliances. 95% electricity generated via renewables (on-site or SMUD contract).

Water Mitigation - Installation of low-floor indoor water use fixtures, and use of water-efficient irrigation systems (consistent with the current version of Title 24).

Fleet Mix - Adjusted to account for the removal of passenger and light duty trucks for operational GHG emissions, per SB 375.

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only - without passenger cars - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Residential_Interior	100	50
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConsumerProducts	ROG_EF	2.14E-05	1.52E-05
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00

tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MCY	5.3920e-003	0.03

tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	OBUS	1.8520e-003	0.01

tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblLandUse	LotAcreage	0.50	1.40
tblLandUse	LotAcreage	3.07	3.69
tblLandUse	LotAcreage	9.10	9.28
tblLandUse	LotAcreage	5.66	7.17
tblLandUse	LotAcreage	7.60	1.26
tblLandUse	LotAcreage	147.40	90.91
tblLandUse	LotAcreage	238.64	77.87
tblLandUse	LotAcreage	0.73	5.16
tblLandUse	Population	574.00	621.00
tblLandUse	Population	101.00	78.00
tblLandUse	Population	1,968.00	1,533.00

tblLandUse	Population	1,962.00	2,087.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblVehicleTrips	ST_TR	6.39	0.93
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	49.97	4.89
tblVehicleTrips	ST_TR	2.03	0.56
tblVehicleTrips	ST_TR	9.91	1.52
tblVehicleTrips	SU_TR	5.86	0.93
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	25.24	4.89
tblVehicleTrips	SU_TR	1.95	0.56
tblVehicleTrips	SU_TR	8.62	1.52
tblVehicleTrips	WD_TR	6.65	0.93
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	42.70	4.89
tblVehicleTrips	WD_TR	2.40	0.56
tblVehicleTrips	WD_TR	9.52	1.52

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2645	2.7374	1.3569	2.3600e-003	1.0919	0.1435	1.2354	0.5980	0.1320	0.7300	0.0000	212.2630	212.2630	0.0651	0.0000	213.8902
2020	0.1243	1.2739	0.6604	1.1800e-003	0.5460	0.0660	0.6119	0.2990	0.0607	0.3597	0.0000	103.8060	103.8060	0.0325	0.0000	104.6194
Maximum	**0.2645**	**2.7374**	**1.3569**	**2.3600e-003**	**1.0919**	**0.1435**	**1.2354**	**0.5980**	**0.1320**	**0.7300**	**0.0000**	**212.2630**	**212.2630**	**0.0651**	**0.0000**	**213.8902**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2645	2.7374	1.3569	2.3600e-003	1.0913	0.1435	1.2348	0.5978	0.1320	0.7298	0.0000	212.2627	212.2627	0.0651	0.0000	213.8899
2020	0.1243	1.2739	0.6604	1.1800e-003	0.5457	0.0660	0.6116	0.2989	0.0607	0.3596	0.0000	103.8059	103.8059	0.0325	0.0000	104.6193
Maximum	**0.2645**	**2.7374**	**1.3569**	**2.3600e-003**	**1.0913**	**0.1435**	**1.2348**	**0.5978**	**0.1320**	**0.7298**	**0.0000**	**212.2627**	**212.2627**	**0.0651**	**0.0000**	**213.8899**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.06**	**0.00**	**0.05**	**0.03**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-17-2019**	**10-16-2019**	1.6441	1.6441
2	**10-17-2019**	**1-16-2020**	1.6247	1.6247
3	**1-17-2020**	**4-16-2020**	1.1321	1.1321
		Highest	1.6441	1.6441

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0598	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Energy	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	4,619.0251	4,619.0251	0.1779	0.0603	4,641.4440
Mobile	0.9301	7.5633	7.6537	0.0370	1.8751	0.0164	1.8915	0.5180	0.0155	0.5335	0.0000	3,525.3253	3,525.3253	0.2451	0.0000	3,531.4537
Waste						0.0000	0.0000		0.0000	0.0000	251.9950	0.0000	251.9950	14.8925	0.0000	624.3070
Water						0.0000	0.0000		0.0000	0.0000	40.6026	235.0189	275.6215	0.1513	0.0907	306.4284
Total	**9.1551**	**9.1799**	**25.9855**	**0.0470**	**1.8751**	**0.2292**	**2.1042**	**0.5180**	**0.2283**	**0.7463**	**292.5976**	**8,408.4291**	**8,701.0267**	**15.4945**	**0.1510**	**9,133.3844**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0598	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Energy	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	1,758.6933	1,758.6933	0.0374	0.0312	1,768.9354
Mobile	0.8524	7.1910	6.7575	0.0322	1.5938	0.0142	1.6080	0.4403	0.0134	0.4537	0.0000	3,063.3562	3,063.3562	0.2186	0.0000	3,068.8218
Waste						0.0000	0.0000		0.0000	0.0000	251.9950	0.0000	251.9950	14.8925	0.0000	624.3070
Water						0.0000	0.0000		0.0000	0.0000	32.4821	199.4008	231.8829	0.1216	0.0727	256.5769
Total	**9.0774**	**8.8076**	**25.0894**	**0.0421**	**1.5938**	**0.2270**	**1.8208**	**0.4403**	**0.2262**	**0.6665**	**284.4771**	**5,050.5101**	**5,334.9872**	**15.2978**	**0.1039**	**5,748.3925**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.85**	**4.06**	**3.45**	**10.35**	**15.00**	**0.97**	**13.47**	**15.00**	**0.92**	**10.69**	**2.78**	**39.94**	**38.69**	**1.27**	**31.19**	**37.06**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,585.9200
Vegetation Land Change	-1,083.2754
Total	**502.6446**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Placeholder (see Construction model for Construction Emissions)	Site Preparation	7/17/2019	3/24/2020	5	180	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Placeholder (see Construction model for Construction Emissions)	Rubber Tired Dozers	3	8.00	247	0.40
Placeholder (see Construction model for Construction Emissions)	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Placeholder (see Construction model for	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Placeholder (see Construction model for Construction Emissions) - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0840	0.0000	1.0840	0.5958	0.0000	0.5958	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2601	2.7344	1.3238	2.2800e-003		0.1434	0.1434		0.1320	0.1320	0.0000	205.0121	205.0121	0.0649	0.0000	206.6337
Total	**0.2601**	**2.7344**	**1.3238**	**2.2800e-003**	**1.0840**	**0.1434**	**1.2274**	**0.5958**	**0.1320**	**0.7278**	**0.0000**	**205.0121**	**205.0121**	**0.0649**	**0.0000**	**206.6337**

3.2 Placeholder (see Construction model for Construction Emissions) - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3700e-003	3.0700e-003	0.0331	8.0000e-005	7.9300e-003	6.0000e-005	7.9900e-003	2.1100e-003	5.0000e-005	2.1600e-003	0.0000	7.2508	7.2508	2.3000e-004	0.0000	7.2565
Total	**4.3700e-003**	**3.0700e-003**	**0.0331**	**8.0000e-005**	**7.9300e-003**	**6.0000e-005**	**7.9900e-003**	**2.1100e-003**	**5.0000e-005**	**2.1600e-003**	**0.0000**	**7.2508**	**7.2508**	**2.3000e-004**	**0.0000**	**7.2565**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0840	0.0000	1.0840	0.5958	0.0000	0.5958	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2601	2.7344	1.3238	2.2800e-003		0.1434	0.1434		0.1320	0.1320	0.0000	205.0119	205.0119	0.0649	0.0000	206.6335
Total	**0.2601**	**2.7344**	**1.3238**	**2.2800e-003**	**1.0840**	**0.1434**	**1.2274**	**0.5958**	**0.1320**	**0.7278**	**0.0000**	**205.0119**	**205.0119**	**0.0649**	**0.0000**	**206.6335**

3.2 Placeholder (see Construction model for Construction Emissions) - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3700e-003	3.0700e-003	0.0331	8.0000e-005	7.3100e-003	6.0000e-005	7.3700e-003	1.9600e-003	5.0000e-005	2.0100e-003	0.0000	7.2508	7.2508	2.3000e-004	0.0000	7.2565
Total	**4.3700e-003**	**3.0700e-003**	**0.0331**	**8.0000e-005**	**7.3100e-003**	**6.0000e-005**	**7.3700e-003**	**1.9600e-003**	**5.0000e-005**	**2.0100e-003**	**0.0000**	**7.2508**	**7.2508**	**2.3000e-004**	**0.0000**	**7.2565**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5420	0.0000	0.5420	0.2979	0.0000	0.2979	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1223	1.2725	0.6454	1.1400e-003		0.0659	0.0659		0.0607	0.0607	0.0000	100.2920	100.2920	0.0324	0.0000	101.1030
Total	**0.1223**	**1.2725**	**0.6454**	**1.1400e-003**	**0.5420**	**0.0659**	**0.6079**	**0.2979**	**0.0607**	**0.3586**	**0.0000**	**100.2920**	**100.2920**	**0.0324**	**0.0000**	**101.1030**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0100e-003	1.3600e-003	0.0150	4.0000e-005	3.9700e-003	3.0000e-005	3.9900e-003	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	3.5140	3.5140	1.0000e-004	0.0000	3.5165
Total	**2.0100e-003**	**1.3600e-003**	**0.0150**	**4.0000e-005**	**3.9700e-003**	**3.0000e-005**	**3.9900e-003**	**1.0500e-003**	**3.0000e-005**	**1.0800e-003**	**0.0000**	**3.5140**	**3.5140**	**1.0000e-004**	**0.0000**	**3.5165**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5420	0.0000	0.5420	0.2979	0.0000	0.2979	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1223	1.2725	0.6454	1.1400e-003		0.0659	0.0659		0.0607	0.0607	0.0000	100.2919	100.2919	0.0324	0.0000	101.1028
Total	**0.1223**	**1.2725**	**0.6454**	**1.1400e-003**	**0.5420**	**0.0659**	**0.6079**	**0.2979**	**0.0607**	**0.3586**	**0.0000**	**100.2919**	**100.2919**	**0.0324**	**0.0000**	**101.1028**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0100e-003	1.3600e-003	0.0150	4.0000e-005	3.6600e-003	3.0000e-005	3.6900e-003	9.8000e-004	3.0000e-005	1.0100e-003	0.0000	3.5140	3.5140	1.0000e-004	0.0000	3.5165
Total	**2.0100e-003**	**1.3600e-003**	**0.0150**	**4.0000e-005**	**3.6600e-003**	**3.0000e-005**	**3.6900e-003**	**9.8000e-004**	**3.0000e-005**	**1.0100e-003**	**0.0000**	**3.5140**	**3.5140**	**1.0000e-004**	**0.0000**	**3.5165**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement NEV Network

Expand Transit Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8524	7.1910	6.7575	0.0322	1.5938	0.0142	1.6080	0.4403	0.0134	0.4537	0.0000	3,063.3562	3,063.3562	0.2186	0.0000	3,068.8218
Unmitigated	0.9301	7.5633	7.6537	0.0370	1.8751	0.0164	1.8915	0.5180	0.0155	0.5335	0.0000	3,525.3253	3,525.3253	0.2451	0.0000	3,531.4537

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	199.95	199.95	199.95	513,093	461,784
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	156.48	156.48	156.48	218,650	196,785
Retirement Community	21.28	21.28	21.28	54,607	49,146
Retirement Community	412.72	412.72	412.72	1,059,085	953,176
Single Family Housing	1,117.20	1,117.20	1117.20	2,866,857	2,580,171
Total	1,907.63	1,907.63	1,907.63	4,712,292	4,241,063

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
City Park	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
Parking Lot	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
Regional Shopping Center	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
Retirement Community	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
Single Family Housing	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Percent of Electricity Use Generated with Renewable Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	123.9311	123.9311	6.0900e-003	1.2600e-003	124.4587
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,984.2630	2,984.2630	0.1466	0.0303	2,996.9672
NaturalGas Mitigated	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	1,634.7622	1,634.7622	0.0313	0.0300	1,644.4768
NaturalGas Unmitigated	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	1,634.7622	1,634.7622	0.0313	0.0300	1,644.4768

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.09584e+006	0.0113	0.0966	0.0411	6.2000e-004		7.8100e-003	7.8100e-003		7.8100e-003	7.8100e-003	0.0000	111.8421	111.8421	2.1400e-003	2.0500e-003	112.5067
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	173440	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2554	9.2554	1.8000e-004	1.7000e-004	9.3104
Retirement Community	459751	2.4800e-003	0.0212	9.0100e-003	1.4000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.5341	24.5341	4.7000e-004	4.5000e-004	24.6799
Retirement Community	8.91676e+006	0.0481	0.4109	0.1748	2.6200e-003		0.0332	0.0332		0.0332	0.0332	0.0000	475.8321	475.8321	9.1200e-003	8.7200e-003	478.6597
Single Family Housing	1.89885e+007	0.1024	0.8750	0.3723	5.5800e-003		0.0707	0.0707		0.0707	0.0707	0.0000	1,013.2985	1,013.2985	0.0194	0.0186	1,019.3201
Total		**0.1652**	**1.4121**	**0.6044**	**9.0100e-003**		**0.1141**	**0.1141**		**0.1141**	**0.1141**	**0.0000**	**1,634.7622**	**1,634.7622**	**0.0313**	**0.0300**	**1,644.4768**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.09584e+006	0.0113	0.0966	0.0411	6.2000e-004		7.8100e-003	7.8100e-003		7.8100e-003	7.8100e-003	0.0000	111.8421	111.8421	2.1400e-003	2.0500e-003	112.5067
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	173440	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2554	9.2554	1.8000e-004	1.7000e-004	9.3104
Retirement Community	459751	2.4800e-003	0.0212	9.0100e-003	1.4000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.5341	24.5341	4.7000e-004	4.5000e-004	24.6799
Retirement Community	8.91676e+006	0.0481	0.4109	0.1748	2.6200e-003		0.0332	0.0332		0.0332	0.0332	0.0000	475.8321	475.8321	9.1200e-003	8.7200e-003	478.6597
Single Family Housing	1.89885e+007	0.1024	0.8750	0.3723	5.5800e-003		0.0707	0.0707		0.0707	0.0707	0.0000	1,013.2985	1,013.2985	0.0194	0.0186	1,019.3201
Total		**0.1652**	**1.4121**	**0.6044**	**9.0100e-003**		**0.1141**	**0.1141**		**0.1141**	**0.1141**	**0.0000**	**1,634.7622**	**1,634.7622**	**0.0313**	**0.0300**	**1,644.4768**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	915139	245.0377	0.0120	2.4900e-003	246.0808
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	22869	6.1234	3.0000e-004	6.0000e-005	6.1495
Regional Shopping Center	370240	99.1355	4.8700e-003	1.0100e-003	99.5575
Retirement Community	178029	47.6691	2.3400e-003	4.8000e-004	47.8721
Retirement Community	3.45283e+006	924.5302	0.0454	9.4000e-003	928.4660
Single Family Housing	6.20618e+006	1,661.7670	0.0816	0.0169	1,668.8413
Total		**2,984.2630**	**0.1466**	**0.0303**	**2,996.9672**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	38916.9	10.4204	5.1000e-004	1.1000e-004	10.4647
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	325.883	0.0873	0.0000	0.0000	0.0876
Regional Shopping Center	12167.3	3.2579	1.6000e-004	3.0000e-005	3.2718
Retirement Community	142243	38.0870	1.8700e-003	3.9000e-004	38.2491
Retirement Community	7334.1	1.9638	1.0000e-004	2.0000e-005	1.9721
Single Family Housing	261857	70.1147	3.4400e-003	7.1000e-004	70.4132
Total		**123.9311**	**6.0800e-003**	**1.2600e-003**	**124.4586**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Non-Residential Interior

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.0598	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Unmitigated	8.0598	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9253					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.6045					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5301	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Total	**8.0598**	**0.2045**	**17.7274**	**9.4000e-004**		**0.0987**	**0.0987**		**0.0987**	**0.0987**	**0.0000**	**29.0598**	**29.0598**	**0.0277**	**0.0000**	**29.7514**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9253					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.6045					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5301	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Total	**8.0598**	**0.2045**	**17.7274**	**9.4000e-004**		**0.0987**	**0.0987**		**0.0987**	**0.0987**	**0.0000**	**29.0598**	**29.0598**	**0.0277**	**0.0000**	**29.7514**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Turf Reduction

Use Water Efficient Irrigation System

The Ranch - City of Rancho Cordova (Full Buildout - 2035 - Operational Only - without passenger cars - Sacramento County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	231.8829	0.1216	0.0727	256.5769
Unmitigated	275.6215	0.1513	0.0907	306.4284

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.0081 / 8.8312	31.9212	0.0184	0.0111	35.6742
City Park	0 / 15.0961	14.1474	7.0000e-004	1.4000e-004	14.2077
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	2.37032 / 1.45278	5.3625	3.1100e-003	1.8700e-003	5.9973
Retirement Community	50.4944 / 31.8334	115.0646	0.0663	0.0398	128.5931
Single Family Housing	47.8882 / 30.1904	109.1258	0.0628	0.0378	121.9560
Total		**275.6215**	**0.1513**	**0.0907**	**306.4284**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	11.2065 / 8.2925	26.6873	0.0148	8.8500e-003	29.6947
City Park	0 / 14.1752	13.2844	6.5000e-004	1.4000e-004	13.3410
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.89626 / 1.36416	4.4792	2.5000e-003	1.5000e-003	4.9879
Retirement Community	40.3955 / 29.8916	96.1985	0.0532	0.0319	107.0389
Single Family Housing	38.3106 / 28.3488	91.2334	0.0505	0.0303	101.5143
Total		**231.8829**	**0.1216**	**0.0727**	**256.5769**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	251.9950	14.8925	0.0000	624.3070
Unmitigated	251.9950	14.8925	0.0000	624.3070

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	98.9	20.0758	1.1865	0.0000	49.7370
City Park	1.09	0.2213	0.0131	0.0000	0.5482
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	33.6	6.8205	0.4031	0.0000	16.8975
Retirement Community	356.5	72.3663	4.2767	0.0000	179.2844
Single Family Housing	751.32	152.5112	9.0132	0.0000	377.8400
Total		**251.9950**	**14.8925**	**0.0000**	**624.3070**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	98.9	20.0758	1.1865	0.0000	49.7370
City Park	1.09	0.2213	0.0131	0.0000	0.5482
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	33.6	6.8205	0.4031	0.0000	16.8975
Retirement Community	356.5	72.3663	4.2767	0.0000	179.2844
Single Family Housing	751.32	152.5112	9.0132	0.0000	377.8400
Total		**251.9950**	**14.8925**	**0.0000**	**624.3070**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	502.6446	0.0000	0.0000	502.6446

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	530.1 / 278.76	-1,083.2754	0.0000	0.0000	-1,083.2754
Total		**-1,083.2754**	**0.0000**	**0.0000**	**-1,083.2754**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2240	1,585.9200	0.0000	0.0000	1,585.9200
Total		**1,585.9200**	**0.0000**	**0.0000**	**1,585.9200**

The Ranch (Full Buildout - 2035 - Operational Only - without passenger vehicles_mitigated

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Other Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0
Parking Lot	1.50	Acre	1.50	65,340.00	0
City Park	9.10	Acre	9.28	396,396.00	0
City Park	3.07	Acre	3.69	133,729.20	0
City Park	0.50	Acre	1.40	21,780.00	0
Apartments Mid Rise	215.00	Dwelling Unit	7.17	215,000.00	621
Retirement Community	38.00	Dwelling Unit	1.26	38,000.00	78
Retirement Community	737.00	Dwelling Unit	90.91	737,000.00	1533
Single Family Housing	735.00	Dwelling Unit	77.87	1,323,000.00	2087
Regional Shopping Center	32.00	1000sqft	5.16	32,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2035
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Buildout Year: 2035

Land Use - Land use info as provided by the unit counts/gross acres/sf provided by applicant. 8,000sf restroom is in the 9.1acre park. 21,000sf clubhouse/restroom is incl. in the 3.07ac city park. Pop. as provided in the Pop & Housing section of the EIR.

Construction Phase - Note - constructed not modeled under this (operational) scenario.

Off-road Equipment -

Trips and VMT -

Grading - Assumes whole project site is graded (except for protected areas) = 319.9 acres. 152,708 CY of material exported from project site (as provided by the Project Applicant).

Architectural Coating -

Vehicle Trips - Trip rates used from Traffic Impact Memo (June, 2019), inclusive of average internal capture rate the traffic consultant applied to AM and PM peak hours. Park trips are assumed to be accounted for by the land uses provided in the Traffic Impact Memo.

Road Dust - Project will not have unpaved roads during the project's operational phase. Since the project is in the SMAQMD jursidiction, project uses the CARB's 2.0 and 0.2 method (per CalEEMod User Guidebook).

Woodstoves - No fireplaces.

Consumer Products - 'General Category' consumer products EF red. by 29.1% - reflects project person/du value (2.504) vs. statewide avg. (2.97) and latest statewide data (ARB).

Area Coating - Maximum 50 g/l for flat coatings SMAQMD Rule 442. Assume flat coatings are used for interior coatings.

Landscape Equipment -

Energy Use -

Land Use Change - Assumes residential, commercial, and right-of-way are converted from grassland. Total acres = 530.1 - 77.87 - 90.91 - 7.17 - 5.16 - 32.3 - 20.59 - 17.34 = 278.76 acres

Sequestration - Approximately 2,240 new trees planted as part of the project (provided by project applicant).

Construction Off-road Equipment Mitigation - NOTE: This model run reflects operational emissions only.

Mobile Land Use Mitigation - Density = ~6.86 du/acre. Increase walkability design (123.53 int/sq. mile). Improve ped network. Provide traffic calming (50%/50%). 100% increase in transit coverage (current coverage=0). Provide Transit Accessibility (0.25 mile)

Mobile Commute Mitigation - Mitigation: Implement Trip Reduction Program (100% employee eligilbe; voluntary).

Area Mitigation - No hearths are to be installed as part of the proposed project. Flat (i.e. non-reflective) paints are assumed for projects building interiors. (see SMAQMD Rule 442 - maximum VOC content for flat paints is 50 g/L).

Energy Mitigation - High-efficiency lighting (LEDs) (71.5% improvement). EE appliances. 95% electricity generated via renewables (on-site or SMUD contract). Mitigation: Exceed Title 24 by 2%.

Water Mitigation - Install low-floor indoor water use fixtures, and use water-efficient irrigation systems (=current version of Title 24). Mitigation: Apply water conservation strategy (50% native or drought-resistant trees outdoors - assume 25% reduction outdoor).

Fleet Mix - Mobile vehicle trips updated to remove passenger cars and light-duty trucks, per SB 375.

The Ranch (Full Buildout - 2035 - Operational Only - without passenger vehicles_mitigated - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Residential_Interior	100	50
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConsumerProducts	ROG_EF	2.14E-05	1.52E-05
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	HHD	0.03	0.15
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDA	0.58	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.00

tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LDT2	0.21	0.00
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD1	0.01	0.06
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	LHD2	4.3250e-003	0.02
tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MCY	5.3920e-003	0.03

tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MCY	5.3920e-003	0.03
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MDV	0.10	0.60
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MH	5.6600e-004	3.2479e-003
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	MHD	0.02	0.11
tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	OBUS	1.8520e-003	0.01

tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	OBUS	1.8520e-003	0.01
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	SBUS	5.9800e-004	3.4315e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblFleetMix	UBUS	1.3620e-003	7.8155e-003
tblLandUse	LotAcreage	0.50	1.40
tblLandUse	LotAcreage	3.07	3.69
tblLandUse	LotAcreage	9.10	9.28
tblLandUse	LotAcreage	5.66	7.17
tblLandUse	LotAcreage	7.60	1.26
tblLandUse	LotAcreage	147.40	90.91
tblLandUse	LotAcreage	238.64	77.87
tblLandUse	LotAcreage	0.73	5.16
tblLandUse	Population	574.00	621.00
tblLandUse	Population	101.00	78.00

tblLandUse	Population	1,968.00	1,533.00
tblLandUse	Population	1,962.00	2,087.00
tblSequestration	NumberOfNewTrees	0.00	2,240.00
tblVehicleTrips	ST_TR	6.39	0.93
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	49.97	4.89
tblVehicleTrips	ST_TR	2.03	0.56
tblVehicleTrips	ST_TR	9.91	1.52
tblVehicleTrips	SU_TR	5.86	0.93
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	25.24	4.89
tblVehicleTrips	SU_TR	1.95	0.56
tblVehicleTrips	SU_TR	8.62	1.52
tblVehicleTrips	WD_TR	6.65	0.93
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	42.70	4.89
tblVehicleTrips	WD_TR	2.40	0.56
tblVehicleTrips	WD_TR	9.52	1.52

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3729	3.8217	1.9811	3.5400e-003	1.6379	0.1979	1.8357	0.8969	0.1820	1.0790	0.0000	311.4180	311.4180	0.0976	0.0000	313.8582
Maximum	**0.3729**	**3.8217**	**1.9811**	**3.5400e-003**	**1.6379**	**0.1979**	**1.8357**	**0.8969**	**0.1820**	**1.0790**	**0.0000**	**311.4180**	**311.4180**	**0.0976**	**0.0000**	**313.8582**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3729	3.8216	1.9811	3.5400e-003	1.6369	0.1979	1.8348	0.8967	0.1820	1.0787	0.0000	311.4177	311.4177	0.0976	0.0000	313.8579
Maximum	**0.3729**	**3.8216**	**1.9811**	**3.5400e-003**	**1.6369**	**0.1979**	**1.8348**	**0.8967**	**0.1820**	**1.0787**	**0.0000**	**311.4177**	**311.4177**	**0.0976**	**0.0000**	**313.8579**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.06**	**0.00**	**0.05**	**0.03**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2020**	**3-31-2020**	1.5150	1.5150
2	**4-1-2020**	**6-30-2020**	1.5149	1.5149
3	**7-1-2020**	**9-30-2020**	1.1653	1.1653
		Highest	1.5150	1.5150

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.1240	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Energy	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	4,619.0251	4,619.0251	0.1779	0.0603	4,641.4440
Mobile	0.9301	7.5633	7.6537	0.0370	1.8751	0.0164	1.8915	0.5180	0.0155	0.5335	0.0000	3,525.3253	3,525.3253	0.2451	0.0000	3,531.4537
Waste						0.0000	0.0000		0.0000	0.0000	251.9950	0.0000	251.9950	14.8925	0.0000	624.3070
Water						0.0000	0.0000		0.0000	0.0000	40.6026	235.0189	275.6215	0.1513	0.0907	306.4284
Total	**9.2193**	**9.1799**	**25.9855**	**0.0470**	**1.8751**	**0.2292**	**2.1042**	**0.5180**	**0.2283**	**0.7463**	**292.5976**	**8,408.4291**	**8,701.0267**	**15.4945**	**0.1510**	**9,133.3844**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.1240	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Energy	0.1624	1.3882	0.5942	8.8600e-003		0.1122	0.1122		0.1122	0.1122	0.0000	1,730.6825	1,730.6825	0.0369	0.0307	1,740.7587
Mobile	0.8387	7.1256	6.6003	0.0313	1.5445	0.0138	1.5582	0.4267	0.0130	0.4397	0.0000	2,982.3026	2,982.3026	0.2140	0.0000	2,987.6519
Waste						0.0000	0.0000		0.0000	0.0000	251.9950	0.0000	251.9950	14.8925	0.0000	624.3070
Water						0.0000	0.0000		0.0000	0.0000	40.6026	214.5410	255.1436	0.1503	0.0905	285.8633
Total	**9.1251**	**8.7183**	**24.9219**	**0.0411**	**1.5445**	**0.2246**	**1.7691**	**0.4267**	**0.2239**	**0.6506**	**292.5976**	**4,956.5859**	**5,249.1836**	**15.3213**	**0.1212**	**5,668.3324**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.02**	**5.03**	**4.09**	**12.48**	**17.63**	**1.99**	**15.93**	**17.63**	**1.94**	**12.83**	**0.00**	**41.05**	**39.67**	**1.12**	**19.73**	**37.94**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,585.9200
Vegetation Land Change	-1,083.2754
Total	**502.6446**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Placeholder (see Construction model for Construction Emissions)	Site Preparation	1/1/2020	9/8/2020	5	180	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Placeholder (see Construction model for Construction Emissions)	Rubber Tired Dozers	3	8.00	247	0.40
Placeholder (see Construction model for Construction Emissions)	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Placeholder (see Construction model for	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6260	0.0000	1.6260	0.8938	0.0000	0.8938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3669	3.8176	1.9362	3.4200e-003		0.1978	0.1978		0.1820	0.1820	0.0000	300.8761	300.8761	0.0973	0.0000	303.3089
Total	**0.3669**	**3.8176**	**1.9362**	**3.4200e-003**	**1.6260**	**0.1978**	**1.8237**	**0.8938**	**0.1820**	**1.0757**	**0.0000**	**300.8761**	**300.8761**	**0.0973**	**0.0000**	**303.3089**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0300e-003	4.0900e-003	0.0448	1.2000e-004	0.0119	9.0000e-005	0.0120	3.1600e-003	8.0000e-005	3.2400e-003	0.0000	10.5419	10.5419	3.0000e-004	0.0000	10.5494
Total	**6.0300e-003**	**4.0900e-003**	**0.0448**	**1.2000e-004**	**0.0119**	**9.0000e-005**	**0.0120**	**3.1600e-003**	**8.0000e-005**	**3.2400e-003**	**0.0000**	**10.5419**	**10.5419**	**3.0000e-004**	**0.0000**	**10.5494**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6260	0.0000	1.6260	0.8938	0.0000	0.8938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3669	3.8176	1.9362	3.4200e-003		0.1978	0.1978		0.1820	0.1820	0.0000	300.8758	300.8758	0.0973	0.0000	303.3085
Total	**0.3669**	**3.8176**	**1.9362**	**3.4200e-003**	**1.6260**	**0.1978**	**1.8237**	**0.8938**	**0.1820**	**1.0757**	**0.0000**	**300.8758**	**300.8758**	**0.0973**	**0.0000**	**303.3085**

3.2 Placeholder (see Construction model for Construction Emissions) - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0300e-003	4.0900e-003	0.0448	1.2000e-004	0.0110	9.0000e-005	0.0111	2.9400e-003	8.0000e-005	3.0200e-003	0.0000	10.5419	10.5419	3.0000e-004	0.0000	10.5494
Total	**6.0300e-003**	**4.0900e-003**	**0.0448**	**1.2000e-004**	**0.0110**	**9.0000e-005**	**0.0111**	**2.9400e-003**	**8.0000e-005**	**3.0200e-003**	**0.0000**	**10.5419**	**10.5419**	**3.0000e-004**	**0.0000**	**10.5494**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement NEV Network

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8387	7.1256	6.6003	0.0313	1.5445	0.0138	1.5582	0.4267	0.0130	0.4397	0.0000	2,982.3026	2,982.3026	0.2140	0.0000	2,987.6519
Unmitigated	0.9301	7.5633	7.6537	0.0370	1.8751	0.0164	1.8915	0.5180	0.0155	0.5335	0.0000	3,525.3253	3,525.3253	0.2451	0.0000	3,531.4537

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	199.95	199.95	199.95	513,093	447,722
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	156.48	156.48	156.48	218,650	188,624
Retirement Community	21.28	21.28	21.28	54,607	47,650
Retirement Community	412.72	412.72	412.72	1,059,085	924,151
Single Family Housing	1,117.20	1,117.20	1117.20	2,866,857	2,501,603
Total	1,907.63	1,907.63	1,907.63	4,712,292	4,109,750

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Regional Shopping Center	10.00	5.00	6.50	16.30	64.70	19.00	54	35	11
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Retirement Community	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
City Park	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
Other Asphalt Surfaces	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
Parking Lot	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
Regional Shopping Center	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
Retirement Community	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248
Single Family Housing	0.000000	0.000000	0.000000	0.599599	0.060987	0.024818	0.107513	0.151020	0.010627	0.007816	0.030941	0.003431	0.003248

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Percent of Electricity Use Generated with Renewable Energy

Install Energy Efficient Appliances

The Ranch (Full Buildout - 2035 - Operational Only - without passenger vehicles_mitigated - Sacramento County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	123.6369	123.6369	6.0700e-003	1.2600e-003	124.1632
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,984.2630	2,984.2630	0.1466	0.0303	2,996.9672
NaturalGas Mitigated	0.1624	1.3882	0.5942	8.8600e-003		0.1122	0.1122		0.1122	0.1122	0.0000	1,607.0456	1,607.0456	0.0308	0.0295	1,616.5955
NaturalGas Unmitigated	0.1652	1.4121	0.6044	9.0100e-003		0.1141	0.1141		0.1141	0.1141	0.0000	1,634.7622	1,634.7622	0.0313	0.0300	1,644.4768

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.09584e+006	0.0113	0.0966	0.0411	6.2000e-004		7.8100e-003	7.8100e-003		7.8100e-003	7.8100e-003	0.0000	111.8421	111.8421	2.1400e-003	2.0500e-003	112.5067
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	173440	9.4000e-004	8.5000e-003	7.1400e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.2554	9.2554	1.8000e-004	1.7000e-004	9.3104
Retirement Community	459751	2.4800e-003	0.0212	9.0100e-003	1.4000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.5341	24.5341	4.7000e-004	4.5000e-004	24.6799
Retirement Community	8.91676e+006	0.0481	0.4109	0.1748	2.6200e-003		0.0332	0.0332		0.0332	0.0332	0.0000	475.8321	475.8321	9.1200e-003	8.7200e-003	478.6597
Single Family Housing	1.89885e+007	0.1024	0.8750	0.3723	5.5800e-003		0.0707	0.0707		0.0707	0.0707	0.0000	1,013.2985	1,013.2985	0.0194	0.0186	1,019.3201
Total		**0.1652**	**1.4121**	**0.6044**	**9.0100e-003**		**0.1141**	**0.1141**		**0.1141**	**0.1141**	**0.0000**	**1,634.7622**	**1,634.7622**	**0.0313**	**0.0300**	**1,644.4768**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.06548e+006	0.0111	0.0952	0.0405	6.1000e-004		7.6900e-003	7.6900e-003		7.6900e-003	7.6900e-003	0.0000	110.2218	110.2218	2.1100e-003	2.0200e-003	110.8768
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	170566	9.2000e-004	8.3600e-003	7.0200e-003	5.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	9.1021	9.1021	1.7000e-004	1.7000e-004	9.1562
Retirement Community	452598	2.4400e-003	0.0209	8.8700e-003	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003	0.0000	24.1524	24.1524	4.6000e-004	4.4000e-004	24.2959
Retirement Community	8.77803e+006	0.0473	0.4045	0.1721	2.5800e-003		0.0327	0.0327		0.0327	0.0327	0.0000	468.4290	468.4290	8.9800e-003	8.5900e-003	471.2126
Single Family Housing	1.86482e+007	0.1006	0.8593	0.3657	5.4800e-003		0.0695	0.0695		0.0695	0.0695	0.0000	995.1404	995.1404	0.0191	0.0182	1,001.0540
Total		**0.1624**	**1.3882**	**0.5942**	**8.8500e-003**		**0.1122**	**0.1122**		**0.1122**	**0.1122**	**0.0000**	**1,607.0456**	**1,607.0456**	**0.0308**	**0.0295**	**1,616.5955**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	915139	245.0377	0.0120	2.4900e-003	246.0808
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	22869	6.1234	3.0000e-004	6.0000e-005	6.1495
Regional Shopping Center	370240	99.1355	4.8700e-003	1.0100e-003	99.5575
Retirement Community	178029	47.6691	2.3400e-003	4.8000e-004	47.8721
Retirement Community	3.45283e+006	924.5302	0.0454	9.4000e-003	928.4660
Single Family Housing	6.20618e+006	1,661.7670	0.0816	0.0169	1,668.8413
Total		**2,984.2630**	**0.1466**	**0.0303**	**2,996.9672**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	38817.8	10.3939	5.1000e-004	1.1000e-004	10.4381
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	325.883	0.0873	0.0000	0.0000	0.0876
Regional Shopping Center	12063	3.2300	1.6000e-004	3.0000e-005	3.2437
Retirement Community	141866	37.9861	1.8700e-003	3.9000e-004	38.1478
Retirement Community	7314.68	1.9586	1.0000e-004	2.0000e-005	1.9669
Single Family Housing	261358	69.9811	3.4400e-003	7.1000e-004	70.2790
Total		**123.6369**	**6.0800e-003**	**1.2600e-003**	**124.1632**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Non-Residential Interior

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.1240	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Unmitigated	8.1240	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9314					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.6625					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5301	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Total	**8.1240**	**0.2045**	**17.7274**	**9.4000e-004**		**0.0987**	**0.0987**		**0.0987**	**0.0987**	**0.0000**	**29.0598**	**29.0598**	**0.0277**	**0.0000**	**29.7514**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9314					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.6625					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5301	0.2045	17.7274	9.4000e-004		0.0987	0.0987		0.0987	0.0987	0.0000	29.0598	29.0598	0.0277	0.0000	29.7514
Total	**8.1240**	**0.2045**	**17.7274**	**9.4000e-004**		**0.0987**	**0.0987**		**0.0987**	**0.0987**	**0.0000**	**29.0598**	**29.0598**	**0.0277**	**0.0000**	**29.7514**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Turf Reduction

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	255.1436	0.1503	0.0905	285.8633
Unmitigated	275.6215	0.1513	0.0907	306.4284

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.0081 / 8.8312	31.9212	0.0184	0.0111	35.6742
City Park	0 / 15.0961	14.1474	7.0000e-004	1.4000e-004	14.2077
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	2.37032 / 1.45278	5.3625	3.1100e-003	1.8700e-003	5.9973
Retirement Community	50.4944 / 31.8334	115.0646	0.0663	0.0398	128.5931
Single Family Housing	47.8882 / 30.1904	109.1258	0.0628	0.0378	121.9560
Total		**275.6215**	**0.1513**	**0.0907**	**306.4284**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.0081 / 6.6234	29.8521	0.0183	0.0110	33.5963
City Park	0 / 11.3221	10.6106	5.2000e-004	1.1000e-004	10.6558
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	2.37032 / 1.08958	5.0221	3.0900e-003	1.8700e-003	5.6555
Retirement Community	50.4944 / 23.8751	107.6064	0.0659	0.0398	121.1031
Single Family Housing	47.8882 / 22.6428	102.0525	0.0625	0.0377	114.8526
Total		**255.1436**	**0.1503**	**0.0905**	**285.8633**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	251.9950	14.8925	0.0000	624.3070
Unmitigated	251.9950	14.8925	0.0000	624.3070

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	98.9	20.0758	1.1865	0.0000	49.7370
City Park	1.09	0.2213	0.0131	0.0000	0.5482
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	33.6	6.8205	0.4031	0.0000	16.8975
Retirement Community	356.5	72.3663	4.2767	0.0000	179.2844
Single Family Housing	751.32	152.5112	9.0132	0.0000	377.8400
Total		**251.9950**	**14.8925**	**0.0000**	**624.3070**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	98.9	20.0758	1.1865	0.0000	49.7370
City Park	1.09	0.2213	0.0131	0.0000	0.5482
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	33.6	6.8205	0.4031	0.0000	16.8975
Retirement Community	356.5	72.3663	4.2767	0.0000	179.2844
Single Family Housing	751.32	152.5112	9.0132	0.0000	377.8400
Total		**251.9950**	**14.8925**	**0.0000**	**624.3070**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	502.6446	0.0000	0.0000	502.6446

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	530.1 / 278.76	-1,083.2754	0.0000	0.0000	-1,083.2754
Total		**-1,083.2754**	**0.0000**	**0.0000**	**-1,083.2754**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2240	1,585.9200	0.0000	0.0000	1,585.9200
Total		**1,585.9200**	**0.0000**	**0.0000**	**1,585.9200**

APPENDIX B.2

Energy Outputs

EMFAC2014 (v1.0.7) Emissions Inventory
Region Type: County
Region: Sacramento
Calendar Year: 2035
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	Fuel_Consumption	MPG (derived)	
Sacramento	2035	All Other Buses	Aggregated	Aggregated	DSL	22233.66	2.629344999		
Sacramento	2035	LDA	Aggregated	Aggregated	GAS	21630456	524.4026837	**41.24779877**	
Sacramento	2035	LDA	Aggregated	Aggregated	DSL	295175.2	5.525945641		
Sacramento	2035	LDA	Aggregated	Aggregated	ELEC	3613908	0		
Sacramento	2035	LDT1	Aggregated	Aggregated	GAS	1498183	40.0111262	**37.44416099**	
Sacramento	2035	LDT1	Aggregated	Aggregated	DSL	1041.248	0.025198955		
Sacramento	2035	LDT1	Aggregated	Aggregated	ELEC	753.5268	0		
Sacramento	2035	LDT2	Aggregated	Aggregated	GAS	9369721	287.5059548	**32.58965998**	
Sacramento	2035	LDT2	Aggregated	Aggregated	DSL	20355.85	0.480150984		
Sacramento	2035	LHD1	Aggregated	Aggregated	GAS	178591.3	17.56600187		
Sacramento	2035	LHD1	Aggregated	Aggregated	DSL	290299.3	15.29068844	**18.98536748**	
Sacramento	2035	LHD2	Aggregated	Aggregated	GAS	55252.36	5.922458785		
Sacramento	2035	LHD2	Aggregated	Aggregated	DSL	135547.3	7.858518794	**17.24844976**	
Sacramento	2035	MCY	Aggregated	Aggregated	GAS	237894.5	6.406546433	**37.13303538**	
Sacramento	2035	MDV	Aggregated	Aggregated	GAS	4487432	185.1691305	**24.23423229**	
Sacramento	2035	MDV	Aggregated	Aggregated	DSL	122499.7	3.784733474		
Sacramento	2035	MH	Aggregated	Aggregated	GAS	19459.9	2.807099314	**6.932386617**	
Sacramento	2035	MH	Aggregated	Aggregated	DSL	5491.522	0.554860883		
Sacramento	2035	Motor Coach	Aggregated	Aggregated	DSL	22041.11	3.686475675		
Sacramento	2035	OBUS	Aggregated	Aggregated	GAS	37418.97	5.517001883	**6.782482236**	
Sacramento	2035	PTO	Aggregated	Aggregated	DSL	49875.41	9.05435394	**5.508444614**	
Sacramento	2035	SBUS	Aggregated	Aggregated	GAS	10244.2	0.846198674		
Sacramento	2035	SBUS	Aggregated	Aggregated	DSL	16149.27	2.154132951	**7.49687492**	**T6:**
Sacramento	2035	T6 Ag	Aggregated	Aggregated	DSL	17604.19	2.176865766	**8.086941368**	**8.572301**
Sacramento	2035	T6 CAIRP heavy	Aggregated	Aggregated	DSL	3353.228	0.38007424	**8.822560304**	
Sacramento	2035	T6 CAIRP small	Aggregated	Aggregated	DSL	10293.58	1.192148355	**8.634480785**	
Sacramento	2035	T6 instate constru	Aggregated	Aggregated	DSL	16875.89	1.968717561	**8.572023633**	
Sacramento	2035	T6 instate constru	Aggregated	Aggregated	DSL	127164.1	14.8229516	**8.578861636**	
Sacramento	2035	T6 instate heavy	Aggregated	Aggregated	DSL	140552.6	16.08535663	**8.737922544**	
Sacramento	2035	T6 instate small	Aggregated	Aggregated	DSL	355205	41.44553955	**8.570403237**	
Sacramento	2035	T6 OOS heavy	Aggregated	Aggregated	DSL	1921.274	0.217782888	**8.821967531**	
Sacramento	2035	T6 OOS small	Aggregated	Aggregated	DSL	5897.836	0.683056204	**8.634480785**	
Sacramento	2035	T6 Public	Aggregated	Aggregated	DSL	73575.15	8.791280881	**8.36910443**	
Sacramento	2035	T6 utility	Aggregated	Aggregated	DSL	3182.008	0.375832385	**8.466562704**	
Sacramento	2035	T6TS	Aggregated	Aggregated	GAS	70969.79	10.66845248		**T7:**
Sacramento	2035	T7 Ag	Aggregated	Aggregated	DSL	4668.489	0.967866345	**4.823485316**	**6.003096**
Sacramento	2035	T7 CAIRP	Aggregated	Aggregated	DSL	182872.4	27.58909489	**6.628428812**	
Sacramento	2035	T7 CAIRP construc	Aggregated	Aggregated	DSL	11971.63	1.871638272	**6.396337587**	
Sacramento	2035	T7 NNOOS	Aggregated	Aggregated	DSL	226761.9	34.73134382	**6.529028778**	
Sacramento	2035	T7 NOOS	Aggregated	Aggregated	DSL	72234.52	11.0685502	**6.52610537**	
Sacramento	2035	T7 other port	Aggregated	Aggregated	DSL	2376.099	0.349156438	**6.805257463**	
Sacramento	2035	T7 POAK	Aggregated	Aggregated	DSL	6918.384	1.02953255	**6.719927401**	
Sacramento	2035	T7 Public	Aggregated	Aggregated	DSL	123712.5	22.36480724	**5.53157229**	
Sacramento	2035	T7 Single	Aggregated	Aggregated	DSL	251182.5	37.68626982	**6.665093709**	
Sacramento	2035	T7 single construc	Aggregated	Aggregated	DSL	30969.03	4.707855525	**6.578161136**	
Sacramento	2035	T7 SWCV	Aggregated	Aggregated	DSL	39908.37	15.05959535	**2.650029126**	
Sacramento	2035	T7 tractor	Aggregated	Aggregated	DSL	124688.1	18.17126184	**6.861831307**	
Sacramento	2035	T7 tractor constru	Aggregated	Aggregated	DSL	23089.7	3.499250556	**6.598470757**	
Sacramento	2035	T7 utility	Aggregated	Aggregated	DSL	582.755	0.102191568	**5.702573735**	
Sacramento	2035	T7IS	Aggregated	Aggregated	GAS	9270.037	1.842896904	**5.030144288**	
Sacramento	2035	UBUS	Aggregated	Aggregated	GAS	29374.17	5.680473615		
Sacramento	2035	UBUS	Aggregated	Aggregated	DSL	30726.82	5.651887074	**5.171077821**	

APPENDIX B.3

Determination of MTP/SCS Consistency Worksheet

DETERMINATION OF MTP/SCS CONSISTENCY WORKSHEET
For Qualifying Transit Priority Projects and Residential/Mixed-Use Residential Projects

As of February 20, 2018[i]

Background: Pursuant to SB 375, streamlined CEQA review and analysis is available to Transit Priority Projects (TPPs) and residential or mixed-use residential projects that are consistent with the SCS. The SCS was adopted by the Sacramento Area Council of Governments (SACOG) Board as part of the 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy on February 18, 2016. The California Air Resources Board (CARB) provided an Acceptance of GHG Quantification Determination for the SACOG SCS in September 2016.

Streamlined CEQA review available to TPPs consists of one of the following: 1) a Sustainable Communities Environmental Assessment (SCEA) pursuant to Public Resources Code (PRC) § 21155.2(b) or 2) an EIR pursuant to PRC § 21155.2(c).[ii]

Streamlined CEQA review available to residential or mixed-use residential projects consists of an EIR pursuant to PRC § 21159.28(a).

Purpose: The purpose of this worksheet is to provide lead agencies with assistance on three issues:

1. Whether a proposed project qualifies as a TPP;
2. Whether a proposed project qualifies as a residential or mixed-use residential project (at least 75 percent of the total building square footage is residential);
3. Whether the TPP or residential/mixed-use residential project is consistent with the general land use designation, density, intensity and applicable policies of the 2016 MTP/SCS adopted by the Sacramento Area Council of Governments (SACOG).

The lead agency has responsibility to make the final determination on these matters and to determine the applicable and appropriate CEQA streamlining, if any.

Directions: This worksheet should be completed by the lead agency, relying on the project description of the proposed project, MTP/SCS Chapters 3 and 4, and MTP/SCS Appendix E-3. Regardless of whether this worksheet is used, pursuant to PRC § 21155(a) and PRC § 21159.28(a), a project can only be consistent with the MTP/SCS if it is consistent with the general land use designation, density, building intensity, and applicable policies specified for the project area in the adopted SCS. This worksheet only applies to the 2016 MTP/SCS (adopted February 18, 2016); subsequent MTP/SCS adoptions may require updates to this form.

Lead agencies are welcome to contact SACOG for assistance in completing this worksheet. For assistance, contact Kacey Lizon at klizon@sacog.org or 916-340-6265.

Project Title: The Ranch

Proposed project is located in (city/county name): City of Rancho Cordova

DETERMINATION OF MTP/SCS CONSISTENCY WORKSHEET

As of February 20, 2018

1. Transit Priority Project Designation (PRC § 21155(b))

A project must meet the requirements of items **1.A, 1.B, 1.C, <u>and</u> 1.D,** below, to qualify as a Transit Priority Project. **For items 1.C and 1.D**, the definition of an MTP/SCS Transit Priority Area is: the area within one-half mile of a rail station stop or a high-quality transit corridor included in the MTP/SCS. A high-quality transit corridor has fixed route bus service with service intervals of 15 minutes or less during peak commute hours. See MTP/SCS Chapter 3 for the map of Transit Priority Areas.

1.A. [ ] The Project has a minimum net density[iii] of 20 dwelling units per acre.

Calculation:

Total housing units proposed in Project ___÷ Total Project parcel area (in net[ii] acres)___
= _____ (Should be ≥20 du/ac)

1.B. [ ] At least 50 percent of the Project's total building square footage is in residential use, **AND**,

[ ] The total building square footage of the Project has 25 percent or less non-residential use, or, if it has between 26 and 50 percent in non-residential use, has a minimum FAR of 0.75.

Calculations:

Total Project residential square footage ____÷ Total Project building square footage__
= _____ (Should be ≥ 50%)

Total Project building square footage___÷ Total Project parcel(s) area square footage__
= _____(Should be ≥ 0.75)

1.C. [ ] The Project is located within an MTP/SCS Transit Priority Area and the qualifying transit service is *(transit route name/applicable street name/number or light rail stop name as identified in the adopted MTP/SCS)*: _____

1.D. [ ] No more than 25 percent of the area of the Project parcels are farther than one-half mile from the TPA transit stop/corridor and no more than 10 percent of the residential units or 100 units, whichever is less, in the project are farther than one-half mile from the TPA transit stop/corridor.

DETERMINATION OF MTP/SCS CONSISTENCY WORKSHEET

As of February 20, 2018

Calculations:

Project area outside of ½ mile TPA _____ ÷ Total Project area _____ = _____ (Should be ≤ 25%)

Project residential units outside of ½ mile TPA _____ ÷ Total Project units _____ = _____ (Should be ≤ 10% or less than 100 units)

SECTION 1 CONCLUSION:

[ ] The proposed project meets the requirements of 1.A, 1.B, 1.C, and 1.D and therefore qualifies as a Transit Priority Project.

[ ] The proposed project does not meet all the requirements of 1.A, 1.B, 1.C, and 1.D and therefore does not qualify as a Transit Priority Project.

2. Residential or Mixed-Use Residential Project Designation for Projects Located Outside of an MTP/SCS TPA 21159.28(a)

A residential or mixed-use residential project using the streamlined CEQA review to complete an EIR pursuant to PRC § 21159.28(a) must meet the following requirement:

2.A. [x] At least 75 percent of the total building square footage of the project consists of residential use.

Calculation:

Total Project residential square footage approx. 2,875,800 ÷ Total Project building square footage is approx. 2,934,800 = 98% (Should be ≥ 75%)

SECTION 2 CONCLUSION:

[x] The proposed project meets the requirements of 2.A and therefore qualifies as a residential or mixed-use residential project.

[ ] The proposed project does not meet the requirements of 2.A and therefore does not qualify as a residential or mixed-use residential project.

IF A PROJECT DOES NOT QUALIFY AS EITHER A TRANSIT PRIORITY PROJECT (UNDER SECTION 1) OR A RESIDENTIAL OR MIXED-USE RESIDENTIAL PROJECT (UNDER SECTION

DETERMINATION OF MTP/SCS CONSISTENCY WORKSHEET

As of February 20, 2018

2), THE PROJECT DOES NOT QUALIFY FOR SB 375 CEQA STREAMLINING. DO NOT PROCEED TO SECTION 3.

3. Required Consistency with the SCS: General Use Designation, Density and Intensity, and Applicable MTP/SCS Policies (PRC § 21155(a) and PRC § 21159.28(a))

3.A. Applicable MTP/SCS Policies. For the purposes of determining SCS consistency, the policies of the MTP/SCS are embedded in the metrics and growth forecast assumptions of the MTP/SCS. Projects consistent with the growth forecast assumptions of the MTP/SCS, as determined by application of items 3.B. and 3.C, are consistent with the MTP/SCS and its policies.

3.B. Applicable Community Type. The MTP/SCS land use forecast is illustrated using Community Types. In order to determine the general use designation, density and intensity of the Project area within the MTP/SCS, the Project must be located within a Community Type designated in the MTP/SCS. The MTP/SCS defines density/building intensity in terms of the amount of growth (residential and non-residential) forecasted and the amount of build out potential within each Community Type area. SACOG monitors development activity on an annual basis to check that the amount of development is consistent with the growth forecast of the MTP/SCS.

For the purposes of the lead agency's determination of SCS consistency, use MTP/SCS Appendix E-3 to identify the Community Type for the Project and fill in the applicable information, below for 3.B.1 and 3.B.2.

3.B.1. The Project is located in the following Community Type:

[ ] Center and Corridor Community

[ ] Established Community

[x] Developing Community *(list the specific name of the Developing Community as identified in the jurisdiction narrative in Appendix E-3)*: Ranch at Sunridge

[ ] Rural Residential Community

3.B.2 [x] Development from the project when added to other entitled projects will not exceed the MTP/SCS build out assumptions for the area within this Community Type, which is 152,027 new housing units and 81,837 new employees[iv].

DETERMINATION OF MTP/SCS CONSISTENCY WORKSHEET

As of February 20, 2018

3.C. General Use Designation, Density and Building Intensity. The foundation of the land use designations for the MTP/SCS is adopted and proposed local general plans, community plans, specific plans and other local policies and regulations. A project is consistent with the MTP/SCS if its uses are identified in the applicable MTP/SCS Community Type **and** its uses meet the general density and building intensity assumptions for the Community Type. The proposed project does not have to include all allowed uses in the MTP/SCS.

3.C.1. Determine consistency of the Project using one of the methods below:

Option A:

[ ] The Project is located in a **Center and Corridor Community or an Established Community** and the Project uses are consistent with the allowed uses of the applicable adopted local land use plan as it existed in 2012 and are at least 80 percent of the maximum allowed density or intensity of the allowed uses of the applicable local land use plans. Therefore, the Project is consistent with the MTP/SCS.[v]

OR

Option B:

[ ] The Project is located in a **Center and Corridor Community or an Established Community** and the Project uses have been reviewed in the context of, and are found to be consistent with, the general land use, density, and intensity information provided for this Community Type in Appendix E-3 of the MTP/SCS. Therefore, the Project is consistent with the MTP/SCS.

OR

Option C:

[ ] The Project is located in a **Rural Residential Community** and the Project residential density does not exceed the maximum density of one unit per acre as specified in the MTP/SCS, and employment development in the Project is at least 80 percent of the maximum allowed density or intensity of the applicable local land use plans. Therefore, the Project is consistent with the MTP/SCS.

OR

Option D:

[x] The Project is located in a **Developing Community** and the Project's average net density meets or exceed the average net density described for this specific

Developing Community (as referenced by name of applicable specific plan, master plan, or special plan in MTP/SCS Appendix E-3) and employment development in the Project is consistent with the general employment land uses described for this specific Developing Community.[vi] Therefore, the Project is consistent with the MTP/SCS.

SECTION 3 CONCLUSION:

The proposed project is consistent with the General Use Designation, Density and Intensity, and Applicable MTP/SCS Policies for the following reasons (*summarize findings on use designation, density and intensity for the Project evaluation completed in Section 3)*:

The proposed project (the "Ranch at Sunridge" in the MTP/SCS) is consistent with the general uses envisioned for the site in the MTP/SCS. The proposed average net residential density (7 units/acre) is consistent with the average net density of 7 units/acre described for the the Ranch at Sunridge (MTP/SCS Appendix E-3, p. 137); total residential development is less than initial plans for the site due to significant preservation of open space and wetland resources which is consistent with the environmental principles of the SCS. Employment-generating uses include the proposed senior congregate care use, senior clubhouse, commercial parcel, multi-family residential parcel, and parks and recreation uses, are consistent with the commercial and public uses envisioned by the MTP/SCS (sMTP/SCS Appendix E-3, p. 137). A Special Planning Area (SPA) Handbook has been prepared for the proposed project, which acts in a similar capacity to a Specific Plan, and is consistent with the MTP/SCS. The project is consistent with the goals of, the City of Rancho Cordova General Plan (see SPA Handbook for further detail). The project provides for a high level of bicycle and pedestrian connectivity throughout the project site, including non-auto connections to the parks, open space, and trails features of the project. An open space and wetland preserve area is provided, preserving wetlands and aquatic resources on the site. A range of housing types (including single family market rate and senior units at a range of densities and lot sizes, senior congregate care units, and multifamily units) will serve a broad spectrum of households. As described in the Draft EIR, comprehensive features and measures are provided to reduce GHG emissions, including use of renewable energy for the residential component of the project, an EV charging network, and use of energy-efficient and water-conserving building and design practices. The project does not conflict with the MTP/SCS.

---

[i] This document may be updated as users provide feedback on its utility.

[ii] If a TPP complies with an additional series of requirements set forth in PRC § 21155.1, it qualifies as a Sustainable Communities Project and becomes eligible for a complete exemption from CEQA. This worksheet does not address Sustainable Communities Projects.

[iii] *Net density* is not defined in PRC §2115(b). In the MTP/SCS, net density is defined as follows: Housing units divided by the acres on which housing is built, exclusive of public rights-of-ways, parks, schools and public areas (MTP/SCS Appendix E-3).

[iv] The MTP/SCS build out for each Community Type assumes development that is entitled as of January 1, 2012. SACOG monitors housing permits on an annual basis and will ensure that housing and employment projects relying on the SB 375 CEQA benefits will not exceed the capacity assumed in the MTP/SCS. SACOG undertakes this review generally every four years as part of the update of the MTP/SCS. In between MTP/SCS updates, projects that exceed the build out of a Community Type in a jurisdiction can be reviewed for consistency by SACOG and will be evaluated on a project by project basis.

[v] The MTP/SCS general land use, density and intensity in Center and Corridor Communities and Established Communities is based on 80 percent of the maximum allowed density or intensity of the land use designations in applicable local land use plans as they existed in 2012, unless otherwise noted in Appendix E-3.

[vi] The MTP/SCS land use forecast in Developing Communities was modeled according to adopted and proposed specific plans, master plans, and special plans as they existed in 2012, and is based on the housing and employment totals and the average net density of these plans, as outlined in Appendix E-3.

APPENDIX B.4

Analysis of Models and Tools to Correlate Project-Generated Pollutants to Health End Points

ANALYSIS OF MODELS AND TOOLS TO CORRELATE PROJECT-GENERATED CRITERIA POLLUTANT EMISSIONS TO HEALTH END POINTS

TOOL	*CREATED BY*	*DESCRIPTION*	*RESOLUTION*	*POLLUTANTS ANALYZED*	*PROJECT-LEVEL CEQA APPLICABILITY*
AERMOD Modeling System[1,2]	AERMIC	A steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. The modeling system incorporates air dispersion based on a planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.	Project-level	SO_2, ROG, NO_2, Lead, $PM_{2.5}$, PM_{10}, NH_3	This model operates at the project-level and provides air dispersion modeling of a project's pollutant emissions on the surrounding environment. However, even with supplementary (i.e. additional) software, such as the California Air Resource Board's Hotspots Analysis and Reporting Program (HARP), the model does not estimate specific health effects on receptors from the air dispersion modeling (that is, it is not scientifically feasible to infer individualized health effects on receptors from the pollutant concentrations identified by this model, even in conjunction with other software such as HARP). Moreover, concentration modeling of ozone is not possible with AERMOD (nor any other known model used in conjunction with AERMOD), due to the complex nature of pollution concentration formation and numerous regional influences (multiple emission sources, meteorology, atmospheric chemistry and geography). Therefore, this model is not recommended for correlating project-generated criteria pollutant emissions to health end points.
AirCounts[3]	Abt Assoc.	Online tool that helps large and medium-sized cities quickly estimate the health benefits of $PM_{2.5}$ emission reductions and economic value of those benefits. The tool estimates the number of deaths (mortality) avoided and economic value related to user-specified regional, annual $PM_{2.5}$ emissions reduction.	City-level	Primary $PM_{2.5}$	This tool is only illustrative, as it is limited to certain cities and does not target specific sectors. The tool is not sector-specific, and includes limited California data. It cannot provide results at a development project level. Therefore, the tool is not recommended for project-level CEQA analysis.
Air Pollution Emission Experiments and Policy analysis	Mueller and Mendelsohn 2006, 2009	The Air Pollution Emission Experiments and Policy (APEEP) analysis model (Muller and Mendelsohn 2006, 2009) is a traditional integrated assessment model. Like other integrated assessment models, APEEP connects emissions of air pollution through air-quality modeling to exposures, physical effects, and monetary damages.	National or county-level	SO_2, ROG, NO_x, Ozone, $PM_{2.5}$, PM_{10}	The model operates at the national scale but may be applied at the county-level (although it is not clear how this adjustment should be made). It cannot provide results at a development project-level. The tool is also not commercially available. Therefore, the tool is not recommended for project-level CEQA

[1] See: https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models
[2] Note: May require additional software to estimate the level of each specific pollutant at the modeled receptors.
[3] See: https://www.abtassociates.com/tools

TOOL	CREATED BY	DESCRIPTION	RESOLUTION	POLLUTANTS ANALYZED	PROJECT-LEVEL CEQA APPLICABILITY
(APEEP) model[4]		Making these links requires the use of findings reported in the peer-reviewed literature across several scientific disciplines. The air-quality models in APEEP use the emission data provided by EPA to estimate corresponding ambient concentrations in each county in the coterminous states.			analysis.
California Emissions Estimator Model® (CalEEMod)	California Air Pollution Control Officers Association (CAPCOA)	CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects.	Project-level	SO_2, ROG, NOx, CO, GHGs, $PM_{2.5}$, PM_{10}	Although CalEEMod is useful in comparing a project's emissions to significance thresholds, it is not able to assess transport of pollutants or the impacts of external factors (weather, terrain, etc.) on pollutant concentrations at particular locations. Therefore, this model is not recommended for estimating the health effects of project-generated criteria pollutants.
CALINE3/ CAL3QHC/ CAL3QHCR[1, 2]	United States Environmental Protection Agency (USEPA)	A steady-state Gaussian dispersion model designed to determine air pollution concentrations at receptor locations downwind of highways located in relatively uncomplicated terrain. CALINE3 is incorporated into the more refined CAL3QHC and CAL3QHCR models. CAL3QHCR is a more refined version based on CAL3QHC that requires local meteorological data.	Project-level	SO_2, ROG, NO_2, Lead, $PM_{2.5}$, PM_{10}	This model operates at the project level and provides air dispersion modeling for a project's transportation emissions on the surrounding environment. However, even with supplementary (i.e. additional software), the model cannot estimate specific health effects on receptors from the air dispersion modeling. Moreover, it cannot model the (complex) chemical reactions that occur between the ozone precursors (e.g. NOx and ROG) that generate ozone. Therefore, this model is not recommended for correlating project-generated criteria pollutant emissions to health end points.
Complex Terrain Dispersion Model Plus Algorithms for Unstable Situations (CTDMPLUS)[1, 2]	USEPA	A refined point source gaussian air quality model for use in all stability conditions for complex terrain. The purpose of the model is to provide a practical, refined plum model for elevated point sources near complex terrain.	Project-level	SO_2, ROG, NO_2, Lead, $PM_{2.5}$, PM_{10}	This model operates at the project-level and provides air dispersion modeling for a project's emissions on the surrounding environment. However, even with supplementary (i.e. additional software), the model cannot estimate specific health effects on receptors from the air dispersion modeling. Moreover, it cannot model the (complex) chemical reactions that occur between the ozone precursors (e.g. NOx and ROG) that generate ozone. Therefore, this model is not recommended for correlating project-generated criteria pollutant emissions to health end points

[4] See: https://public.tepper.cmu.edu/nmuller/APModel.aspx

TOOL	CREATED BY	DESCRIPTION	RESOLUTION	POLLUTANTS ANALYZED	PROJECT-LEVEL CEQA APPLICABILITY
Comprehensive Air Quality Model with Extensions (CAMx)[5]	Ramboll	CAMx is a multi-scale, three dimensional photochemical grid model. A photochemical grid model is a computer model designed for simulating air pollution episodes. CAMx is designed for computing hourly ozone concentrations at the regional, mesoscale, and urban scales for periods ranging from days up to months.	Regional, county, or city-levels	Ozone, CO, and secondary PM	CAMx is intended to accurately depict the ways in which air pollution forms, accumulates, and dissipates. However, it cannot provide results at a project-level.
Co-Benefits Risk Assessment (COBRA)[6]	USEPA	Preliminary screening tool that contains baseline emission estimates of a variety of air pollutants for a single year. COBRA is targeted to state and local governments as a screening assessment for clean energy policies. EPA's CO–Benefits Risk Assessment (COBRA) screening model is a free tool that helps state and local governments: • Explore how changes in air pollution from clean energy policies and programs; • Estimate the economic value of the health benefits associated with clean energy policies and programs to compare against program costs; • Map and visually represent the air quality, human health, and health-related economic benefits from reductions in emissions of particulate matter ($PM_{2.5}$), sulfur dioxide ($S0_2$), nitrogen oxides (NO_X), ammonia (NH_3), and volatile organic compounds (VOCs) that result from clean energy policies and programs.	National, regional, state, or county-levels	$PM_{2.5}$, SO_2, NO_x, NH_3, and ROG	COBRA is a preliminary screening tool only and cannot be used at sub-county resolution. It cannot provide results at a project-level. It also does not account for secondary emission changes resulting from market responses. Accordingly, the tool is not recommended for project-level CEQA analysis.
Environmental Benefits and Mapping Program-Community Edition (BenMAP-CE)[7]	USEPA	The USEPA's detailed model for estimating the health impacts from air pollution. It relies on input concentrations and applies concentration-response (C-R) health impact functions, which relate a change in the concentration of a pollutant with a change in the incidence of a health endpoint, including premature mortality, heart attacks, chronic respiratory illnesses, asthma exacerbation and other adverse health effects. Detailed inputs are required for air quality changes (concentrations from AERMOD), population, baseline incidence rates, and effect estimates.	National, County, City, and population levels	Ozone, PM, NO_2, SO_2, CO	This model provides an estimate of and characterizes the general impacts to health functions that relate change in health outcomes (coughs, asthma incidences, premature mortality) that change with small changes in ambient air concentrations. However, this model cannot provide results at a project-level. Accordingly, the tool is not recommended for project-level CEQA analysis.

[5] See: https://www3.epa.gov/scram001/7thconf/information/camx.pdf
[6] See: https://www.epa.gov/statelocalenergy/co-benefits-risk-assessment-cobra-health-impacts-screening-and-mapping-tool
[7] See: https://www.epa.gov/benmap

TOOL	CREATED BY	DESCRIPTION	RESOLUTION	POLLUTANTS ANALYZED	PROJECT-LEVEL CEQA APPLICABILITY
Fast Scenario Screening Tool (TM5-FASST)[8]	Joint Research Centre (Italy)	A tool that allows users to evaluate how air pollutant emissions affect large scale pollutant concentrations and their impact on human health (mortality and years of life lost) and crop yield from national to regional air quality policies, such as climate policies. The target policy domains are national to regional air quality policies, or air pollutant scenarios linked to other policy domains (e.g. climate policy). The tool is web-based and does not require coding or modelling. Users must gain access through publishers.	Global and national-levels	$PM_{2.5}$, Ozone, NO_x, NH_3, CO, ROG, CH_4, SO_2	This tool is applicable at national to global scales. It cannot provide results a project-level. Accordingly, the tool is not recommended for project-level CEQA analysis.
Hotspots Analysis and Reporting Program (HARP)	California Air Resources Board (CARB)	The Hotspots Analysis and Reporting Program (HARP) is a software suite that addresses the programmatic requirements of the Air Toxics "Hot Spots" Program (Assembly Bill 2588). HARP incorporates the information presented in the 2015 Air Toxics Hotspots Program Guidance Manual for Preparation of Health Risk Assessments. HARP can be used by the air pollution control and air quality management districts (districts), facility operators and other organizations or individuals to promote statewide consistency, efficiency and cost-effective development of facility emission inventories and conducting health risk assessments.	Statewide, Air District, and Project-levels	$PM_{2.5}$, PM_{10}, air toxics, TACs, Ozone, NO_2, CO, SO_2	This model operates at the project-level and provides the ability to combine air dispersion modeling data (e.g. from AERMOD) to conduct health risks assessments and assessment of pollutant concentrations at receptors surrounding a project. This model is often used in conjunction with AERMOD (to incorporate air dispersion modeling data provided by AERMOD). However, the model does not estimate specific health effects on receptors from the air dispersion modeling (that is, it is not scientifically feasible to infer individualized health effects on receptors from the pollutant concentrations identified by this model, even in conjunction with other software such as AERMOD). Moreover, scientifically valid modeling of ozone concentrations is not possible with HARP (nor any other known model used in conjunction with HARP), due to the complex nature of pollution concentration formation and numerous regional influences (multiple emission sources, meteorology, atmospheric chemistry and geography). Therefore, this model is not recommended for estimating the health effects of project-generated criteria pollutants.
Human Exposure Model (HEM)	USEPA	The HEM is used primarily for performing risk assessments for sources emitting air toxics to ambient air. The HEM only addresses the inhalation pathway of exposure, and is designed to predict risks associated with chemicals emitted into the ambient air (i.e., in the vicinity of an emitting facility but beyond the facility's property	Project-level	SO_2, ROG, NO_2, Lead, $PM_{2.5}$, PM_{10}, NH_3	This model does not estimate specific health effects on receptors (that is, it is not scientifically feasible to infer individualized health effects on receptors from the pollutant concentrations identified by this model. Moreover, scientifically valid modeling of ozone concentrations is not possible with HEM, due to the

[8] See: http://tm5-fasst.jrc.ec.europa.eu/

TOOL	CREATED BY	DESCRIPTION	RESOLUTION	POLLUTANTS ANALYZED	PROJECT-LEVEL CEQA APPLICABILITY
		boundary). The HEM provides ambient air concentrations, as surrogates for lifetime exposure, for use with unit risk estimates and inhalation reference concentrations to produce estimates of cancer risk and noncancer hazard, respectively, for the air toxics modeled.			complex nature of pollution concentration formation and numerous regional influences (multiple emission sources, meteorology, atmospheric chemistry and geography). Therefore, this model is not recommended for estimating the health effects of project-generated criteria pollutants.
Long-range Energy Alternatives Planning System-Integrated Benefits Calculator (LEAP-IBC)[9]	Climate and Clean Air Coalition (CCAC)	A calculator that allows users to rapidly estimate the impacts of reducing emissions on health, climate, and agriculture. The tool uses sensitivity coefficients that link gridded emissions of air pollutants and precursors to health, climate and agricultural impacts at a national level. The tool is primarily used for policy analysis. The tool is currently Excel-based and is available through the developers only. A web-based interface is currently under development.	National-level	$PM_{2.5}$, Ozone, NO_2	This tool is applicable at national scale. Accordingly, the tool is not recommended for project-level CEQA analysis.
Methodology for Estimating Premature Deaths Associated with Long-Term Exposure to Fine Airborne Particulate Matter in California[10]	CARB	The staff report identifies a relative risk of premature death associated with $PM_{2.5}$ exposure based on a review of all relevant scientific literature, and a new relative risk factor was developed. This new factor is a 10% increase in risk of premature death per 10 $\mu g/m^3$ increase in exposure to $PM_{2.5}$ concentrations (uncertainty interval: 3% to 20%)	National	$PM_{2.5}$	The primary author of the CARB staff report notes that the analysis method is not suited for small projects and may yield unreliable results due to various uncertainties. The tool also cannot provide results on a project-level. Accordingly, the tool is not recommended for project-level CEQA analysis.
Multi-Pollutant Evaluation Method (MPEM)[11]	Bay Area Air Quality Management District (BAAQMD)	Estimates the impacts of control measures on pollutant concentration, population exposures, and health outcomes for criteria, toxic, and GHG pollutants. Monetizes the value of total health benefits from reductions in $PM_{2.5}$, ozone, and certain carcinogens, and the social value of GHG reductions. MPEM was designed for development of a Clean Air Plan for the San Francisco Bay Area. The inputs are specific to the SF region and are not appropriate for projects outside BAAQMD.	Regional level in the SFBAAB	Ozone, PM, air toxics, GHG	This tool is designed to support the BAAQMD in regional planning and emissions analysis within the San Francisco Bay Area Air Basin (SFBAAB). The model applies changes in pollutant concentrations over a four-square kilometer grid. The tool also cannot provide results on a project-level. Additionally, this tool is only applicable for the SFBAAB. Accordingly, the tool is not recommended for project-level CEQA analysis. This project is also not

[9] See: https://www.ccacoalition.org/en/resources/long-range-energy-alternatives-planning-integrated-benefits-calculator-leap-ibc-factsheet

[10] See: https://ww3.arb.ca.gov/research/health/pm-mort/pmmortalityreportfinalr10-24-08.pdf

[11] See: http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/mpem_nov_dec_2016-pdf.pdf?la=en

TOOL	CREATED BY	DESCRIPTION	RESOLUTION	POLLUTANTS ANALYZED	PROJECT-LEVEL CEQA APPLICABILITY
					recommended for projects outside of the SFBAAB.
Offshore and Coastal Dispersion Model Version 5 (OCD)[1, 2]	USEPA	A straight-line Gaussian model developed to determine the impact of offshore emissions from point, area or line sources on the air quality of coastal regions. OCD incorporates overwater plume transport and dispersion as well as changes that occur as the plume crosses the shoreline. Hourly meteorological data are needed from both offshore and onshore locations.	Project-level	SO_2, ROG, NO_2, Lead, $PM_{2.5}$, PM_{10}	This model operates at the project-level and provides air dispersion modeling for a project's emissions on the surrounding environment. However, even with supplementary (i.e. additional software), the model cannot estimate specific health effects on receptors from the air dispersion modeling. Moreover, it cannot model the (complex) chemical reactions that occur between the ozone precursors (e.g. NOx and ROG) that generate ozone. This tool is used to address offshore emissions on coastal regions and is not appropriate for project-level CEQA analysis for inland locations.
Response Surface Model (RSM)-based Benefit-per-Ton Estimates[12]	USEPA	Consists of tables reporting the monetized $PM_{2.5}$-related health benefits from reducing $PM_{2.5}$ precursors from certain source types nationally and for 9 US cities/regions. Applying these estimates simply involves multiplying the emissions reduction by the relevant benefit per-ton metric. The resulting value is the PM mortality risk estimate at a 3% discount rate.	National or regional (San Joaquin County only) levels	SOx, VOC, NH_3, NO_x	RSM includes regional values specific to San Joaquin County and does not address development project-scale emissions. The values are also outdated. Accordingly, the tool is not recommended for project-level CEQA analysis.
Sector-based Benefit-per-Ton Estimates[13]	USEPA	Two specific sets of Benefit-per-ton (BPT) estimates for 17 key source categories are available. Both are a reduced-form approach based on BenMAP modeling. Applying these factors involves multiplying the emissions reduction (in tons) by the relevant benefit (economic value) or incidence (rates of mortality and morbidity) per-ton metric. The resulting value is the economics, mortality, and morbidity of direct and indirect $PM_{2.5}$ emissions.	National-scale	$PM_{2.5}$, SO_2, NO_x	The BPT estimates do not account for project-specific emissions or receptor locations, local dispersion characteristics, or regional photochemistry. The resultant health effects are therefore reflective of national averages and would not reflect localized conditions necessary to address impacts at the project-level. Accordingly, the tool is not recommended for project-level CEQA analysis.

[12] See: https://www.epa.gov/benmap/response-surface-model-rsm-based-benefit-ton-estimates

[13] See: https://www.epa.gov/benmap/sector-based-pm25-benefit-ton-estimates. The updated Technical Support Document (February 2018) is available at: https://www.epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf

APPENDIX C

Biological Resources Appendices

CONTENTS

Appendix C.1: Aquatic Resources Delineation Report

Appendix C.2: Biological Resources Assessment

Appendix C.3: Special-Status Plant Survey

APPENDIX C.1

Aquatic Resources Delineation Report

Aquatic Resources Delineation Report

The Ranch ±530-Acre Site
City of Ranch Cordova, California

DRAFT

Prepared for:

U.S. Army Corps of Engineers

Contracted by:

K. Hovnanian Homes

October 13, 2017

Prepared by:

FOOTHILL ASSOCIATES

© 2017

TABLE OF CONTENTS

1.0 Introduction 1
2.0 Regulatory Background 2
2.1. Waters of the United States 2
3.0 Methods 5
3.1. Site-Specific References 5
3.2. Research and Field Methodology 5
3.3. GPS Data Integration 7
4.0 Results 8
4.1. Site Location and Land Use 8
4.1.1. Site Location 8
4.1.2. Land Use 8
4.2. Physical Features 8
4.2.1. Soils 8
4.2.2. Topography 9
4.2.3. Regional Hydrology 10
4.2.4. Site-Specific Hydrology 10
4.3. Vegetation 10
4.3.1. California Annual Grassland 10
4.3.2. Disturbed/Developed 10
4.4. Classification of Aquatic Resources 10
4.4.1. Depressional Seasonal Wetland 11
4.4.2. Vernal Pool 11
4.4.3. Riverine Seasonal Wetland 11
4.4.4. Seasonal Wet Swale 12
4.4.5. Intermittent Drainage 12
4.4.6. Detention Basin Outfall 12
5.0 Conclusions 13
6.0 References 14

List of Tables

Table 1 — Aquatic Resources within the Site 13

DRAFT

List of Figures

Figure 1 — Site and Vicinity 16
Figure 2 — Soils 17
Figure 3 — Aquatic Resources Delineation Map 18

List of Appendices

Appendix A — Contact Information and Directions
Appendix B — Signed Statement from Property Owner(s) Allowing Access
Appendix C — Routine Wetland Determination Data Forms
Appendix D — Aquatic Resources Excel Spreadsheet

DRAFT

Acronyms and Abbreviations

CWA	Clean Water Act
FAC	Facultative plants
FACU	Facultative upland plants
FACW	Facultative wetland plants
GIS	Geographic Information System
GPS	Global Positioning System
MSL	mean sea level
NAD	North American Datum
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OBL	Obligate wetland plants
OHWM	Ordinary High Water Mark
PEM	palustrine emergent
UPL	upland
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

DRAFT

Executive Summary

This report presents the results of a delineation of the aquatic resources at the 530-acre The Ranch, located in the City of Rancho Cordova, California. Aquatic resources were identified and delineated following the technical guidelines provided in the *Corps of Engineers Wetlands Delineation Manual* (Corps Manual) (Environmental Laboratory 1987) and the U.S. Army Corps of Engineers (Corps) *Arid West Regional Supplement* (Supplement) (USACE 2008). The Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region. The jurisdictional boundaries for other waters of the U.S. were identified based on the presence of an ordinary high water mark (OHWM) as defined in 33 C.F.R. 328.3(e).

A total of 21.53 acres of waters of the United States, comprising 2.92 acres of depressional seasonal wetlands, 15.04 acres of vernal pools, 1.66 acres of riverine seasonal wetlands, 0.06 acres of seasonal wet swale, 1.54 acres of intermittent drainage, and 0.30 acres of detention basin outfall were delineated at the project site. The detention basin outfall is authorized by the U.S. Army Corps of Engineers Regulatory Permit #200100252.

DRAFT

1.0 INTRODUCTION

The purpose of this document is to present the results of a formal delineation of jurisdictional waters of the United States (U.S.), including wetlands, on the ±530-acre The Ranch (site) located in the City of Ranch Cordova, California (**Figure 1**). This report was prepared in accordance with the *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (USACE 2016) and presents the results of Foothill Associates' review of available literature, aerial photographs, soil surveys (**Figure 2**), and fieldwork within the Site. The delineation methodology is described in this report, followed by the results of the delineation. Contact information and directions to the Site are provided in **Appendix A**. Site access notification information is provided in **Appendix B**. Details regarding soils, topography, hydrology, and vegetation are summarized herein and routine wetland determination data forms are provided in **Appendix C**. A detailed delineation map that illustrates potential waters of the U.S. within the Site is included in **Figure 3**.

All aquatic features that may have been impacted by The Ranch were mapped and addressed in a 2014 Preliminary Jurisdictional Determination (Regulatory No. SPK-2004-00707) issued by the U.S. Army Corps of Engineers; but modifications to the proposed design layout requires a new jurisdictional delineation.

DRAFT

2.0 REGULATORY BACKGROUND

The Corps regulates discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act (CWA). "Discharges of fill material" is defined as the addition of fill material into waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes; and subaqueous utility lines [33 C.F.R. §328.2(f)].

Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a Federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Section 404 of the CWA requires approval prior to discharging dredged or fill material into the waters of the United States. Typical activities requiring Section 404 permits are:

- Depositing of fill or dredged material in waters of the U.S. or adjacent wetlands;
- Site development fill for residential, commercial, or recreational developments;
- Construction of revetments, groins, breakwaters, levees, dams, dikes, and weirs; and
- Placement of riprap and road fills.

Section 10 of the Rivers and Harbors Act of 1899 requires approval prior to the accomplishment of any work in or over navigable waters of the United States, or which affects the course, location, condition, or capacity of such waters. Typical activities requiring Section 10 permits are:

- Construction of piers, wharves, bulkheads, dolphins, marinas, ramps, floats intake structures, and cable or pipeline crossings; and
- Dredging and excavation.

Any person, firm, or agency (including Federal, state, and local government agencies) planning to work in navigable waters of the United States, or dump or place dredged or fill material in waters of the United States, must first obtain a permit from the Corps. Permits, licenses, variances, or similar authorization may also be required by other Federal, state, and local statutes.

2.1. Waters of the United States

Waters of the United States were defined in a Federal Rule published on June 29, 2015 and which went into effect on August 28, 2015. The term "waters of the United States" includes (a) traditional navigable waters, (b) interstate waters, (c) territorial seas, (d) impoundments of jurisdictional waters, and (e) their tributaries. Tributaries must have a bed and bank and

ordinary high water mark and may have ephemeral, intermittent, or perennial flow. Additionally, the rule defines "adjacent waters" as jurisdictional due to their significant nexus with a jurisdictional water in class (a) through (e). Adjacent waters include any waters located in whole or part within 100 feet of a jurisdictional water in class (a) through (e); any waters located within the 100-year floodplain and within 1,500 feet of a jurisdictional water in class (a) through (e); and any waters within 1,500 feet (f) the ordinary high water mark of a traditionally navigable water, territorial sea, or the Great Lakes. Five classes of waters, prairie potholes, Carolina bays and Delmarva bays, pocosins, western vernal pools, and Texas coastal prairie wetlands, were determined to be jurisdictional due to their nexus with jurisdictional waters when considered in combination with similarly situated waters. Other waters not previously defined as jurisdictional that are located within the 100-year floodplain of a traditionally navigable water, interstate water, or territorial sea or are within 4,000 feet of the ordinary high water mark of a jurisdictional water in class (a) through (e) are evaluated on a case-specific basis.

The rule specifically exempts the following types of features from Federal jurisdiction: waste treatment systems, including ponds or lagoons designed to meet the requirements of the Clean Water Act, prior converted cropland, ditches with ephemeral or intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands, ditches that do not flow directly or indirectly into a jurisdictional water, artificially irrigated areas that would revert to dry land should irrigation cease, artificial constructed lakes, ponds, reflecting pools, or swimming pools constructed in uplands, water filled depressions created in uplands incidental to mining or construction activity, erosional features, puddles, and stormwater control features and wastewater recycling structures constructed in uplands [33 C.F.R. § 328.3].

The new rule was challenged in court and on October 9, 2015 the U.S. Court of Appeals for the Sixth Circuit stayed the new rule nationwide. Until a final ruling is made, the Corps will continue to operate pursuant to the Supreme Court's decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208) and agency guidance subsequent to this decision. Under these rules, the Corps will assert jurisdiction over wetlands adjacent to traditional navigable waters, relatively permanent non-navigable tributaries (i.e., waters that have a continuous flow at least three months out of the year), and wetlands that abut relatively permanent tributaries. The Corps will determine jurisdiction over waters that are non-navigable tributaries that are not relatively permanent, and wetlands adjacent to these tributaries, by making a determination whether such waters "significantly affect the chemical, physical, and biological integrity of other jurisdictional waters more readily understood as "navigable." Finally, the Corps generally does not consider the following to be "waters of the United States": swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent or short duration flow) and ditches "wholly in and draining only uplands…which do not carry a relatively permanent flow of water." Navigable waters of the United States are defined as waters that have been used in the past, are now used, or are susceptible to use as a means to transport interstate or foreign commerce up to the head of navigation.

Section 10 and/or Section 404 permits are required for construction activities in these waters. Boundaries between jurisdictional waters and uplands are determined in a variety of ways depending on which type of water is present. Methods for delineating wetlands and non-tidal waters are described below.

> Wetlands are defined as "*those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions*" [33 C.F.R. §328.3(b)]. Presently, to be a wetland, a site must exhibit positive indicators of three wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the "normal circumstances" for the site.
>
> The lateral regulatory extent of non-tidal waters is determined by delineating the ordinary high water mark (OHWM) [33 C.F.R. §328.4(c)(1)]. The OHWM is defined by the Corps as "*that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas*" [33 C.F.R. §328.3(e)].

DRAFT

3.0 METHODS

3.1. Site-Specific References

Available information pertaining to the natural resources of the region was reviewed. All references reviewed for this delineation are listed in **Section 6.0**. Pertinent site-specific reports and general references utilized for the delineation include the following:

- Baldwin. G., D. Goldman, D. Keil, R. Patterson, and T.J. Rosatti. 2012. T*he Jepson Manual, 2nd Edition*. Vascular Plants of California. ISBN: 9780520253124. January 12, 2013;
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. U.S. Army Corps of Engineers Waterways Experiment Station. Vicksburg, MS;
- Gretag Macbeth. 2000. *Munsell Soil Color Charts*. New Windsor, NY;
- Lichvar, R.W., Butterwick, M., Melvin, N.C., and Kirchner, W. 2016. *The National Wetland Plant List: 2016 Wetland Ratings*. Phytoneuron 2016-30: 1–17. Published April 28, 2016. ISSN 2153 733X;
- U.S. Army Corps of Engineers (USACE). 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0). U.S. Army Engineer Research and Development Center. Vicksburg, MS;
- USACE. 2014. *Preliminary Jurisdictional Determination*; *SPK-2004-00707*. October 14, 2014;
- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 2010. *Field Indicators of Hydric Soils in the United States, Version 7.0*. L.M. Vasilas, G.W. Hurt, and C.V. Noble (Eds). USDA, NRCS in cooperation with the National Committee for Hydric Soils. Fort Worth, TX; and
- U.S. Geological Survey. 1967 (Photorevised 1980). *Buffalo Creek, California*. 7.5 -minute series topographic quadrangle. U.S. Department of the Interior.

3.2. Research and Field Methodology

This delineation utilized the Corps' 1987 three-parameter (vegetation, hydrology, and soils) methodology to delineate aquatic resources. The Supplement was also used in conjunction with the Corps Manual for applications in the Arid West Region. Where differences in the two documents occur, the Supplement takes precedence over the Corps Manual.

The Arid West Region consists of all or significant portions of 11 states, including California (USACE 2008). This region is differentiated from other surrounding areas by having a predominantly dry climate and long summer dry season. Vegetation characteristics of the Arid West Region include little to no forest cover consisting of mainly annual grasslands, shrublands, hardwood savannas, deciduous woodlands, and pinyon/juniper woodlands. The Arid West

DRAFT

Supplement was used on this site because it is located in the *Mediterranean California* Land Resource Region (LRR C), which is characterized by warm, wet winters and dry summers.

The three-parameter methodology requires the collection of data on soils, vegetation, and hydrology at several locations to establish the jurisdictional boundary of wetlands. Additional methods to identify and delineate other waters of the U.S. (e.g., streams, drainages, lakes) were used as applicable. The method typically used for delineation of non-wetland waters of the U.S. is the delineation of the OHWM. The OHWM was identified based on soils, vegetation, slope, and other indicators such as debris and high water marks.

A review of historic and recent aerial photographs, topographic maps, and soils survey data was conducted before delineating the Site in December 2003, and January through April 2004. Revisions were made in the field with Justin Cutler and/or Will Ness of the U.S. Army Corps of Engineers in April and June in 2005 and a reverification was conducted in October 2014. Biologists visually inspected the entire site and collected representative data at points within potential wetland areas and corresponding uplands. The location of each data point is depicted in **Figure 3** and corresponding routine wetland determination data forms are provided in **Appendix C**.

Correlations were developed between the three parameters (vegetation, hydrology, and soils) to make wetland determinations. Specifically, plots at data point locations were evaluated to determine the composition and identification of dominant plant species. The indicator status of all dominant plant species [as determined by the current *National Wetland Plant List*] was applied and evaluated as part of the vegetation assessment portion of the wetland determination process. The plant indicator status includes the following categories:

Obligate wetland plants (OBL):	Occur almost always under natural wetland conditions (estimated probability > 99%).
Facultative wetland plants (FACW):	Usually occur in wetlands, but occasionally found in non-wetlands (67-99%).
Facultative plants (FAC):	Equally likely to occur in wetlands and non-wetlands (34-66%).
Facultative upland plants (FACU):	Usually occur in non-wetlands, but occasionally found in wetlands (1-33%).
Upland (UPL):	Occur almost always under natural conditions in non-wetlands (>99%); may occur in wetlands in other regions.

The absolute cover was estimated for each vegetation stratum; these strata include tree, sapling/shrub, herb, and woody vine. Species that are dominant in more than one stratum were counted multiple times. Some wetland plant communities may fail a test based only on dominant species. Where indicators of hydric soils and hydrology are present and vegetation is

not dominated by hydrophytes, the vegetation was re-evaluated with the prevalence index, which takes into consideration all plant species in the community, not just the subset of dominant species.

The onsite soils were examined for hydric indicators. Hydric soil indicators are described in the *Field Indicators of Hydric Soils in the U.S.*, Version 7.0 (USDA, NRCS, 2010 and 2015). If one or more of these indicators are present, then the soil is hydric. Nearly all hydric soils exhibit characteristic morphologies that are caused by anaerobic, reduced soil conditions due to prolonged soil saturation. The most commonly observed indicators are related to iron (Fe) and manganese (Mn) redox concentrations or depletions. Less commonly observed indicators include gleyed matrix and black histic (low amounts of Fe-Mn and accumulations of organic carbon).

Observations were made and recorded for both primary and secondary wetland hydrology indicators, if present. Without monitoring or direct observation of inundation/saturation, indirect indicators of wetland hydrology are typically used and include primary indicators such as water marks, drift lines, and sediment deposits, or secondary indicators such as crayfish burrows or the FAC-neutral test.

3.3. GPS Data Integration

Boundaries of wetlands and other waters of the U.S. within the Site were surveyed and mapped with a Trimble GeoXT Global Positioning System (GPS) hand-held unit. This is a mapping-grade GPS unit capable of real-time differential correction and sub-meter accuracy. The GPS data were downloaded from the unit and differentially corrected utilizing Trimble Pathfinder Office software and appropriate base station data, and then converted to ESRI ® shape file format. Data are typically exported to the Geographic Information System (GIS) software in the State Plane coordinate system (NAD 83) with units as "survey feet." Within the GIS, data are edited and linear features are built into polygons using recorded width information. All wetland shape files are merged to create a single wetland file with calculated acreages. These results are presented in **Figure 3**.

DRAFT

4.0 RESULTS

4.1. Site Location and Land Use

4.1.1. Site Location

The ±530-acre Site is located in southeastern Sacramento County, approximately five miles south of U.S. Highway 50, east of Sunrise Boulevard, and the Folsom South Canal, and north of Jackson Road (Highway 16) within the City of Ranch Cordova. The Site lies east of and adjacent to Rancho Cordova Parkway, south of Douglas Road, and west of and adjacent to the proposed Americanos Boulevard. The Site is located in Township 8 North, Range 7 East, Section 16, in an area covered by the USGS *Buffalo Creek* 7.5-minute quadrangle (**Figure 1**).

4.1.2. Land Use

The majority of the Site is annual grassland, previously used to livestock grazing. Land uses surrounding the Site include residential development and agricultural (livestock grazing).

4.2. Physical Features

4.2.1. Soils

The Natural Resources Conservation Service has mapped five soil units on the Site (**Figure 2**). These include: **Fiddyment Fine Sandy Loam, 1 to 8 Percent Slopes**, **Hicksville Gravelly Loam, 0 to 2 Percent Slopes, Occasionally Flooded**, **Red Bluff-Redding Complex, 0 to 5 Percent Slopes**, **Redding Gravelly Loam, 0 to 8 Percent Slopes**, and **Redding Loam, 2 to 8 Percent Slopes**. General characteristics associated with these soils types are described below.

- **Fiddyment Fine Sandy Loam, 1 to 8 Percent Slopes**: This moderately deep, well-drained soil is located on hills between 50 and 350 feet above mean sea level (MSL). This soil formed in material weathered from consolidated sandstone or siltstone. Permeability is very slow and available water capacity is low. As a result, this soil type takes a very long time to saturate and the capacity of the soil to hold water available for use by most plant species is low. This soil unit is typically used for rangeland, irrigated hay and pasture, or for dryland crops, such as wheat. Typically, vegetation on this soil unit consists mainly of non-native grasses and herbaceous plant species. The hydric soils list for Sacramento County does not identify any hydric inclusions occurring within this soil type.
- **Hicksville Gravelly Loam, 0 to 2 Percent Slopes, Occasionally Flooded**: This very deep, moderately well-drained soil is on low stream terraces and the alluvial flats adjacent to drainageways on high terraces and hills between 75 to 230 feet above MSL. This soil unit formed in alluvium derived from mixed rock sources. Permeability is moderately slow in this soil type and available water capacity is low. As a result, this soil type takes a moderately long time to saturate and the capacity of the soil to hold water available for use by most plant species is low. This soil type is typically used as rangeland or for irrigated crops. Typically, vegetation on this soil unit consists mainly of non-native

DRAFT

grasses and herbaceous plant species. The hydric soils list for Sacramento County identifies two hydric inclusions occurring within this soil type, Columbia and Hicksville.

- **Red Bluff-Redding Complex, 0 to 5 Percent Slopes**: This soil complex is located on high terraces, between 90 to 310 feet above MSL. The Red Bluff soil is very deep and well drained. This soil formed in alluvium derived from mixed rock sources. This soil complex consists of approximately 45 percent Red Bluff soil and 40 percent Redding soil. Permeability is moderately slow and available water capacity is high in the Red Bluff soil. As a result, this soil type takes a moderately long time to saturate and the capacity of the soil to hold water available for use by most plant species is high. The Redding soil is moderately deep and moderately well drained. Permeability is very slow in the Redding soil and available water capacity is low. As a result, this soil type takes a long time to saturate and the capacity of the soil to hold water available for use by most plant species is low. This soil complex is used mainly as rangeland or to cultivate dry land crops, such as wheat. Typically, vegetation on this soil complex consists of non-native annual grasses and herbaceous plant species. The hydric soils list for Sacramento County identifies one unnamed hydric inclusion found within depressions of this soil type.
- **Redding Gravelly Loam, 0 to 8 Percent Slopes**: This moderately deep, well-drained soil type is located on high terraces and terrace remnants between 40 to 390 above MSL. This soil formed in gravelly and cobbled alluvium derived from mixed rock sources. Permeability is slow in Redding gravelly loam and available water capacity is low. As a result, this soil type takes a long time to saturate and the capacity of the soil to hold water available for use by most plant species is low. This soil unit is mainly used as rangeland for livestock grazing. In some areas this unit is used for irrigated hay and pasture or for dryland crops, such as wheat. Typically, vegetation on this soil unit consists of non-native annual grasses and herbaceous plant species. The hydric soils list for Sacramento County identifies one unnamed hydric inclusion found within depressions of this soil type.
- **Redding Loam, 2 to 8 Percent Slopes**: This moderately deep, moderately well-drained soil is on high terraces and terrace remnants between 40 to 170 feet above MSL. This soil formed in gravelly and cobbly alluvium derived from mixed rock sources. Permeability is very slow in the Redding soil and available water capacity is low. As a result, this soil type takes a long time to saturate and the capacity of the soil to hold water available for use by most plant species is low. This soil type is typically used for rangeland and less frequently for dryland crops, such as wheat, or irrigated crops, such as hay. Typically, vegetation on this soil unit consists of non-native annual grasses and herbaceous plant species. The hydric soils list for Sacramento County identifies one unnamed hydric inclusion found within depressions of this soil type.

4.2.2. Topography

The Site exhibits low relief topography with elevations ranging between 170 and 220 feet above MSL. The slopes throughout the Site range from approximately 0 to 8 percent. Moderate rolling

DRAFT

hills and extensive flatlands interspersed with seasonal drainage courses and wetlands typify the topography of the Site.

4.2.3. Regional Hydrology

The Site is located in the Upper Morrison Creek and Laguna Creek Watersheds (Hydrologic Unit Codes: 180201630402 and 180201630403). The Upper Morrison Creek Watershed encompasses approximately 50 square miles. The Laguna Creek Watershed encompasses approximately 45 square miles.

4.2.4. Site-Specific Hydrology

The Site is crossed by an unnamed intermittent drainage that runs northeast to southwest and flows offsite under Rancho Cordova Parkway. Water leaves the Site through the intermittent drainage as well as over land and through small riverine wetlands towards the east and south. Water enters the Site through the intermittent drainage, as well as through seasonal precipitation.

4.3. Vegetation

The vegetation assemblages and habitat types occurring on the Site include the following: California annual grassland and disturbed/development habitat.

4.3.1. California Annual Grassland

California annual grassland consists of a myriad of native and non-native annual plant species and occurs in a majority of the state at elevations from sea level to approximately 4,000 feet above MSL. Composition of this vegetation community varies depending on distribution, geographic location and land use. Additional major influences on this vegetation community include soil type, annual precipitation, and fall temperatures.

The plant community covering the majority of the Site is annual grassland, which accounts for 506.07 acres of the Site and is characterized primarily by an assemblage of non-native grasses and forbs. Much of the vegetation in these communities is common to the Central Valley. Dominant grass species consists of Italian rye grass (*Festuca perennis*), rattail sixweeks grass (*Festuca myuros*), soft brome (*Bromus hordeaceus*), and slender wild oat (*Avena fatua*). Common dominant herbaceous non-natives include jointed charlock (*Raphanus raphanistrum*) and field bindweed (*Convolvulus arvensis*).

4.3.2. Disturbed/Developed

Disturbed/developed habitat accounts for 2.45 acres in the Site. This habitat occurs in strictly defined areas consisting of portions of Rancho Cordova Parkway and a dirt roadway entering the Site from Big Meadow Way.

4.4. Classification of Aquatic Resources

As discussed previously in **Section 2.0**, aquatic resources are classified into multiple types based on topography, edaphics (soils), vegetation, and hydrologic regime. Primarily, the Corps

establishes two distinctions: wetland and non-wetland waters, which are commonly referred to as other waters.

Wetland types mapped within the Site include the following: depressional seasonal wetland, vernal pool, riverine seasonal wetland. Other waters delineated within the Site include: intermittent drainage, seasonal wet swale, and detention basin outfall. A description of all of the features delineated within the Site is provided in the following sections. Wetland data sheets are included in **Appendix C**.

4.4.1. Depressional Seasonal Wetland

A total of approximately **2.92 acres** of depressional seasonal wetlands have been identified within the Site. Depressional seasonal wetlands exhibit a hydrologic regime dominated by saturation, rather than inundation. Depressional seasonal wetlands were identified in the Site as depressions within the topography with a hydrologic regime dominated by saturation and capable of supporting hydrophytic plant species and hydric soils. Plant species in depressional seasonal wetlands are adapted to withstand short periods of saturation or saturated soils conditions but will not withstand prolonged periods of inundation, as is common in vernal pools. Vegetation observed in seasonal wetlands included: coyote thistle (*Eryngium vaseyi*), rabbitsfoot grass (*Polypogon monspeliensis*), hyssop loosestrife (*Lythrum hyssopifolia*), annual hairgrass (*Deschampsia danthonioides*), and Fremont's goldfields (*Lasthenia fremontii*).

4.4.2. Vernal Pool

A total of **15.04 acres** of vernal pools have been identified within the Site. Vernal pools are shallow, seasonally inundated depressional wetlands that form in soils with a subsurface layer that restricts the downward flow of water. These layers include hardpans, claypans, or thick clay layers. Vernal pools were identified in the Site as depressions within the topography with a hydrologic regime dominated by inundation and capable of supporting hydrophytic plant species and hydric soils. Plant species found within vernal pools are those that require extended periods of inundation and, as such, are commonly associated with these seasonal wetland features. Vegetation observed in the vernal pools onsite included: coyote thistle, Mediterranean barley, and stalked popcornflower (*Plagiobothrys stipitatus*).

4.4.3. Riverine Seasonal Wetland

A total of **1.66** acres of riverine seasonal wetlands have been identified within the Site. Riverine seasonal wetlands are defined by a hydrologic regime dominated by unidirectional flow of water. Riverine seasonal wetlands typically occur in topographic folds or swales and represent natural drainages that convey sufficient water to support wetland vegetation. Riverine seasonal wetlands typically convey water during and shortly after storm events. Riverine seasonal wetlands may have a moderately defined bed and bank and often exhibit sufficient gradient to convey water. As in depressional seasonal wetlands, plant species found within riverine seasonal wetlands are typically adapted to a hydrologic regime dominated by saturation rather than inundation. Dominant vegetation within the riverine seasonal wetlands includes: coyote thistle, rabbitsfoot grass, hyssop loosestrife, annual hairgrass, and Fremont's goldfields.

DRAFT

4.4.4. Seasonal Wet Swale

The seasonal wet swale accounts for **0.06 acres** of the Site and is located at the center of the southern boundary of the Site. Seasonal wet swales are not considered jurisdictional waterbodies, but do convey and hold water during and after storm events and can exhibit assemblages of wetland vegetation. Dominant vegetation of seasonal wet swales typically consists of grass and other wetland vegetation.

4.4.5. Intermittent Drainage

Intermittent drainages account for **1.54 acres** of the Site. Intermittent drainages are features that may not meet the three-parameter criteria for vegetation, hydrology, and soils, but do convey water and exhibit an OHWM. Water flows within intermittent drainages are fed primarily by precipitation and stormwater runoff. Dominant vegetation within consists of coyote thistle.

4.4.6. Detention Basin Outfall

The detention basin outfall accounts for **0.30 acres** of the Site and is located near the eastern end of the northern border. This detention basin outfall is actively maintained with reinforced large gravel barriers at either end. In addition, there does not appear to be any vegetation within or on the banks of the basin. The detention basin outfall is authorized by Regulatory Permit # 200100252.

DRAFT

5.0 CONCLUSIONS

All aquatic features that may have been impacted by The Ranch were mapped and addressed in a 2014 Preliminary Jurisdictional Determination (SPK-2004-00707), but modifications to the proposed design layout requires a new jurisdictional delineation.

The wetland types mapped within the Site include: depressional seasonal wetlands, vernal pools, and riverine seasonal wetlands. Non-wetland waters that were delineated within the Site include: seasonal wet swale, intermittent drainage, and detention basin outfall. The detention basin outfall is authorized by Regulatory Permit # 200100252. Areas deemed jurisdictional will be subject to the regulatory requirements of the federal Clean Water Act including permitting and mitigation, as required.

Table 1, below, summarizes the acreage per class of aquatic feature found on the Site. Detailed information on each feature is included in **Appendix C**.

TABLE 1 — AQUATIC RESOURCES WITHIN THE SITE

Aquatic Resource Type	Aquatic Resources Classification	Aquatic Resource Size (acres)
Depressional Seasonal Wetland	PEM2B	2.92
Vernal Pool	PEM2C	15.04
Riverine Seasonal Wetland	PEM2B	1.66
Seasonal Wet Swale	R4SB7	0.06
Intermittent Drainage	R4SB	1.54
Detention Basin Outfall	R4SB5	0.30
Total	**--**	**21.53***

*Acreages are calculated to six significant figures and subsequently round to three significant figures. Total acreage is further rounded to two significant figures.

DRAFT

6.0 REFERENCES

Baldwin. G., D. Goldman, D. Keil, R. Patterson, and T.J. Rosatti. 2012. *The Jepson Manual, 2nd Edition. Vascular Plants of California*. ISBN: 9780520253124. January 12, 2013. 1,600 pp.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Vicksburg, MS: U.S. Army Corps of Engineers Waterways Experiment Station.

GoogleEarth. 2017. Aerial photographs ranging from 1993 – 2017.

Gregtag Macbeth. 2000. *Munsell Soil Color Charts*. New Windsor, NY.

Hitchcock, A. 1935. *Manual of the Grasses of the United States*. Washington, D.C.: United States Government Printing Office.

Hitchcock, L., & Cronquist, A. 1996. *Flora of the Pacific Northwest*. Seattle, WA: University of Washington Press.

Lichvar, R.W., Butterwick, M., Melvin, N.C., and Kirchner, W. 2016. *The National Wetland Plant List: 2016 Wetland Ratings*. Phytoneuron 2016-30: 1–17. Published April 28, 2016. ISSN 2153 733X.

Lichvar, Robert W. and Shawn McColley. 2008. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. Vicksburg, MS: U.S. Army Corps of Engineers Research and Development Center.

Mason, H. 1957. *A Flora of the Marshes of California*. Berkeley, CA: University of California Press.

Munz, P. 1968. *A California Flora and Supplement*. Berkeley, CA: University of California Press.

National Research Council. 1995. *Wetlands: Characteristics and Boundaries*. Washington, D.C.: National Academy Press.

Sawyer, J., & Keeler-Wolf, T. 1995. *A Manual of California Vegetation*. Sacramento, CA: California Native Plant Society.

U.S. Army Corps of Engineers (USACE). 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0). U.S. Army Engineer Research and Development Center. Vicksburg, MS.

USACE. 2014. *Preliminary Jurisdictional Determination*; *SPK-2004-00707*. October 14, 2014.

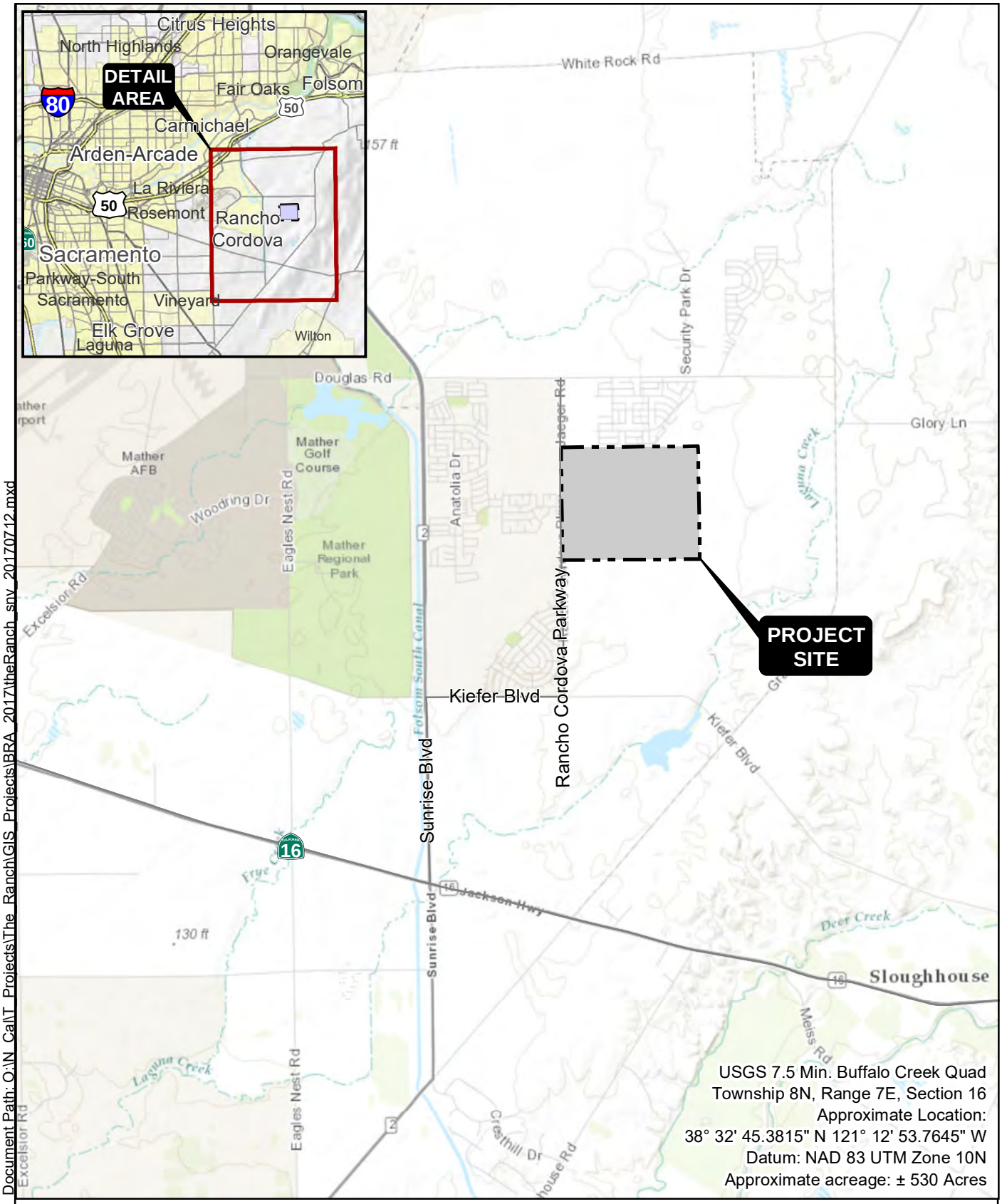
USACE. 2016. *Minimum Standards for Acceptance of Aquatic Resource Delineation Reports*.

U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 2010. *Field Indicators of Hydric Soils in the United States, Version 7.0*. L.M. Vasilas, G.W. Hurt,

and C.V. Noble (Eds). USDA, NRCS in cooperation with the National Committee for Hydric Soils. Fort Worth, TX.

USDA, NRCS. 2015. *Field Indicators of Hydric Soils in the United States, Version 7.0, 2015 Errata*.

DRAFT



USGS 7.5 Min. Buffalo Creek Quad
Township 8N, Range 7E, Section 16
Approximate Location:
38° 32' 45.3815" N 121° 12' 53.7645" W
Datum: NAD 83 UTM Zone 10N
Approximate acreage: ± 530 Acres

Document Path: Q:\N_Cal\T_Projects\The_Ranch\GIS_Projects\BRA_2017\theRanch_snv_20170712.mxd

SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

© 2017

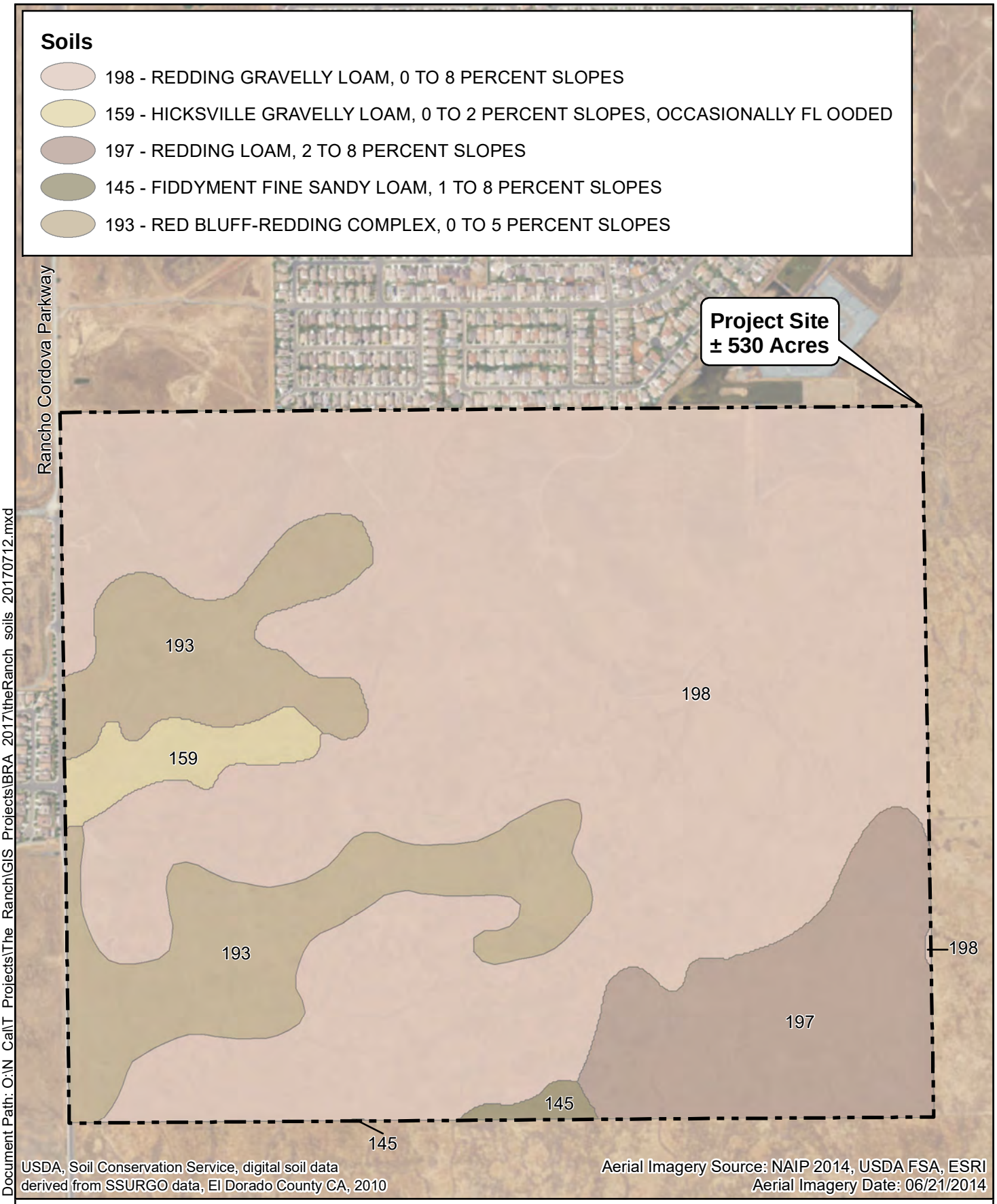
N

0 0.5 1
Miles
1 in = 1 miles

Drawn By: JFI
QA/QC: AMP
Date: 07/27/2017

FIGURE 1

Document Name: theRanch_snv_20170712.mxd : 10/13/2017 1:09:28 PM



Document Path: O:\N Cal\T Projects\The Ranch\GIS Projects\BRA 2017\theRanch soils 20170712.mxd

SOILS

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE
© 2017

N

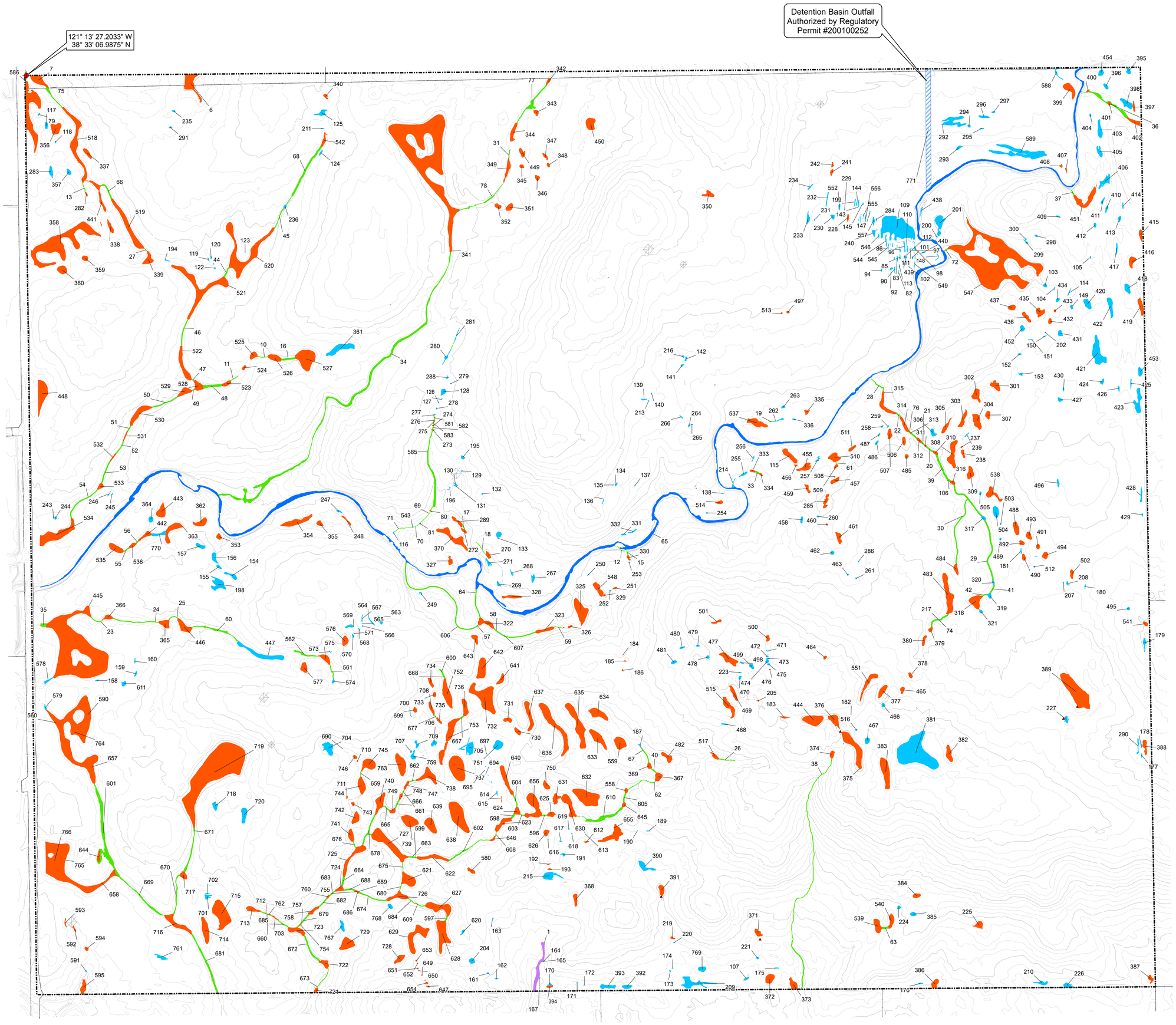
0 400 800
Feet
1 inch = 800 feet

Drawn By: JFI
QA/QC: AMP
Date: 07/27/2017

FIGURE 2

THE RANCH

Document Name: theRanch_soils_20170712.mxd : : 10/13/2017 1:14:09 PM



INDIVIDUAL WOUS FEATURE ACREAGES

DSW LABEL	ACRES*
79	0.001
81	0.001
82	0.000
83	0.002
84	0.000
85	0.002
86	0.002
87	0.000
88	0.001
89	0.000
90	0.001
91	0.000
92	0.002
93	0.000
94	0.001
95	0.000
96	0.004
97	0.000
98	0.002
99	0.000
100	0.000
101	0.001
102	0.000
103	0.005
104	0.001
105	0.001
107	0.004
109	0.288
110	0.003
111	0.000
112	0.001
113	0.001
114	0.002
116	0.001
117	0.008
118	0.001
119	0.001
120	0.001
121	0.000
122	0.001
123	0.000
124	0.003
125	0.019
126	0.000
127	0.000
128	0.012
129	0.000
130	0.002
131	0.001
132	0.001
133	0.013
134	0.002
135	0.000
136	0.001
137	0.000
138	0.001
139	0.003
140	0.000
141	0.002
142	0.003
143	0.002
144	0.001
145	0.000
146	0.001
147	0.001
148	0.002
149	0.004
150	0.001
151	0.001
152	0.002
153	0.004
154	0.017
155	0.006
156	0.019
157	0.015
158	0.002
159	0.003
160	0.002
161	0.001
162	0.001
163	0.000
164	0.001
165	0.001
167	0.001
170	0.003
171	0.000
172	0.000
173	0.001
174	0.000
175	0.002
176	0.002
177	0.001
178	0.001
179	0.009
180	0.002
181	0.002
187	0.002
188	0.000
189	0.001
190	0.000
191	0.004
194	0.001
195	0.005
196	0.000
197	0.000
198	0.055
199	0.002
200	0.001
201	0.051
202	0.000
204	0.012
207	0.001
208	0.003
209	0.069
210	0.015
211	0.001
212	0.000
213	0.000
214	0.003
215	0.040
216	0.002
217	0.000
218	0.000
220	0.000
221	0.002
222	0.000
223	0.001
224	0.004
226	0.013
227	0.009
229	0.000
230	0.007
231	0.000
232	0.005
233	0.010
234	0.003
235	0.002
236	0.004
239	0.002
240	0.008
243	0.001
244	0.002
245	0.001
246	0.001
247	0.004
249	0.002
250	0.001
252	0.001
253	0.001
254	0.001
255	0.006
256	0.002
257	0.004
258	0.001
259	0.001
260	0.001
261	0.001
262	0.003
263	0.004
264	0.001
265	0.001
266	0.002
267	0.009
268	0.003
269	0.005
271	0.008
277	0.001
278	0.001
279	0.000
280	0.007
281	0.003
283	0.015
284	0.001
286	0.001
287	0.000
288	0.002
290	0.007
291	0.002
292	0.062
293	0.007
294	0.003
295	0.002
296	0.010
297	0.002
298	0.002
299	0.003
300	0.001
306	0.014
317	0.006
319	0.007
320	0.003
321	0.004
331	0.003
332	0.004
336	0.002
337	0.009
cont. in second column	

DSW (CONTINUED) LABEL	ACRES*
361	0.073
364	0.011
381	0.410
385	0.009
390	0.032
392	0.015
393	0.024
395	0.010
396	0.009
398	0.033
403	0.029
404	0.002
405	0.018
406	0.032
409	0.003
410	0.006
411	0.005
412	0.005
413	0.006
414	0.002
417	0.006
418	0.021
420	0.026
421	0.105
422	0.034
423	0.051
424	0.006
425	0.004
426	0.003
427	0.007
428	0.006
429	0.001
430	0.002
431	0.010
434	0.005
438	0.004
439	0.001
440	0.002
447	0.087
452	0.011
453	0.016
454	0.013
458	0.006
462	0.005
463	0.001
466	0.005
467	0.012
468	0.003
470	0.003
471	0.001
472	0.001
473	0.002
474	0.004
475	0.002
478	0.004
479	0.002
480	0.004
481	0.007
486	0.004
487	0.002
489	0.001
495	0.003
496	0.006
498	0.002
499	0.008
503	0.001
504	0.026
505	0.003
512	0.001
516	0.001
543	0.030
544	0.004
545	0.002
546	0.001
549	0.001
550	0.000
552	0.004
553	0.000
554	0.001
555	0.000
556	0.001
557	0.006
563	0.011
564	0.004
565	0.000
566	0.001
567	0.002
568	0.001
569	0.008
570	0.002
571	0.000
572	0.000
573	0.000
574	0.004
578	0.007
579	0.003
588	0.006
589	0.155
591	0.001
611	0.008
613	0.000
615	0.001
616	0.000
617	0.001
618	0.000
619	0.001
620	0.005
690	0.000
691	0.000
692	0.000
693	0.000
694	0.000
695	0.000
696	0.000
697	0.000
698	0.000
700	0.000
701	0.010
702	0.001
704	0.047
705	0.044
706	0.011
707	0.001
709	0.008
718	0.015
720	0.033
751	0.034
759	0.012
761	0.015
767	0.016
768	0.008
769	0.017
770	0.017
SUBTOTAL	2.921

RSW LABEL	ACRES*
10	0.002
11	0.002
12	0.001
13	0.002
14	0.001
15	0.002
16	0.012
17	0.002
18	0.002
19	0.001
20	0.006
21	0.003
22	0.004
23	0.005
24	0.015
25	0.004
26	0.005
27	0.001
28	0.007
29	0.042
30	0.060
31	0.002
32	0.001
33	0.003
34	0.308
35	0.010
36	0.044
37	0.003
38	0.067
39	0.027
40	0.003
41	0.007
42	0.003
43	0.006
44	0.008
45	0.007
46	0.012
47	0.001
48	0.024
49	0.001
50	0.013
51	0.003
52	0.007
53	0.014
54	0.020
55	0.003
56	0.002
57	0.045
58	0.014
59	0.001
60	0.027
61	0.000
62	0.006
63	0.006
64	0.014
66	0.012
67	0.008
68	0.053
69	0.002
cont. in third column	

RSW (CONTINUED) LABEL	ACRES*
70	0.001
71	0.002
72	0.002
73	0.000
74	0.016
75	0.014
76	0.006
77	0.038
78	0.015
561	0.006
562	0.016
581	0.002
582	0.001
583	0.001
584	0.000
585	0.058
596	0.003
597	0.003
598	0.005
599	0.001
600	0.005
601	0.140
602	0.018
603	0.002
604	0.006
605	0.008
606	0.010
607	0.006
608	0.001
609	0.003
610	0.051
659	0.001
660	0.004
661	0.002
662	0.002
663	0.004
664	0.007
665	0.004
666	0.005
667	0.003
668	0.003
669	0.043
670	0.018
671	0.025
672	0.020
673	0.005
674	0.014
675	0.002
676	0.003
677	0.001
678	0.020
679	0.009
680	0.002
681	0.046
682	0.007
683	0.004
684	0.003
685	0.006
686	0.000
687	0.000
688	0.008
689	0.000
SUBTOTAL	1.664

VP LABEL	ACRES*
6	0.085
7	0.054
80	0.001
106	0.000
108	0.001
115	0.041
182	0.000
183	0.005
184	0.000
185	0.001
186	0.001
192	0.001
193	0.002
203	0.000
205	0.001
206	0.000
219	0.003
225	0.022
228	0.005
237	0.001
238	0.009
241	0.006
242	0.004
248	0.008
251	0.003
270	0.011
272	0.007
273	0.001
274	0.001
275	0.001
276	0.001
282	0.003
285	0.019
289	0.017
301	0.029
302	0.036
303	0.028
304	0.047
305	0.021
307	0.014
308	0.070
309	0.030
310	0.006
311	0.002
312	0.007
313	0.001
314	0.023
315	0.045
316	0.007
318	0.056
322	0.035
323	0.026
324	0.000
325	0.099
326	0.004
327	0.013
328	0.022
329	0.002
330	0.005
333	0.005
334	0.003
335	0.008
337	0.019
338	0.018
339	0.034
340	0.006
341	1.078
342	0.007
343	0.010
344	0.031
345	0.006
346	0.009
347	0.008
348	0.004
349	0.026
350	0.022
351	0.019
352	0.012
353	0.011
354	0.066
355	0.012
356	0.045
358	0.416
359	0.013
360	0.032
362	0.033
363	0.060
365	0.031
366	0.016
367	0.024
368	0.018
369	0.010
370	0.085
371	0.018
372	0.034
373	0.030
374	0.013
375	0.124
376	0.041
377	0.026
378	0.008
379	0.007
380	0.013
382	0.035
383	0.099
384	0.014
386	0.023
387	0.012
388	0.021
389	0.237
391	0.023
394	0.008
397	0.008
399	0.044
400	0.003
401	0.004
402	0.021
407	0.002
408	0.003
415	0.013
416	0.026
419	0.028
432	0.008
433	0.002
435	0.026
436	0.019
437	0.016
441	0.021
442	0.021
443	0.043
cont. in fourth column	

VP (CONTINUED) LABEL	ACRES*
444	0.080
445	1.012
446	0.047
448	0.107
449	0.017
450	0.047
451	0.072
455	0.031
456	0.002
457	0.016
459	0.011
460	0.001
461	0.021
464	0.004
465	0.010
469	0.024
476	0.001
477	0.052
482	0.026
483	0.110
484	0.016
485	0.006
488	0.029
490	0.009
491	0.007
492	0.010
493	0.016
494	0.015
497	0.003
500	0.010
501	0.010
502	0.012
506	0.011
507	0.017
508	0.001
509	0.005
510	0.036
511	0.011
513	0.001
514	0.009
515	0.046
517	0.013
518	0.169
519	0.119
520	0.257
521	0.213
522	0.065
523	0.016
524	0.006
525	0.019
526	0.034
527	0.142
528	0.031
529	0.033
530	0.066
531	0.005
532	0.005
533	0.012
534	0.147
535	0.041
536	0.011
537	0.051
538	0.040
539	0.039
540	0.027
541	0.008
542	0.015
547	0.992
548	0.034
551	0.047
558	0.006
559	0.056
560	0.050
575	0.027
576	0.023
577	0.026
580	0.012
586	0.207
590	0.065
592	0.004
593	0.004
594	0.005
595	0.028
612	0.003
614	0.001
621	0.069
622	0.047
623	0.040
624	0.017
625	0.015
626	0.013
627	0.087
628	0.120
629	0.110
630	0.069
631	0.024
632	0.153
633	0.067
634	0.062
635	0.145
636	0.151
637	0.058
638	0.172
639	0.059
640	0.057
641	0.020
642	0.075
643	0.019
644	0.011
645	0.007
646	0.006
647	0.002
648	0.000
649	0.000
650	0.000
651	0.001
652	0.000
653	0.001
654	0.002
655	0.078
656	0.107
657	0.097
658	0.057
699	0.007
703	0.003
708	0.017
710	0.001
711	0.002
712	0.000
713	0.023
714	0.067
715	0.162
716	0.069
717	0.019
719	0.895
721	0.008
722	0.023
723	0.038
724	0.015
725	0.068
726	0.042
727	0.157
728	0.025
729	0.062
730	0.014
731	0.015
732	0.187
733	0.006
734	0.014
735	0.007
736	0.037
737	0.156
738	0.066
739	0.071
740	0.054
741	0.026
742	0.031
743	0.004
744	0.046
745	0.058
746	0.005
747	0.009
748	0.007
749	0.011
750	0.019
752	0.080
753	0.110
754	0.001
755	0.003
756	0.000
757	0.001
758	0.016
760	0.003
762	0.001
763	0.074
764	0.394
765	0.134
766	0.294
SUBTOTAL	15.042

SWS LABEL	ACRES*
1	0.059

ID LABEL	ACRES*
65	1.544

DBO LABEL	ACRES*
771	0.303

TOTAL**	**21.53**

*Individual acreage reported to 3 significant figures. Features shown as 0 are < 0.0005 ac.
Digital GIS data file provides area in square feet as well as acres.
**Based on sum of subtotals at 2 significant figures.

WATERS OF THE U.S. CLASSIFICATION	ACREAGE
DEPRESSIONAL WETLANDS	
Seasonal Wetland (DSW)	2.921
Vernal Pool (VP)	15.042
RIVERINE WETLANDS	
Seasonal Wetland (RSW)	1.664
Seasonal Wet Swale (SWS)	0.059
OTHER WATERS OF THE U.S.	
Intermittent Drainage (ID)	1.544
Drainage Basin Outfall	0.303
TOTAL	21.53

Other Features

- Data Point
- Project Boundary ±530 Acres

NOTES

- Delineated waters of the U.S, verified 8/15/05; #200400700.
- Digital base data provided by Wood Rodgers, Inc. Contour interval is 1 foot.
- Hydrologic Unit Code (HUC) for this site is 18020109.
- This wetland delineation utilizes the Corps' 1987 three-parameter methodology to delineate jurisdictional waters of the U.S.
- Study area wetlands and other waters of the U.S. were mapped using a Trimble GPS (Global Positioning System).

0 200 400
SCALE IN FEET

FIGURE 3

WETLAND DELINEATION

THE RANCH

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

© 2014

DATE: 07/06/05
DELINEATED BY: CJS/RHB/KDW
(11/03 - 03/04, 05/04, 03/05 - 04/05 - 6/14)
REVISED: 10/09/2014
DRAWN BY: MUB

Document Path: O:\N_Cal\T_Projects\The_Ranch\GIS_Projects\Wetland_Delineation_ReSub_20140924.mxd

Document Name: Wetland_Delineation_ReSub_20140924 : 10/9/2014 3:41:02 PM

Appendix A — Contact Information and Directions

Client/Agent Contact Information:	Olga Sciorelli K. Hovnanian Homes 3721 Douglas Boulevard, Suite 150 Roseville, CA 95661 Phone Number: (916) 945-5362 Email: osciorelli@khov.com
Delineation Conducted By:	David Bise (Point of Contact) Rosie Black Cristian Singer Foothill Associates 590 Menlo Drive, Suite 5 Rocklin, CA 95765 Phone Number: (916) 435-1202 Email: dbise@foothill.com
Directions to the Project Site:	From Highway 50 east, take the Zinfandel Drive exit, turn right to stay on Zinfandel Drive, left onto Douglas Road, right onto Sunrise Boulevard, left onto Chrysanthy Boulevard, right on Steccato Drive, left on Appolon Drive, right on Sophistry Drive, left on Pericles Drive, and then left on Rancho Cordova Parkway. Rancho Cordova Parkway is the west boundary of the Project Site. The Project Site can be located within Section 16 of Township 8 North, Range 7 East on the USGS *Buffalo Creek*, California 7.5-minute quadrangle (38°32'45.6"N, 121°12'54.5"W).

DRAFT

Appendix B — Signed Statement Form Property Owner(s) Allowing Access

DRAFT

In the event the U.S. Army Corps of Engineers determined that a site inspection is necessary, I request the USACE to first contact Foothill Associates (Attn: David Bise) at (916) 435-1202 to schedule a date and time to enter the property described in this report. If the property is land-locked, the owner or proponent must obtain permission from the adjacent property owner(s) in order to provide access. I understand that this may delay the USACE's jurisdictional determination and the USACE's issuance of a determination letter.

Signature of Property Owner (s)	Date
Printed Name	
Signature of Property Owner (s)	Date
Printed Name	

DRAFT

Appendix C — Routine Wetland Determination Data Forms

Data forms provided herein are from the original 2005 delineation. While modifications and additions to jurisdictional features occurred between the original delineation and the 2014 Preliminary Jurisdictional Determination (Regulatory No. SPK-2004-00707), formal data forms were not required and are therefore not included.

DRAFT

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Jaeger 530 Applicant/Owner: River West Investments, Inc. Investigator: Cristian Singer	Date: 03/24/2004 County: Sacramento State: California
Do Normal Circumstances exist on the site? ◉ Yes ○ No Is the site significantly disturbed (Atypical Situation)? ○ Yes ◉ No Is the area a potential Problem Area? ○ Yes ◉ No (If needed, explain on reverse.)	Community ID: UPL Transect ID: 1 Plot ID: N/A

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Trifolium subterraneum (65%)	HERB		9.		
2. Deschampsia danthonioides (15%	HERB	FACW	10.		
3. Elatine sp. (5%)	HERB	OBL	11.		
4. Poa annua (10%)	HERB	FACW-	12.		
5. Ranunculus bonariensis (5%)	HERB	OBL	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0 %

Remarks: Trifolium subterraneum is not on the list (NL). Dominant vegetation is not hydrophytic.

HYDROLOGY

☑ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☑ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: 10.0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☑ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☑ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Wetland hydrology present.

SOILS

Map Unit Name (Series and Phase): Redding loam, 2-8% slopes

Drainage Class: D

Taxonomy (Subgroup): Abruptic Durixeralfs

Field Observations Confirm Mapped Type? ◉ Yes ○ No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
1-2	O	N/A	N/A	N/A	N/A
2-12	A	5YR 3/4	10 YR 5/1	comm,med, distinct	silt loam

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: First 1-2 inches consist of mainly organic matter, root zone with no discernible matrix, etc. Hydric soil indicators not present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	○ Yes	◉ No
Wetland Hydrology Present?	◉ Yes	○ No
Hydric Soils Present?	○ Yes	◉ No

Is this Sampling Point Within a Wetland? ○ Yes ◉ No

Remarks: Does not meet all three parameters; sampling period occurred during the wet season, hydrology unreliable; upland (UPL).

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Jaeger 530 Applicant/Owner: River West Investments, Inc. Investigator: Cristian Singer	Date: 03/24/2004 County: Sacramento State: California
Do Normal Circumstances exist on the site? ◉ Yes ○ No Is the site significantly disturbed (Atypical Situation)? ○ Yes ◉ No Is the area a potential Problem Area? ○ Yes ◉ No (If needed, explain on reverse.)	Community ID: UPL Transect ID: 2 Plot ID: N/A

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Trifolium subterraneum (60%)	HERB		9.		
2. Hordeum marinum (15%)	HERB	FAC	10.		
3. Poa annua (10%)	HERB	FACW-	11.		
4. Elatine sp. (5%)	HERB	OBL	12.		
5. (Hypochaeris glabra) (10%)	HERB	NI	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0 %

Remarks: Trifolium subterraneum is not on the list (NL). Hydrophytic vegetation not dominant.

HYDROLOGY

☑ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☑ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: 12.0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☑ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☑ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Wetland hydrologic indicators present.

SOILS

Map Unit Name (Series and Phase): Redding loam, 2-8% slopes

Drainage Class: D

Taxonomy (Subgroup): Abruptic Durixeralfs

Field Observations Confirm Mapped Type? (●) Yes ( ) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
1-2	O	N/A	N/A	N/A	N/A
2-14	A	5 YR 3/4	10 YR 5/1	comm. lg, distinct	silt loam

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☑ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Manganese stains, mottling common. Meets criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(●) Yes	( ) No
Wetland Hydrology Present?	(●) Yes	( ) No
Hydric Soils Present?	(●) Yes	( ) No

Is this Sampling Point Within a Wetland? ( ) Yes (●) No

Remarks: Does not all three parameters; sampling period occurred during the wet season, hydrology unreliable; upland (UPL).

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Jaeger 530 Applicant/Owner: River West investments, Inc. Investigator: Cristian Singer	Date: 03/24/2004 County: Sacramento State: California
Do Normal Circumstances exist on the site? ◉ Yes ○ No Is the site significantly disturbed (Atypical Situation)? ○ Yes ◉ No Is the area a potential Problem Area? ○ Yes ◉ No (If needed, explain on reverse.)	Community ID: UPL Transect ID: 3 Plot ID: N/A

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Trifolium subterraneum (65%)	HERB		9.		
2. Deschampsia danthonioides 10%	HERB	FACW	10.		
3. Poa annua (5%)	HERB	FACW-	11.		
4. Elatine sp. (5%)	HERB	OBL	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0 %

Remarks: Trifolium subterraneum is not on the list (NL). Dominant vegetation is not hydrophytic.

HYDROLOGY

☑ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☑ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☑ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Moist but not saturated at 12.0 inches. Wetland hydrologic indicators not present. Does not meet criteria.

SOILS

Map Unit Name (Series and Phase): Redding gravelly loam, 0-8% slopes

Drainage Class: D

Taxonomy (Subgroup): Abruptic Durixeralfs

Field Observations Confirm Mapped Type? ◉ Yes ○ No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-2	O	N/A	N/A	N/A	gravelly loam w/cobble
1.4	A	7.5 YR 3/4	2.5Y 6/1	comm., lrg, promine	gravelly silt loam
4-12	A	5 YR 3/4	2.5Y 6/1	comm., lrg, promine	silt loam

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: First 1-2 inches are mix of root zone and cobble, gravel. Cobble up to 2.0" throughout but somewhat smaller at 6"-12" profile. Mottling and manganese up to at least 12.0": Mottle and matrix co-dominate in 1"-4" profile. Does not meet criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	○ Yes	◉ No
Wetland Hydrology Present?	○ Yes	◉ No
Hydric Soils Present?	○ Yes	◉ No

Is this Sampling Point Within a Wetland? ○ Yes ◉ No

Remarks: Does not meet all three parameters; upland (UPL).

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Jaeger 530 Applicant/Owner: Rive West Investments, Inc. Investigator: Cristian Singer	Date: 03/24/2004 County: Sacramento State: California
Do Normal Circumstances exist on the site? ◉ Yes ○ No Is the site significantly disturbed (Atypical Situation)? ○ Yes ◉ No Is the area a potential Problem Area? ○ Yes ◉ No (If needed, explain on reverse.)	Community ID: DSW Transect ID: 4 Plot ID: A

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Ranunculus bonariensis (40%)	HERB	OBL	9. other species, 3-5% cover		
2. Hordeum marinum (15%)	HERB	FAC	10. Cordylanthus sp.	HERB	NI
3. Trifolium subterraneum (10%)	HERB	NI	11. Briza minor	HERB	FACW-
4. Poa annua (15%)	HERB	FACW-	12. Juncus bufonius	HERB	FACW+
5.			13. Psilocarphus sp.	HERB	OBL
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100 %

Remarks: Hydrophytic vegetation dominant.

HYDROLOGY

☑ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☑ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☑ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☑ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Shallow depression; wetland hydrology indictors present.

SOILS

Map Unit Name (Series and Phase): Redding loam, 2-8% slopes

Drainage Class: D

Taxonomy (Subgroup): Abruptic Durixeralfs

Field Observations Confirm Mapped Type? (•) Yes ( ) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
1-12	A	5 YR 3/4	10 YR 5/1	com., med, promine	silt loam

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☑ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Hydric soil indicators present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(•) Yes	( ) No
Wetland Hydrology Present?	(•) Yes	( ) No
Hydric Soils Present?	(•) Yes	( ) No

Is this Sampling Point Within a Wetland? (•) Yes ( ) No

Remarks: Meets all three parameters; depressional seasonal wetland (DSW).

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Jaeger 530 Applicant/Owner: River West Investments, Inc. Investigator: Cristian Singer	Date: 03/24/2004 County: Sacramento State: California
Do Normal Circumstances exist on the site? ◉ Yes ○ No Is the site significantly disturbed (Atypical Situation)? ○ Yes ◉ No Is the area a potential Problem Area? ○ Yes ◉ No (If needed, explain on reverse.)	Community ID: UPL Transect ID: 4 Plot ID: B

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Taeniatherum caput-medusae 35%	HERB	NI	9.		
2. Holocarpha virgata (20%)	HERB	NI	10.		
3. Bromus hordeaceus (20%)	HERB	FACU-	11.		
4. Trifolium subterraneum (10%)	HERB	NI	12.		
5. Hordeum marinum (10%)	HERB	FAC	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0 %

Remarks: NI/FACU vegetation dominant.

HYDROLOGY

☑ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☑ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☑ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Wetland hydrology indicators not present.

SOILS

Map Unit Name (Series and Phase): Redding loam, 2-8% slopes

Drainage Class: D

Taxonomy (Subgroup): Abruptic Durixeralfs

Field Observations Confirm Mapped Type? ◉ Yes ○ No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-12	A	7.5 YR 3/3	N/A	few, fine, faint	silt loam

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☑ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Concretions are small and hard - relict. Does not meet criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	○ Yes	◉ No
Wetland Hydrology Present?	○ Yes	◉ No
Hydric Soils Present?	○ Yes	◉ No

Is this Sampling Point Within a Wetland? ○ Yes ◉ No

Remarks: Does not meet criteria; upland (UPL).

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Jaeger 530 Applicant/Owner: River West Investments, Inc. Investigator: Cristian Singer	Date: 03/24/2004 County: Sacramento State: California
Do Normal Circumstances exist on the site? (•) Yes ( ) No Is the site significantly disturbed (Atypical Situation)? ( ) Yes (•) No Is the area a potential Problem Area? (•) Yes ( ) No (If needed, explain on reverse.)	Community ID: VP Transect ID: 5 Plot ID: A

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Ranunculus bonariensis (45%)	HERB	OBL	9.		
2. Eryngium vaseyi (20%)	HERB	FACW	10.		
3. Glyceria sp. (15%)	HERB	OBL	11.		
4. Eleocharis macrostachya (10%)	HERB	OBL	12.		
5. Deschampsia danthonioides (10%	HERB	FACW	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100 %

Remarks: Hydrophytic vegetation dominant.

HYDROLOGY

- [x] Recorded Data (Describe in Remarks):
  - [ ] Stream, Lake, or Tide Gauge
  - [x] Aerial Photographs
  - [ ] Other
- [ ] No Recorded Data Available

Field Observations:

Depth of Surface Water: 4.0-7.0 (in.)

Depth to Free Water in Pit: 0.0 (in.)

Depth to Saturated Soil: 0.0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- [x] Inundated
- [x] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [ ] Local Soil Survey Data
- [ ] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks: Wetland hydrology indicators present.

SOILS

Map Unit Name (Series and Phase): Redding loam, 2-8% slopes

Drainage Class: D

Taxonomy (Subgroup): Abruptic Durixeralfs

Field Observations Confirm Mapped Type? (•) Yes ( ) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-3	A	7.5 YR 4/1	N/A	few,small,faint	silty clay loam
3-12	A	7.5 YR 4/2	2.5 YR 3/6	many, lrg, distinct	silty clay loam

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☑ Gleyed or Low-Chroma Colors
- ☑ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☑ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Many soft, large concretions. Large mottles throughout the 3-12 inch layer. Hydric soil indicators present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(•) Yes	( ) No
Wetland Hydrology Present?	(•) Yes	( ) No
Hydric Soils Present?	(•) Yes	( ) No

Is this Sampling Point Within a Wetland? (•) Yes ( ) No

Remarks: Meets all three parameters; vernal pool (VP).

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Jaeger 530 Applicant/Owner: River West Investments, Inc. Investigator: Cristian Singer	Date: 03/24/2004 County: Sacramento State: California
Do Normal Circumstances exist on the site? ◉ Yes ○ No Is the site significantly disturbed (Atypical Situation)? ○ Yes ◉ No Is the area a potential Problem Area? ○ Yes ◉ No (If needed, explain on reverse.)	Community ID: UPL Transect ID: 5 Plot ID: B

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Trifolium subterraneum (70%)	HERB		9.		
2. Taeniatherum caput-medusae 15'	HERB	NI	10.		
3. Erodium sp. (10%)	HERB	NI	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0 %

Remarks: Trifolium subterraneum is not listed (NL). Vegetation community is dominantly NI.

HYDROLOGY

☑ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☑ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: 10.0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☑ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☑ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Wetland hydrology indicators present.

SOILS

Map Unit Name (Series and Phase): Redding loam, 2-8% slopes

Drainage Class: D

Taxonomy (Subgroup): Abruptic Durixeralfs

Field Observations Confirm Mapped Type? ◉ Yes ○ No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-10	A	5 YR 4/3	N/A	N/A	silt loam

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Hydric soil indicators not present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	○ Yes	◉ No
Wetland Hydrology Present?	◉ Yes	○ No
Hydric Soils Present?	○ Yes	◉ No

Is this Sampling Point Within a Wetland? ○ Yes ◉ No

Remarks: Does not meet all three parameters; upland (UPL).

Appendix D — Aquatic Resources Excel Spreadsheet

Information that would normally be included in the aquatic resources excel spreadsheet can be found in the CD submitted with the associated new Clean Water Act 404 application package.

DRAFT

APPENDIX C.2

Biological Resources Assessment

Biological Resources Assessment

The Ranch ±530- Acre Study Area
City of Rancho Cordova, California

DRAFT

Prepared for:

K. Hovnanian Homes

October 13, 2017

Prepared by:

FOOTHILL ASSOCIATES

© 2017

TABLE OF CONTENTS

1.0 Introduction 1
1.1. Project Description 1
2.0 Regulatory Framework 2
2.1. Federal Regulations 2
2.1.1. Federal Endangered Species Act 2
2.1.2. Migratory Bird Treaty Act 2
2.1.3. The Bald and Golden Eagle Protection Act 2
2.2. State Jurisdiction 3
2.2.1. California Endangered Species Act 3
2.2.2. California Department of Fish and Game Codes 3
2.2.3. Native Plant Protection Act 3
2.3. Jurisdictional Waters 3
2.3.1. Federal Jurisdiction 3
2.3.2. State Jurisdiction 5
2.4. CEQA Significance 5
2.4.1. California Native Plant Society 6
2.4.2. California Department of Fish and Wildlife Species of Concern 7
2.5. Draft South Sacramento Habitat Conservation Plan 7
2.6. City of Rancho Cordova General Plan 7
3.0 Methods 8
4.0 Results 10
4.1. Study Area Location and Description 10
4.2. Physical Features 10
4.2.1. Topography and Drainage 10
4.2.2. Soils 10
4.3. Biological Communities 12
4.3.1. Annual Grassland 12
4.3.2. Developed/Disturbed 12
4.3.3. Seasonal Wetland 13
4.3.4. Vernal Pool 13
4.3.5. Intermittent Drainage 13

DRAFT

4.3.6. Seasonal Wet Swale 13
4.3.7. Detention Basin Outfall 13
4.4. Special-Status Species 14
4.4.1. Listed and Special-Status Plants 15
4.4.2. Listed and Special-Status Wildlife 16
4.5. Sensitive Habitats 19
4.5.1. Jurisdictional Waters of the U.S. and State 19
5.0 Conclusions and Recommendations 20
5.1. Special-Status Plant Species 21
5.2. Western Spadefoot 21
5.3. American Badger 22
5.4. Vernal Pool Branchiopods 22
5.5. Swainson's Hawk 23
5.6. Burrowing Owl 23
5.7. Golden Eagle Foraging Habitat 24
5.8. Other Raptors and Migratory Birds 24
5.9. Pallid Bat 25
5.10. Sensitive Habitats 26
5.10.1. Jurisdictional Waters 26
5.11. Summary of Avoidance and Minimization Measures 27
6.0 References 28

List of Tables

Table 1 — Impacts to Biological Communities 20
Table 2 — Impacts to Sensitive Habitats 26

List of Figures

Figure 1 — Site and Vicinity 30
Figure 2 — Soils 31
Figure 3 — Biological Communities 32
Figure 4 — Proposed Project Impacts to Biological Communities 33

DRAFT

List of Appendices

Appendix A — Applicable Sections of Rancho Cordova General Plan and South Sacramento Habitat Conservation Plan
Appendix B — Regionally Occurring Listed and Special-Status Species
Appendix C — Plants and Wildlife Observed in the Study Area

DRAFT

Executive Summary

Foothill Associates' biologists synthesized the results of June 12 and 13, 2017, surveys within the 530-acre Study Area and past studies and biological reports to produce an up to date biological resources assessment of The Ranch Project located within the City of Rancho Cordova, California. The Study Area lies immediately east of Rancho Cordova Parkway and a half mile south of Douglas Road. The purpose of this document is to summarize the general biological resources within the Study Area, to assess the suitability of the Study Area to support special-status species and sensitive habitat types, and to provide recommendations for regulatory permitting or further analysis that may be required prior to development activities occurring on the site.

The Ranch site (Study Area) consists of ±530 acres of land that is dominated by annual grassland that is bisected northeast to southwest by an intermittent drainage and interspersed with numerous vernal pools and other seasonal wetlands. Land uses surrounding the Study Area include livestock grazing and residential development.

Known or potential biological constraints in the Study Area include the following:

- Wetlands and other waters of the U.S. subject to Clean Water Act 404/401 and Section 1600 of Fish and Game Code regulations;
- Potential habitat for special-status plants Ahart's dwarf rush, dwarf downingia, pincushion navarretia, and hoary navarretia;
- Potential habitat for western burrowing owl;
- Assumed occupied habitat for federally-listed vernal pool branchiopods; and
- Potential habitat for western spadefoot, American badger, western pond, pallid bat, and nesting birds.

DRAFT

1.0 INTRODUCTION

This report summarizes the findings of previous surveys, studies, and reports as well as 2017 fieldwork completed for the approximate 530-acre Study Area, located within the City of Rancho Cordova, California. This document addresses the onsite physical features, as well as plant communities present and the common plant and wildlife species occurring, or potentially occurring within the Study Area. Furthermore, the suitability of habitats to support special-status species and sensitive habitats are analyzed and recommendations are provided for any regulatory permitting or further analysis required prior to development activities occurring within the Study Area.

1.1. Project Description

The Ranch, also known as Jaeger Ranch, The Preserve, and Sunridge 530, is a ±530-acre parcel located approximately five miles southeast of downtown Rancho Cordova. The Study Area lies immediately east of Rancho Cordova Parkway, north of Kiefer Boulevard, west of Grant Line Road, and south of Douglas Road. The proposed project involves grading portions of the site and filling approximately 6.54 acres of waters of the U.S., including wetlands, to construct a mixed-use development. Proposed development includes: 314.62 acres of low density residential and light commercial development.

DRAFT

2.0 REGULATORY FRAMEWORK

Federal, State, and local environmental laws, regulations, and policies relevant to the California Environmental Quality Act (CEQA) review process are summarized below. The CEQA significance criteria are also included in this section.

2.1. Federal Regulations

2.1.1. Federal Endangered Species Act

The U.S. Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3)(19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR §17.3). Actions that result in take can result in civil or criminal penalties.

In the context of the proposed project, FESA consultation with the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) would be initiated if development resulted in take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

2.1.2. Migratory Bird Treaty Act

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of State and federal laws. The federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior.

2.1.3. The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (Eagle Act) prohibits the taking or possession of and commerce in bald and golden eagles with limited exceptions. Under the Eagle Act, it is a violation to "*take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof.*" Take is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, and disturb. Disturb is further defined in 50 CFR Part 22.3 as "*to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to*

an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

2.2. State Jurisdiction

2.2.1. California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to the FESA but pertains to State-listed endangered and threatened species. CESA requires state agencies to consult with the California Department of Fish and Wildlife (CDFW), when preparing CEQA documents. The purpose is to ensure that the State lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code §2080). CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows CDFW to authorize exceptions to the State's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code § 2081).

2.2.2. California Department of Fish and Game Codes

A number of species have been designated "fully protected" species under Sections 5515, 5050, 3511, and 4700 of the Fish and Game Code, but are not listed as endangered (Section 2062) or threatened (Section 2067) species under CESA. Except for take related to scientific research, all take of fully protected species is prohibited. The California Fish and Game Code defines take as "*hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.*" Additionally, Section 3503 of the California Fish and Game Code prohibits the killing of birds or the destruction of bird nests.

2.2.3. Native Plant Protection Act

The Native Plant Protection Act (NPPA), enacted in 1977, allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants protected under the NPPA. The NPPA prohibits take of endangered or rare native plants, with some exceptions for agricultural and nursery operations and emergencies. Vegetation removal from canals, roads, and other Study Areas, changes in land use, and certain other situations require proper advance notification to CDFW.

2.3. Jurisdictional Waters

2.3.1. Federal Jurisdiction

The U.S. Army Corps of Engineers (Corps) regulates discharge of dredge or fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA). "Discharges of fill material"

is defined as the addition of fill material into waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; Study Area-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and subaqueous utility lines [33 C.F.R. §328.2(f)].

Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Boundaries between jurisdictional waters and uplands are determined in a variety of ways depending on which type of waters is present. Methods for delineating wetlands and non-tidal waters are described below.

- Wetlands are defined as "*those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions*" [33 C.F.R. §328.3(b)]. Presently, to be a wetland, a Study Area must exhibit three wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the "normal circumstances" for the Study Area.
- The lateral extent of non-tidal waters is determined by delineating the ordinary high water mark (OHWM) [33 C.F.R. §328.4(c)(1)]. The OHWM is defined by the Corps as "*that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas*" [33 C.F.R. §328.3(e)].

An aquatic feature is determined to be a water of the U.S. based on nexus with a traditionally navigable water pursuant to the Supreme Court's decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208) and agency guidance subsequent to this decision. Under these rules, the Corps asserts jurisdiction over wetlands adjacent to traditional navigable waters, relatively permanent non-navigable tributaries (i.e., waters that have a continuous flow at least three months out of the year), and wetlands that abut relatively permanent tributaries. The Corps determines jurisdiction over waters that are non-navigable tributaries that are not relatively permanent, and wetlands adjacent to these tributaries, by making a determination whether such waters "significantly affect the chemical, physical, and biological integrity of other jurisdictional waters more readily understood as "navigable." Finally, the Corps generally does not consider the following to be "waters of the United States": swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent or short duration flow) and ditches "wholly in and draining only uplands…which do not carry a relatively permanent flow of water." Navigable waters of the United States are defined as waters that have been used in the past, are now used, or are susceptible to use as a means to transport interstate or foreign commerce up to the head of navigation.

2.3.2. State Jurisdiction

Regional Water Quality Control Boards

Discharges of fill or waste material to waters of the State are regulated by the State Water Resources Control Board (SWRCB) through its Regional Water Quality Control Boards (RWQCB) under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act (contained in the California Water Code). All waters of the U.S. are also considered waters of the State. In addition, other aquatic features that are not subject to Corps' jurisdiction, such as roadside ditches or isolated wetlands, may be considered waters of the State. This determination will be made by RWQCB staff on a case-by-case basis.

Section 401 of the CWA requires an applicant to obtain "water quality certification" to ensure compliance with State water quality standards before certain federal licenses or permits may be issued. Section 13260(a) of the Porter-Cologne Water Quality Control Act requires any person discharging waste, including dredged or fill material, or proposing to discharge waste, other than to a community sewer system, within any region that could affect the quality of the waters of the State (all surface and subsurface waters) to file a report of waste discharge. The permits subject to Section 401 include CWA Section 404 permits issued by the Corps. Waste discharge requirements under the Porter-Cologne Water Quality Control Act were typically waived for projects that required certification. Discharges to waters of the State that are not subject to a CWA Section 404 permit rely on the report of waste discharge process.

California Department of Fish and Wildlife

The CDFW is a trustee agency that has jurisdiction under Section 1600 *et seq.* of the California Fish and Game Code. Under Sections 1602 and 1603, a private party must notify CDFW if a proposed project will "*substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds…except when the department has been notified pursuant to Section 1601.*" Additionally, CDFW asserts jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over 4-inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures. Generally, CDFW recommends submitting an application for a Streambed Alteration Agreement (SAA) for any work done within the lateral limit of water flow or the edge of riparian vegetation, whichever is greater.

2.4. CEQA Significance

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study Checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these

examples, impacts to biological resources would normally be considered significant if the project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery Study Areas;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, State, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of, an important resource on a population-wide or region-wide basis.

2.4.1. California Native Plant Society

The California Native Plant Society (CNPS) maintains a rank of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the *Inventory of Rare and Endangered Vascular Plants of California*. Potential impacts to populations of CNPS-ranked plants receive consideration under CEQA review. The following identifies the definitions of the CNPS ranks:

- Rank 1A: Plants presumed Extinct in California
- Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere
- Rank 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere

- Rank 3: Plants about which we need more information – A Review List
- Rank 4: Plants of limited distribution – A Watch List

All plants appearing on CNPS Rank 1 or 2 are considered to meet CEQA Guidelines Section 15380 criteria. While only some of the plants ranked 3 and 4 meet the definitions of threatened or endangered species, the CNPS recommends that all Rank 3 and Rank 4 plants be evaluated for consideration under CEQA.

2.4.2. California Department of Fish and Wildlife Species of Concern

Some additional fish, amphibian, reptile, bird, and mammal species may receive consideration by CDFW and lead agencies during the CEQA process, in addition to species that are formally listed under FESA and CESA or are fully protected. These species are included on the *Special Animals List*, which is maintained by CDFW. This list tracks species in California whose numbers, reproductive success, or habitat may be in decline. In addition to "Species of Special Concern" (SSC), the *Special Animals List* includes species that are tracked in the California Natural Diversity Database (CNDDB), but warrant no legal protection. These species are identified as "California Special Animals" (CSA).

2.5. Draft South Sacramento Habitat Conservation Plan

The draft *South Sacramento Habitat Conservation Plan* (SSHCP) was released in February 2017. Its purpose is to streamline State and federal permitting processes for covered development projects that take place within signatory municipalities. It aims to protect habitat, open space, and agricultural lands through a number of Biological Goals, Measurable Objectives, and Conservation Actions enumerated in *Chapter 7 – Conservation Strategy* included in **Appendix A** (County of Sacramento 2017). The Ranch Project would fall under the jurisdiction of the SSHCP, if implemented, for purposes of estimating impacts to covered species and for estimating mitigation costs.

2.6. City of Rancho Cordova General Plan

In addition to the federal and State regulations described above, the *City of Rancho Cordova General Plan* (General Plan) identifies goals, objectives, and policies to provide further protection to biological resources within the County's limits (City of Rancho Cordova 2006). Applicable General Plan policies are summarized below and included in **Appendix A**.

The General Plan's *Natural Resources Element* aims to identify "*the ways in which Rancho Cordova will protect, maintain, and enhance its natural resources*" enumerated by list of goals. Goal NR.1 seeks to "*protect and preserve diverse wildlife and plant habitat, including habitat for special status species.*" Goals NR.2 and NR.3 seek to preserve the areas wetlands and creek corridors. These goals are achieved through a number of policies and action items as described in the *Natural Resources Element* included in **Appendix A**.

3.0 METHODS

Available information pertaining to the natural resources of the region was reviewed. All references reviewed for this assessment are listed in the **References** section. The following site-specific information was reviewed:

- California Department of Fish and Wildlife (CDFW). 2017. *California Natural Diversity Data Base* (CNDDB: *Citrus Heights, Folsom, Clarksville, Carmichael, Buffalo Creek, Folsom SE, Elk Grove, Sloughhouse, Carbondale* U.S. Geological Survey (USGS) 7.5-minute series quadrangles), Sacramento, CA. Accessed [07/11/2017] (**Appendix B**);
- California Native Plant Society (CNPS). 2017. *Inventory of Rare and Endangered Plants* (online edition, v8-02) (CNPS: *Citrus Heights, Folsom, Clarksville, Carmichael, Buffalo Creek, Folsom SE, Elk Grove, Sloughhouse, Carbondale* quadrangles). Accessed [07/11/2017] (**Appendix B**);
- U.S. Fish and Wildlife Service (USFWS). 2017. *Information for Planning and Conservation* (IPaC) *Trust Resource Report: The Ranch, Sacramento County*. Accessed [07/11/2017] (**Appendix B**);
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2017. *Web Soil Survey*. Available online at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.html. Accessed [07/12/2017];
- U.S. Geological Survey. 1967. Photorevised 1980. *Buffalo Creek, California*. 7.5-minute series topographic quadrangle. United States Department of Interior; and
- Biological reports and associated documents previously prepared for the Study Area.

Prior to conducting a survey of the Study Area, existing information, including *The Ranch at Sunridge Project: Section 7 Biological Assessment* (Foothill Associates 2012), *Jaeger ±530-Acre Study Area: Wetland Delineation Report* (Foothill Associates 2005), *Special Status Plant Report ±530-Acre Peery Arrillaga Sunrise Douglas Site* (North Fork Associates 2002), and rare plant survey letter reports prepared by Foothill Associates in 2009 and 2017 for the Study Area were reviewed. The results of the special-status species records search and five-mile radius CNNDB query are summarized in **Appendix B**. The most recent field surveys of the Study Area were conducted on June 12 and 13, 2017. The Study Area was systematically surveyed on foot with binoculars to ensure total search coverage, with special attention given to identifying those portions of the Study Area with the potential for supporting special-status species and sensitive habitats. During the field surveys, biologists recorded plant and animal species observed (**Appendix C**), as well as characterized biological communities occurring within the Study Area. Wetland features were previously delineated within the Study Area and verified by the Corps in 2014 (Corps 2014). Wetland polygons along the eastern boundary of Rancho Cordova Parkway were remapped in 2017 to address impacts that may have occurred during expansion of Rancho Cordova Parkway.

DRAFT

Following the Study Area survey, the potential for each species identified in the records search to occur in the Study Area was determined based within the Study Area surveys, soils, and species-specific information, as shown in **Appendix B**.

DRAFT

4.0 RESULTS

4.1. Study Area Location and Description

The Study Area is located in the City of Rancho Cordova north of Kiefer Boulevard, east of Rancho Cordova Parkway, south of Douglas Road, and west of Grant Line Road. Land uses surrounding the Study Area include residential developments to the north and west and rangeland to the south and east. The Study Area is located within Section 16, Township 8 North, Range 7 East, of the USGS 7.5-minute series *Buffalo Creek, California* quadrangle. The approximate location of the center of the Study Area is 38° 32' 43.93" North, 121° 12' 55.20" West (**Figure 1**).

The Study Area consists of ±530 acres of land that is currently used for livestock grazing.

4.2. Physical Features

4.2.1. Topography and Drainage

The general topography of the Study Area is gently undulating, generally sloping in a westerly direction with elevations ranging from 200 feet above mean sea level (MSL) at points along the eastern boundary of the Study Area to 170 feet above MSL in the central drainage channel at the western boundary of the Study Area (52 – 61 meters). The Study Area is crossed by an unnamed intermittent drainage that runs northeast to southwest and flows off the Study Area under Rancho Cordova Parkway and into Anatolia Preserve. The Study Area also contains numerous depressional and riverine wetlands. Water leaves the Study Area through the intermittent drainage as well as over land and through small riverine wetlands on the eastern and southern portions of the Study Area. Water enters the Study Area through the intermittent drainage as well as through seasonal precipitation.

The Study Area is located in the Upper Morrison Creek and Laguna Creek Watersheds. The Upper Morrison Creek Watershed encompasses approximately 50 square miles. Its main drainage, Morrison Creek, flows approximately 20 miles from the foothills in the east through the cities of Rancho Cordova and Sacramento. It drains into the Sacramento River. The Laguna Creek Watershed encompasses approximately 45 square miles. Its main drainage, Laguna Creek, flows 25 miles from the foothills in the east through the cities of Rancho Cordova, Elk Grove, and Sacramento. Historically a seasonal drainage, Laguna Creek now carries water throughout much of the year due to urban and agricultural runoff caused by increasing urbanization of the watershed in southern Sacramento County. Laguna Creek drains to Morrison Creek and ultimately to the lower Sacramento River.

4.2.2. Soils

The Natural Resources Conservation Service (NRCS) has mapped five soil units within the Study Area (**Figure 2**). The soil units that occur on Study Area include: **Fiddyment Fine Sandy Loam, 1 to 8 Percent Slopes**, **Hicksville Gravelly Loam, 0 to 2 Percent Slopes, Occasionally Flooded**, **Red Bluff-Redding Complex, 0 to 5 Percent Slopes**, **Redding Gravelly Loam, 0 to 8 Percent Slopes**,

and **Redding Loam, 2 to 8 Percent Slopes**. General characteristics associated with these soils types are described below.

- **Fiddyment Fine Sandy Loam, 1 to 8 Percent Slopes**: This moderately deep, well-drained soil is located on hills between 50 and 350 feet above MSL. This soil formed in material weathered from consolidated sandstone or siltstone. Permeability is very slow and available water capacity is low. As a result, this soil type takes a very long time to saturate and the capacity of the soil to hold water available for use by most plant species is low. This soil unit is typically used for rangeland, irrigated hay and pasture, or for dryland crops, such as wheat. Typically, vegetation on this soil unit consists mainly of non-native grasses and herbaceous plant species. The hydric soils list for Sacramento County does not identify any hydric inclusions occurring within this soil type.
- **Hicksville Gravelly Loam, 0 to 2 Percent Slopes, Occasionally Flooded**: This very deep, moderately well-drained soil is on low stream terraces and the alluvial flats adjacent to drainageways on high terraces and hills between 75 to 230 feet above MSL. This soil unit formed in alluvium derived from mixed rock sources. Permeability is moderately slow in this soil type and available water capacity is low. As a result, this soil type takes a moderately long time to saturate and the capacity of the soil to hold water available for use by most plant species is low. This soil type is typically used as rangeland or for irrigated crops. Typically, vegetation on this soil unit consists mainly of non-native grasses and herbaceous plant species. The hydric soils list for Sacramento County identifies two hydric inclusions occurring within this soil type, Columbia and Hicksville.
- **Red Bluff-Redding Complex, 0 to 5 Percent Slopes**: This soil complex is located on high terraces, between 90 to 310 feet above MSL. The Red Bluff soil is very deep and well drained. This soil formed in alluvium derived from mixed rock sources. This soil complex consists of approximately 45 percent Red Bluff soil and 40 percent Redding soil. Permeability is moderately slow and available water capacity is high in the Red Bluff soil. As a result, this soil type takes a moderately long time to saturate and the capacity of the soil to hold water available for use by most plant species is high. The Redding soil is moderately deep and moderately well drained. Permeability is very slow in the Redding soil and available water capacity is low. As a result, this soil type takes a long time to saturate and the capacity of the soil to hold water available for use by most plant species is low. This soil complex is used mainly as rangeland or to cultivate dry land crops, such as wheat. Typically, vegetation on this soil complex consists of non-native annual grasses and herbaceous plant species. The hydric soils list for Sacramento County identifies one unnamed hydric inclusion found within depressions of this soil type.
- **Redding Gravelly Loam, 0 to 8 Percent Slopes**: This moderately deep, well-drained soil type is located on high terraces and terrace remnants between 40 to 390 above MSL. This soil formed in gravelly and cobbled alluvium derived from mixed rock sources. Permeability is slow in Redding gravelly loam and available water capacity is low. As a result, this soil type takes a long time to saturate and the capacity of the soil to hold water available for use by most plant species is low. This soil unit is mainly used as rangeland for livestock grazing. In some areas this unit is used for irrigated hay and

DRAFT

pasture or for dryland crops, such as wheat. Typically, vegetation on this soil unit consists of non-native annual grasses and herbaceous plant species. The hydric soils list for Sacramento County identifies one unnamed hydric inclusion found within depressions of this soil type.

- **Redding Loam, 2 to 8 Percent Slopes**: This moderately deep, moderately well-drained soil is on high terraces and terrace remnants between 40 to 170 feet above MSL. This soil formed in gravelly and cobbly alluvium derived from mixed rock sources. Permeability is very slow in the Redding soil and available water capacity is low. As a result, this soil type takes a long time to saturate and the capacity of the soil to hold water available for use by most plant species is low. This soil type is typically used for rangeland and less frequently for dryland crops, such as wheat, or irrigated crops, such as hay. Typically, vegetation on this soil unit consists of non-native annual grasses and herbaceous plant species. The hydric soils list for Sacramento County identifies one unnamed hydric inclusion found within depressions of this soil type.

4.3. Biological Communities

The primary terrestrial biological community that occurs within the Study Area is annual grassland. The following aquatic biological communities also occur within the Study Area: seasonal wetlands (depressional and riverine), vernal pools, intermittent drainage, seasonal wet swale, and a detention basin outfall. These communities provide habitat to a number of common species of wildlife and may provide suitable habitat for special-status species. Dominant vegetation observed within each biological community is discussed in detail below. A comprehensive list of plants observed within the Study Area is provided in **Appendix C**. The location and extent of each biological community are depicted in **Figure 3**.

4.3.1. Annual Grassland

The plant community covering the majority of the Study Area is annual grassland, which accounts for approximately 506.07 acres of the Study Area and is characterized primarily by an assemblage of non-native grasses and forbs. Much of the vegetation in these communities is common to the Central Valley. Dominant grass species consists of Italian rye grass (*Festuca perennis*), rattail sixweeks grass (*Festuca myuros*), soft brome (*Bromus hordeaceus*), and slender wild oat (*Avena fatua*). Common dominant herbaceous non-natives include jointed charlock (*Raphanus raphanistrum*) and field bindweed (*Convolvulus arvensis*).

Annual grassland habitat supports breeding, foraging, and shelter habitat for several species of wildlife. Species expected to occur in this habitat include savannah sparrow (*Passerculus sandwichensis*), western meadowlark (*Sturnella neglecta*), black-tailed jackrabbit (*Lepus californicus*), and gopher snake (*Pituophis melanoleucus*).

4.3.2. Developed/Disturbed

A total of 2.45 acres of the Study Area is classified as developed/disturbed. This acreage is composed of paved and unpaved roads and an existing structure, a utility shed located in the northern-central portion of the Study Area. These areas primarily contain ruderal (weedy)

vegetation but may provide nesting or roosting substrate for some wildlife species such as birds and bats.

4.3.3. Seasonal Wetland

Seasonal wetlands account for 4.58 acres of the Study Area. The seasonal wetlands are depressional or riverine. Depressional seasonal wetlands consist of topographic folds that inundate or flow for short periods of time following intense rains, but do not maintain seasonal aquatic or saturated soils conditions for durations long enough for colonization by perennial, obligate plant species. Riverine seasonal wetlands occur in linear topographic depressions and are characterized by flowing water.

Dominant vegetation occurring within the seasonal wetlands includes: coyote thistle (*Eryngium vaseyi*), rabbitsfoot grass (*Polypogon monspeliensis*), hyssop loosestrife (*Lythrum hyssopifolia*), annual hairgrass (*Deschampsia danthonioides*), and Fremont's goldfields (*Lasthenia fremontii*).

4.3.4. Vernal Pool

Vernal pools account for 15.04 acres of the Study Area. Vernal pools are shallow, seasonally inundated depressional wetlands that form in soils with a subsurface layer that restricts the downward flow of water. Dominant vegetation within these features includes: coyote thistle, Mediterranean barley, and stalked popcornflower (*Plagiobothrys stipitatus*).

4.3.5. Intermittent Drainage

Intermittent drainages account for 1.54 acres of the Study Area. Intermittent drainages are features that may not meet the three-parameter criteria for vegetation, hydrology, and soils, but do convey water and exhibit an ordinary high water mark. Water flows within intermittent drainages are fed primarily by precipitation and stormwater runoff. Dominant vegetation within the intermittent drainages consists of coyote thistle.

4.3.6. Seasonal Wet Swale

The seasonal wet swale accounts for 0.06 acres of the Study Area and is located at the center of the southern boundary of the Study Area. Seasonal wet swales are not considered jurisdictional waterbodies, but do convey and hold water during and after storm events and can exhibit assemblages of wetland vegetation. Dominant vegetation of seasonal wet swales typically consists of grass and other wetland vegetation.

4.3.7. Detention Basin Outfall

The detention basin outfall accounts for 2.92 acres of the Study Area and is located near the eastern end of the northern border. The detention basin outfall is a manmade feature designed to convey periodic excesses of water from a reservoir along the eastern end of the northern border of the Study Area to the intermittent drainage that bisects the Study Area. Conveyed water drains through tailings placed at the southern end of the basin outfall. Aquatic species that may be present in the adjacent intermittent drainage are obstructed from entering the detention basin outfall. The detention basin outfall is heavily managed and receives periodic

high-intensity disturbance – the surface of the detention basin outfall is bare earth and is routinely scraped to remove all vegetation. It is not considered to be sensitive habitat or provide habitat for any special-status species.

4.4. Special-Status Species

Special-status species are plant and animal species that have been afforded special recognition by federal, State, or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Special-status species are defined as meeting one or more of the following criteria:

- Listed or proposed for listing under CESA or FESA;
- Protected under other regulations (e.g. Migratory Bird Treaty Act);
- Included on the CDFW Special Animals List;
- Identified as Rank 1-4 by CNPS; or
- Receive consideration during environmental review under CEQA.

Special-status species considered for this analysis are based on queries of the CNDDB, the USFWS, and CNPS ranked species (online versions) for the *Buffalo Creek, California* and eight surrounding quadrangles. **Appendix B** includes the common name and scientific name for each species, regulatory status (federal, State, local, CNPS), habitat descriptions, and potential for occurrence in the Study Area. The following set of criteria has been used to determine each species' potential for occurrence in the Study Area:

- **Present**: Species known to occur within the Study Area based on CNDDB records and/or observed within the Study Area during the biological surveys.
- **High**: Species known to occur on or in the vicinity of the Study Area (based on CNDDB records within five miles and/or based on professional expertise specific to the Study Area or species) and there is suitable habitat within the Study Area.
- **Low**: Species known to occur in the vicinity of the Study Area and there is marginal habitat within the Study Area **-OR-** Species is not known to occur in the vicinity of the Study Area, however, there is suitable habitat within the Study Area.
- **None**: Species is not known to occur on or in the vicinity of the Study Area and there is no suitable habitat within the Study Area -**OR-** Species was surveyed for during the appropriate season with negative results **-OR-** The Study Area occurs outside of the known elevation or geographic ranges.

Only those species that are known to be *present* or have a *high* or *low* potential for occurrence are discussed further in the following sections.

DRAFT

4.4.1. Listed and Special-Status Plants

According to the records search, 25 special-status plant species have the potential to occur on or in the vicinity of the Study Area. Based on field observations and literature review, four species were determined to have the potential for occurrence to occur within the Study Area. The following species are considered to have a *low* potential within the Study Area: Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) dwarf downingia (*Downingia pusilla*), pincushion navarretia (*Navarretia myersii* ssp. *myersii*), and hoary navarretia (*Navarretia eriocephala*).

Plant Species with a Low Potential for Occurrence

Ahart's dwarf Rush

Ahart's dwarf Rush is ranked as a CNPS 1B species, which indicates that this species is rare, threatened, or endangered in California and elsewhere. It is a small annual herb that is found in vernal pool margins and grassland from 100 to 330 feet (30 to 100 meters) above MSL. The identification period is March through May. The vernal pools and grassland of the Study Area provide habitat for this species. Though this species has not been observed within the Study Area during previous site visits, there are two CNDDB records for this species within five miles of the Study Area (CDFW 2017). Therefore, this species has a *high* potential to occur within the Study Area.

Dwarf Downingia

Dwarf downingia is ranked as a CNPS 2B species, which indicates that this species is rare, threatened, or endangered in California but is more common elsewhere. It is an annual herb found in mesic areas within valley and foothill grassland and vernal pools from 3 to 1,460 feet (1 to 445 meters) above MSL. The identification period for this species is from March through May. There are no documented CNDDB records of this species occurring within five miles of the Study Area (CDFW 2017). This species has the potential to occur within the non-native annual grassland and vernal pools within the Study Area. There is a *low* potential for this species to occur within the non-native annual grassland and vernal pools within the Study Area.

Pincushion Navarretia

Pincushion navarretia is ranked as a CNPS 1B species. It is an annual herb found in vernal pools, which are often acidic from 66 to 1,083 feet (20 to 330 meters) above MSL. The identification period for this species is from April through May. There are no documented CNDDB records of this species occurring within five miles of the Study Area (CDFW 2017). This species has the potential to occur within the vernal pools within the Study Area. There is a *low* potential for this species to occur within the vernal pools within the Study Area.

Hoary Navarretia

Hoary navarretia is ranked as a CNPS 4 species. It is an annual herb found in mesic areas of mixed pine woodland, oak woodland, and grassland from 350 to 1,300 (105 to 400 meters) above MSL. The identification period for this species is from May through June. There are no documented CNDDB records of this species occurring within five miles of the Study Area (CDFW

DRAFT

2017). This species has the potential to occur within the grassland of the Study Area. There is a *low* potential for this species to occur within the Study Area.

4.4.2. Listed and Special-Status Wildlife

According to the records search, 50 special-status wildlife species have the potential to occur within the Study Area or in the vicinity. Based on field observations and literature review, 24 species were determined to have the potential to occur in the Study Area. Species that are known to be *present* or that are considered to have a *high* potential to occur within the Study Area include: vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), ferruginous hawk (*Buteo regalis*), golden eagle (*Aquila chrysaetos*), white-tailed kite (*Elanus leucurus)*, California linderiella (*Linderiella occidentalis*), western burrowing owl (*Athene cunicularia*), and western spadefoot (*Spea hammondii*). Species that are considered to have a I potential to occur within the Study Area include: grasshopper sparrow (*Ammodramus savannarum*), loggerhead shrike (*Lanius ludovicianus*), merlin (*Falco columbarius*), mountain plover (*Charadrius montanus*), short-eared owl (*Asio flammeus*), American badger (*Taxidea taxus*), pallid bat (*Antrozous pallidus*), blennosperma vernal pool andrenid bee (*Andrena blennospermatis*), an unnamed andrenid bee (*Andrena subapasta*), Ricksecker's water scavenger beetle (*Hydrochara ricksecker*i), hairy water flea (*Dumontia oregonensis*), and mid-valley fairy shrimp (*Branchinecta mesovallensis*).

Wildlife Species with a High Potential for Occurrence

Western Burrowing Owl – State Species of Concern

Western burrowing owl is a small ground-dwelling owl that occurs in western North America from Canada to Mexico, and east to Texas, and Louisiana. Although in certain areas of its range western burrowing owls are migratory, these owls are predominantly non-migratory in California (Zeiner *et. al.* 1990). The breeding season for western burrowing owls occurs from February to August, peaking in April and May (Zeiner *et. al.* 1990). Western burrowing owls nest in burrows in the ground, often in old ground squirrel burrows. This owl is also known to use artificial burrows including pipes, culverts, and nest boxes. There are 12 CNDDB records for this species within five miles of the Study Area (CDFW 2017), though no western burrowing owls were observed during site visits. The Study Area contains suitable burrows to support this species. Therefore, this species has as a *high* potential for occurrence.

Golden Eagle—California Fully Protected

Golden eagles live in semi-open habitats where they have easy access to their primary prey of small to medium-sized mammals. Grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats provide necessary foraging habitat. Nests are placed on cliffs or large trees and are maintained year and after year. Breeding occurs from January through August. Golden eagle home range territories are estimated to average 48 square miles in northern California (Zeiner *et al.* 1990). Breeding territories range from 8 to 21 square miles, or three to five miles surrounding the nest, but activity is often concentrated in a smaller core area. Although only one nest is used each year, a territory may contain multiple alternate nests. There is one CNDDB record of golden eagle documented within five miles of the Study Area

(CDFW 2017). No golden eagles were observed during previous site visits. Although the Study Area does not provide suitable nesting trees, the non-native annual grassland provides foraging habitat for this species. Therefore, this species has as a *high* potential for occurrence.

White-tailed Kite—California Fully Protected

White-tailed kite is listed as California Fully Protected. White-tailed kite is a year-long resident in coastal and valley lowlands in California. White-tailed kite breed from February to October, peaking from May to August (Zeiner *et. al.* 1990). This species nests near the top of dense oaks, willows, or other large trees. There are three CNDDB records of white-tailed kite documented within five miles of the Study Area (CDFW 2017). One white-tailed kite was observed foraging within the annual grassland during the June 12, 2017 rare plant survey. The annual grassland provides suitable foraging habitat for this species. Therefore, this species is considered to be *present* within the Study Area.

Nesting Birds and Raptors

The nests of raptors and most other birds are protected under the MBTA. Raptors are also protected by Section 3503.5 of the California Fish and Game Code, which makes it illegal to destroy any active raptor nest. Additionally, the USFWS and CDFW identified a number of avian species of conservation concern that do not have specific statutory protection. Avian species forage and nest in a variety of habitats throughout Sacramento County. As shown in **Appendix B**, the annual grassland on and surrounding the Study Area may provide nesting and foraging habitat for raptors and other protected birds, including: ferruginous hawk, grasshopper sparrow, merlin, mountain plover, and short-eared owl. Raptors and other protected migratory birds have a *high* potential to occur in the Study Area.

Vernal Pool Branchiopods with High Potential for Occurrence

The records search indicated that three species of vernal pool branchiopods occur within five miles of the Study Area: vernal pool fairy shrimp (*Branchinecta lynchi*), a federally threatened species, vernal pool tadpole shrimp (*Lepidurus packardi*), a federally endangered species, and California linderiella (*Linderiella occidentalis*), a California Special Animal. These species require continuous inundation typically ranging from six to eight weeks to complete their lifecycle (Nature Serve 2017). The vernal pools in the Study Area provide habitat for these species and there are 22 known CNDDB occurrences of vernal pool fairy shrimp, 43 CNDDB occurrences of vernal pool tadpole shrimp, and 25 CNDDB occurrences of California linderiella within five miles of the Study Area (CDFW 2017); therefore, these species a *high* potential for occurrence within the Study Area.

Western Spadefoot

Western spadefoot occurs throughout the Central Valley and on the coast from Point Conception, south to the Mexican border. This species occurs from sea level up to 4,500 feet (0 to 1400 meters) above MSL in the southern Sierra foothills. Western spadefoot individuals are most commonly found in grassland habitats with temporary pools of water, but they have also been found in open chaparral and valley-foothill pine-oak woodlands (Stebbins 2003). This species spends most of the year underground, where individuals seek refuge from desiccating

by constructing and residing in small burrows. This species often breeds in temporary pools and quiet streams between the months of January and May that remain inundate for at least six weeks. The vernal pools and depressional seasonal wetlands in the Study Area provide breeding habitat and there is one known occurrence within five miles of the Study Area (CDFW 2017). Therefore, this species has a *high* potential to occur within the Study Area.

Wildlife Species with a Low Potential for Occurrence

American Badger—California Species of Concern, Species of Local Concern

American badger is a California Species of Special Concern. American badgers are found in dry, open habitats including grassland and open woodland. Suitable burrowing habitat requires dry, sandy soil. Breeding occurs in summer and early fall, with young being born from March to April (Nature Serve 2017). There are no CNDDB records for this species within five miles of the Study Area (CDFW 2017). The annual grassland and burrows provides marginal habitat for this species given the lack of sandy soils within the Study Area. No American badgers were observed during the biological surveys. Therefore, this species has a *low* potential to occur within the Study Area.

Pallid Bat—California Species of Concern

California is home to several special-status bat species, including the pallid bat. Bat numbers are in decline throughout the U.S. due to loss of roosting habitat, habitat conversion, and habitat alteration. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2017). No bat species were observed roosting during previous site visits. The sparse man-made structures, including utility towers and a utility shed in the center of the Study Area, provide marginal day roosting habitat and the annual grassland provides foraging habitat for this species. Therefore, this species has a *low* potential to roost within the Study Area and could utilize the Study Area for foraging.

Vernal Pool Branchiopods with Low Potential for Occurrence

The records search indicated that two species of vernal pool branchiopods other than those listed above have the potential to occur within the Study Area or vicinity: Mid-valley fairy shrimp (*Branchinecta mesovallensis*), a California Special Animal, and hairy water flea (*Dumontia oregonensis*), a California Special Animal (CDFW 2017). These species require continuous inundation typically ranging from six to eight weeks to complete their lifecycle (Nature Serve 2017). The vernal pools in the Study Area provide habitat for these species though there are no CNDDB occurrences within five miles of the Study Area for either species. Therefore, these species have a *low* potential for occurrence within the Study Area.

Blennosperma Vernal Pool Andrenid Bee and Unnamed Andrenid Bee—California Special Animals

The blennosperma vernal pool andrenid bee and another Andrenid Bee without a common name (*Andrena subapasta*) are small, ground-nesting bees found in the upland areas near vernal pools wherever blennosperma flowers and other grassland forbs are present. They are generally slender and dark-olive green with pale apical bands on the dorsum of the metasomal segments. The species were not observed during previous site visits. The uplands and vernal

pools may provide habitat for these species if they support blennosperma populations other appropriate grassland forbs; however, there are no known CNDDB occurrences within five miles of the Study Area (CDFW 2017). Therefore, these species have a *low* potential to occur within the Study Area.

Ricksecker's Water Scavenger Beetle—California Special Animal

Ricksecker's water scavenger beetle is an aquatic beetle that is a California Special Animal. This species inhabits a wide variety of aquatic habitats, including creeks and shallow ponds. The waterbodies within the Study Area provide potential habitat for this species, though this species has not been observed within the Study Area during previous site visits. There are no CNDDB occurrences for this species within five miles of the Study Area. Therefore, this species has a *low* potential to occur within the Study Area.

4.5. Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the California Fish and Game Code, and/or Sections 401 and 404 of the Clean Water Act. Additionally, sensitive habitats are protected under the specific policies outlined in the proposed *South Sacramento Habitat Conservation Plan*. Sensitive habitats known to occur within the Study Area, which include aquatic features are vernal pools, seasonal wetlands, seasonal swale, and intermittent drainage.

4.5.1. Jurisdictional Waters of the U.S. and State

Jurisdictional waters of the U.S. and State located in the Study Area total approximately 22 acres. This acreage includes depressional seasonal wetlands (2.92 acres), vernal pools (15.04 acres), riverine seasonal wetlands (1.66 acres), intermittent drainages (1.54 acres), and seasonal wet swale (0.06 acres) (**Figure 3**). To date, potential wetland areas in the Study Area have been formally delineated and the Corps has verified these acreages. As discussed in **Section 2.3**, jurisdictional waters of the U.S. are subject to Section 404 of CWA and are regulated by the Corps.

DRAFT

5.0 CONCLUSIONS AND RECOMMENDATIONS

As discussed, the Study Area consists of land that supports primarily annual grassland, developed/disturbed, seasonal wetlands, vernal pools, intermittent drainage, and seasonal wet swale. **Table 1** summarizes the biological communities and expected impacts from the proposed project. Proposed project impacts are shown in **Figure 4**.

TABLE 1 — IMPACTS TO BIOLOGICAL COMMUNITIES

Habitat Types	Project Impacts	Previously Permitted Impacts	City (CIP) Impacts	SSHCP Buffer Acreage	Preserved Acreage	Total Acreage
Wetlands						
Depressional Seasonal Wetland	1.04	—	—	0.03	1.85	2.92
Vernal Pool	4.75	0.02	0.18	0.12	9.97	15.04
Riverine Seasonal Wetland	0.51	0.01	—	<0.01	1.15	1.66
Intermittent Drainage	—	<0.01	—	—	1.53	1.54
Seasonal Wet Swale	0.06	—	—	—	—	0.06
Detention Basin Outfall	—	—	—	—	0.30	0.30
Biological Communities						
Annual Grassland	305.15	—	0.51	13.16	187.16	506.07
Developed/Disturbed	2.43	—	—	—	0.03	2.45
Total	**313.93**	**0.03**	**0.69**	**13.31**	**201.98**	**530.05**

Note: Acreage may not add across rows or columns due to rounding.

Known or potential biological constraints in the Study Area include the following:

- Wetlands and other waters of the U.S. subject to Clean Water Act 404/401 and Section 1600 of Fish and Game Code regulations;
- Potential habitat for special-status plants Ahart's dwarf rush, dwarf downingia, pincushion navarretia, and hoary navarretia;
- Potential habitat for western burrowing owl;
- Assumed occupied habitat for federally-listed vernal pool branchiopods; and
- Potential habitat for western spadefoot, American badger, western pond turtle, pallid bat, and nesting birds.

DRAFT

5.1. Special-Status Plant Species

As discussed previously, portions of the Study Area contain suitable habitat for four special-status plant species that are known to occur in the vicinity and were not the targets of the June 12 and 13, 2017 botanical survey. The non-listed special-status species include Ahart's dwarf rush, dwarf downingia, pincushion navarretia, and hoary navarretia. Ground disturbance associated with the project would result in the temporary disturbance of 0.09 acres and permanent removal of 318.82 acres of annual grassland, which provides habitat for potentially occurring special-status plants. Temporary disturbance and permanent removal would impact special-status plants, if present, through removal of individuals and elimination of their habitat.

Since the June 12 and 13 botanical survey was not conducted during the bloom period when these species are identifiable, prior to construction a qualified botanist should conduct a botanical survey in May when all four potentially occurring special-status plant species will be within their evident and identifiable bloom period as specified by Avoidance and Mitigation Measure (AMM) PLANT-1 in the SSHCP. The results of these surveys should be documented in a letter report to City of Rancho Cordova. If no special-status plants are observed during the recommended botanical surveys, no additional measures are recommended.

If any special-status plant covered by the SSHCP are identified within 250 feet of areas of potential construction disturbance, they should be avoided to the extent feasible. If they cannot be avoided, the Implementing Entity will assure one unprotected occurrence of the species is protected within a SSHCP Preserve before any ground disturbance occurs at the project site in accordance with SSHCP AMM PLANT-2. If any federally-listed plants not covered by the SSHCP are identified within areas of potential construction disturbance, they should be avoided to the extent feasible. If the federally-listed plants cannot be avoided, Section 7 consultation would be required and a biological opinion from the USFWS would need to be obtained prior to transplantation and commencement of construction activities. Similarly, if any state-listed plants not covered by the SSHCP occur within the project footprint, they should be avoided to the extent feasible. If the state-listed plants cannot be avoided, an Incidental Take Permit would be required from the CDFW. Additional measures may be required through the consultation process with the CDFW and/or the USFWS, including compensatory mitigation or transplanting and monitoring.

5.2. Western Spadefoot

No western spadefoot toads were observed during previous site visits. However, the annual grassland provides suitable upland habitat and vernal pools provide suitable breeding habitat for this species. Vegetation clearing within the annual grassland and filling of the vernal pools could impact this species if present. In addition, construction equipment and vehicle movement could impact these species if present within the project footprint.

Western spadefoot is a covered species under the SSHCP and there are six AMMs that apply to this species. If covered activities must be implemented during the wet season (October 15 through May 15), exclusion fencing must be installed around the project footprint, temporary high-visibility construction fencing must be installed along the edge of work areas, and silt

fencing must be installed immediately behind the temporary high-visibility construction fencing to exclude western spadefoot per AMM WS-2. Additionally, the project site must be monitored daily by an approved biologist and construction personnel must be trained on the required avoidance measures per AMM WS-3. AMM WS-4 stipulates that all excavated steep-walled holes and trenches greater than six inches deep must be covered with plywood to avoid western spadefoot entrapment. AMM WS-5 specifies that BMP-2, if implemented, must be implemented using non-entangling erosion control material such as coconut coir matting and fiber rolls containing burlap. If a western spadefoot is encountered during construction activities, the approved biologist must notify the CDFW immediately and construction activities must be suspended within a 100-foot radius of the animal until the animal leaves the project site on its own volition as required by AMM WS-6.

5.3. American Badger

The annual grassland provides habitat for American badger. A qualified biologist should conduct a pre-construction survey for American badger within 14 days prior to the start of ground disturbance. If no American badgers are observed, then a letter report documenting the results of the survey should be provided to the project proponent for their records, and no additional measures are recommended. If construction does not commence within 14 days of the pre-construction survey, or halts for more than 14 days, a new survey is recommended.

If American badgers or their dens are found, additional avoidance measures are recommended including having a qualified biologist conduct a pre-construction survey within 24 hours prior to commencement of construction activities, performing a Worker Awareness Training to all construction workers, and being present on the Study Area during grading activities for the purpose of temporarily halting construction activities until the biologist determines that the badger has left the construction footprint on its own accord.

5.4. Vernal Pool Branchiopods

As discussed previously, vernal pools in the Study Area represent potential habitat for special-status invertebrate species including mid-valley fairy shrimp, vernal pool fairy shrimp, California linderiella, hairy water flea, and vernal pool tadpole shrimp. The USFWS typically considers vernal pool branchiopod habitat to be indirectly impacted by fill or development activities within 250 feet of the habitat. However, the 250-foot indirect impact area may be reduced based on Study Area-specific information such as topography or hydrologic data indicating that activities can encroach closer than 250 feet without impacting those habitats or their watersheds. Temporary disturbance and filling of vernal pools would impact vernal pool branchiopods, if present, through removal of individuals and elimination of their habitat.

Protocol-level surveys, consisting of a dry-season and wet-season survey, can be conducted to determine the presence or absence of these species. If the species are absent and USFWS accepts the survey findings, then no mitigation for listed vernal pool branchiopods is likely required. If the species are present, or if the project proponent decides to assume presence without conducting the surveys, then mitigation for listed vernal pool branchiopods would be required.

If mitigation for listed vernal pool branchiopods is required and the project has a federal nexus (e.g., is pursuant to a Corps permit, is federally funded, or occurs on federal land), impacts to listed vernal pool invertebrates can be addressed through Section 7 consultation with the USFWS. If the project does not have a federal nexus, the project proponent, through coordination with USFWS, can prepare a Habitat Conservation Plan under Section 10 of FESA. Typically, the USFWS requires compensatory mitigation for impacts to these species at a 3:1 ratio. Possible mitigation opportunities include creation of habitat within the Study Area or off-site preservation and creation of vernal pools or purchase of vernal pool credits at a qualified mitigation bank. If the SSHCP is approved, the project proponent can also pay the appropriate habitat mitigation fee for impacts to suitable habitat for listed fairy shrimp.

5.5. Swainson's Hawk

Although no Swainson's hawks were observed on the property, the Study Area is considered potential foraging habitat for this species since they are known to nest within five miles of the Study Area and because it is within foraging habitat modeled as modeled by the SSHCP. The nearest recorded nest location is approximately half a mile east of the northeast corner of the Study Area. Currently, the CDFW recommends that impacts to suitable Swainson's hawk foraging habitat within 10 miles of an active nest should be mitigated by securing a conservation easement or fee title on suitable Swainson's hawk foraging habitat in the region. Currently, this translates to the following: (1) for projects within a one-mile radius of an active nest site, the project proponent should preserve 1.0 acre of similar habitat for each acre lost, (2) for projects within a one to five-mile radius of an active nest site, the project proponent should preserve 0.75 acre of similar habitat for each acre lost, and (3) for projects within a five to ten-mile radius of an active nest site, the project proponent should preserve 0.5 acre of similar habitat for each acre lost.

In the case of a conservation easement, the applicant should prepare and implement a Swainson's hawk mitigation plan to the satisfaction of CDFW that includes the preservation of Swainson's hawk foraging habitat on the appropriate amount of foraging acreage. The lead agency under CEQA, in coordination with CDFW, would determine what mitigations would be appropriate for impacts to Swainson's hawk foraging and nesting habitat.

If the SSHCP is approved, the project proponent can also pay the appropriate habitat mitigation fee for impacts to Swainson's hawk foraging habitat or participate in the City of Rancho Cordova habitat mitigation program for Swainson's hawk. The project proponent may also choose to purchase approved offsite mitigation bank credits.

5.6. Burrowing Owl

Although burrowing owls were not observed during previous site visits, the Study Area contains annual grassland that is potentially suitable habitat for burrowing owl and portions of the Study Area are modeled as burrowing owl habitat by the SSHCP. Vegetation clearing activities within the annual grassland could impact potential nest Study Areas for this species. In addition, noise and vibration associated with construction activities in the vicinity of annual grassland could result in nest abandonment.

SSHCP AMM WBO-1 requires an initial burrowing owl survey of the Study area and surrounding 250 feet, where accessible. Transects must be no more than 50 feet apart and all burrows must be mapped.

If the project site does not avoid all suitable habitat mapped by the initial survey, then AMM WBO-2 requires a minimum of two pre-construction survey started no more than 15 days before the onset of construction activities to document the presence or absence of burrowing owls.

If burrowing owls or evidence of burrowing owls are observed within the Study Area or surrounding 250 feet, then AMM WBO-3 requires that 250-foot non-disturbance buffers be established around occupied burrows. If construction activities must take place within these buffer areas then a third-party project proponent must develop an avoidance, minimization, and monitoring plan that is approved by the CDFW. If construction activities take place during the non-breeding season (September 1 through January 31), then the third-party project proponent may request approval from the CDFW for a qualified biologist to excavate unoccupied burrows.

AMM WBO-4 requires the monitoring of the construction buffer zones by an approved biologist and the training of construction personnel by the biologist on avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone.

Conditions for approved passive relocation of burrowing owls are specified by AMM WBO-5; conditions for and appropriate methods of rodent control are specified by AMM WBO-7.

5.7. Golden Eagle Foraging Habitat

A known golden eagle nest is located within five miles of the Study Area. Given the territory size of foraging golden eagles, the site could potentially be within the pair's foraging territory. There is not suitable nesting habitat for golden eagles onsite. The annual grassland onsite provides suitable foraging habitat for golden eagle. While the project would result in the removal of approximately 306 acres of suitable foraging habitat, the onsite preserve protects approximately 187 acres of suitable foraging habitat. In addition, mitigation would be required for impacts to Swainson's hawk foraging habitat which would also serve as potential foraging habitat for golden eagle. Therefore, additional measures beyond habitat mitigation has specified for Swainson's hawks and pre-construction nesting bird surveys as specified in **Section 5.8** are not recommended for this species.

5.8. Other Raptors and Migratory Birds

Several species of raptors and other migratory birds may forage and nest in the Study Area, including the special-status species white-tailed kite and loggerhead shrike. Active nests are protected by the California Fish and Game Code Section 3503.5 and the MBTA. Construction activities could result in disturbance of nest Study Areas through temporary increases in ambient noise levels and increased human activity. In addition, vegetation clearing operations, including pruning or removal of trees and shrubs, could impact nesting birds if these activities

occur during the nesting season (February 1 to August 31). All vegetation clearing including removal of trees and shrubs should be completed between September 1 to January 31, if feasible.

Because construction activity will occur in modeled habitat for covered raptor species, AMM RAPTOR-1 requires that a qualified biologist conduct a field investigation to determine if existing or potential nesting sites are present within the project footprint or surrounding 0.25-mile area where accessible.

If potential or existing nest sites are found during the initial surveys and if construction activities will take place during the breeding season (February 1 to August 31), then AMM RAPTOR-2 requires pre-construction surveys to be conducted within 30 days and three days of ground disturbing activity to determine if active nests are present within the project footprint or surrounding 0.25-mile area where accessible.

If active nests are found within the project footprint or surround 0.25-mile area, then AMM RAPTOR-3 requires that a 0.25-mile temporary nest disturbance buffer be created around the active nest until the young have fledged.

If project-related construction activities within the temporary nest disturbance buffer are determined to be necessary, then AMM RAPTOR-4 requires that an approved biologist be retained to monitor the nest daily throughout the nesting season. Work within the temporary nest disturbance buffer can occur with the written permission of the CDFW. If nesting raptors begin to exhibit agitated behavior then the approved biologist will have the authority to shut down construction activities and the biologist, third-party project proponent, and CDFW will meet to determine the best course of action to avoid nest abandonment or take of individuals. Additionally, the approved biologist will train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a covered raptor species flies into an active construction zone.

5.9. Pallid Bat

The existing grassland provides suitable foraging habitat and the existing utility shed provide potential roosting habitat for the pallid bat within the Study Area. Removal of man-made structures could impact bats should they be roosting in areas proposed for removal.

A qualified biologist should conduct a preconstruction survey within 14 days prior to clearing or grading operations and removal of any potential roosting site substrates. If no bats are observed, a letter report should be prepared to document the survey, and no additional measures are recommended. If construction does not commence within 14 days of the pre-construction survey, or halts for more than 14 days, an additional survey is required prior to starting work.

If special-status bat species are present and roosting on or within 100 feet of the Study Area, then the biologist should establish an appropriate buffer around the roost site. At minimum, no potential roosting structures should be removed until the biologist has determined that no bats

are roosting in the structure. Additional mitigation measures for bat species, such as installation of bat boxes or alternate roost structures, would be recommended only if special-status bat species are found to be roosting within the project area. In addition, a pre-construction worker awareness training should be conducted alerting workers to the presence of and protections for various bat species.

5.10. Sensitive Habitats

Table 2 summarizes the sensitive habitats and expected impacts from the proposed project. Proposed Project impacts to sensitive habitats are shown in **Figure 4**.

TABLE 2 — IMPACTS TO SENSITIVE HABITATS

Sensitive Habitats	Impacted Acreage	Preserved Acreage	Total Acreage†
Depressional Seasonal Wetland	1.04	1.85	2.89
Vernal Pool	4.75	9.97	14.72
Riverine Seasonal Wetland	0.51	1.15	1.66
Intermittent Drainage	0.01 (temporary)	1.53	1.54
Seasonal Wet Swale	0.06	—	0.06
Total	**6.58**	**14.5**	**20.87**

†Total acreages do not account for buffer areas or non-sensitive habitats.

5.10.1. Jurisdictional Waters

Proposed construction activities will impact approximately 6.58 acres of aquatic features located in the Study Area (**Figure 4**).

A Section 404 permit should be obtained from the Corps and a Section 401 Water Quality Certification should be obtained for the Regional Water Quality Control Board (RWQCB) prior to the start of construction that will impact any water of the U.S, and water of the state. Any waters of the U.S. or jurisdictional wetlands that would be lost or disturbed should be replaced or rehabilitated on a “no-net-loss” basis in accordance with the Corps mitigation guidelines. Habitat restoration, rehabilitation, and/or replacement should be at a location and by methods agreeable to the agencies. A Lake and Streambed Alteration Notification (SAA) should also be prepared and submitted to CDFW for impacts to features under CDFW jurisdiction.

Water quality concerns during construction would be addressed in a Section 401 water quality certification from the Regional Water Quality Control Board. A Storm Water Pollution Prevention Plan (SWPPP) would also be required during construction activities. SWPPPs are

DRAFT

required in issuance of a National Pollutant Discharge Elimination System (NPDES) construction discharge permit by the U.S. Environmental Protection Agency. Implementation of Best Management Practices (BMPs) during construction is standard in most SWPPPs and water quality certifications. Examples of BMPs include stockpiling of debris away from regulated wetlands and waterways; immediate removal of debris piles from the Study Area during the rainy season; use of silt fencing and construction fencing around regulated waterways; and use of drip pans under work vehicles and containment of fuel waste throughout the Study Area during construction.

A Lake and Streambed Alteration Agreement from CDFW may also be required for impacts to wetlands and other waters. A Streambed Notification should be submitted to CDFW for review to determine if a streambed agreement is necessary.

5.11. Summary of Avoidance and Minimization Measures

- Obtain a 404 permit, 401 Water Quality Certification, and SAA prior to the start of construction;
- Conduct pre-construction surveys for Ahart's dwarf rush, dwarf downingia, pincushion navarretia, and hoary navarretia in May;
- Conduct pre-construction burrowing owl protocol surveys between February and June.
- Assume presence of listed vernal pool branchiopods and mitigate according to SSHCP unless project proponent wants to conduct focused surveys;
- Conduct pre-construction surveys for western spadefoot, American badger, western pond turtle, pallid bat, and nesting birds prior to the start of construction as applicable and
- Conduct worker awareness training at the start of construction for potentially occurring special-status species.

DRAFT

6.0 REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, eds. 2012. *The Jepson Manual: Vascular Plants of California*, *2nd Edition*. University of California, Berkeley.

Barbour, Michael G., Todd Keeler-Wolf, and Allan A. Schoenherr, Editors. 2007. *Terrestrial Vegetation of California*, Third Edition. University of California Press, Berkeley and Los Angeles, California.

Bloom, P. and D. Van De Water. 1994. *Swainson's Hawk in Life on the Edge: A Guide to California's Endangered Natural Resources: Wildlife*. BioSystems Books, Santa Cruz, California.

Bradbury, M., Estep, J.A., and D. Anderson. In Preparation. *Migratory Patterns and Wintering Range of the Central Valley Swainson's Hawk*.

Calflora. 2017. *The Calflora Database: Information on California plants for Education, Research and Conservation*. Berkeley, California. Available online at: http://www.calflora.org. [Accessed 07/11/2017].

Californiaherps. 2017. *A Guide to the Amphibians and Reptiles of California*. Available online at: http://californiaherps.com. [Accessed 07/11/2017].

California Department of Fish and Wildlife (CDFW). 2009. *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities*. State of California, California Natural Resources Agency. Department of Fish and Wildlife. November 24, 2009.

CDFW. 2012. *Staff Report on Burrowing Owl Mitigation*. State of California Natural Resources Agency Department of Fish and Game. March 7, 2012.

CDFW. 2017. *California Natural Diversity Data Base* (CNDDB: *Citrus Heights, Folsom, Clarksville, Carmichael, Buffalo Creek, Folsom SE, Elk Grove, Sloughhouse, and Carbondale* U.S. Geological Survey (USGS) 7.5-minute series quadrangles (quadrangles)), Sacramento, CA. [Accessed 07/11/2017].

California Native Plant Society (CNPS). 2017. *Inventory of Rare and Endangered Plants* (online edition, v8-01a) (CNPS: *Clarksville, Rocklin, Pilot Hill, Coloma, Shingle Springs, Latrobe, Buffalo Creek, Folsom SE, and Folsom quadrangles*). [Accessed 07/11/2017].

California Wildlife Habitat Relationship System (CWHR). Various years. Various *Life History Accounts* and *Range Maps*. California Department of Fish and Wildlife, Sacramento, California. Available online at: http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx. [Accessed 07/11/2017].

DRAFT

City of Rancho Cordova. 2006. *Rancho Cordova General Plan*. Rancho Cordova, California.

County of Sacramento. 2017. *Draft South Sacramento Habitat Conservation Plan*. Sacramento, California.

Foothill Associates. 2005. *Jaeger ±530-Acre Study Area: Wetland Delineation Report.* Rocklin, California.

Foothill Associates. 2012. *The Ranch at Sunridge Project: Section 7 Biological Assessment. Rocklin, California*.

Nature Serve. 2017. *Nature Serve Explorer*: *An Online Encyclopedia of Life* [Web Application]. Version 7.1. Last updated 2016. NatureServe, Arlington, Virginia. Available online at: http://www.natureserve.org/explorer. [Accessed 07/11/2017].

North Fork Associates. 2002. *Special Status Plant Report ±530-Acre Peery Arrillaga Sunrise Douglas Site*. Auburn, California.

Sawyer, John O. and Todd Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society, Sacramento, California.

Stebbins, R. C. 2003. *Western Amphibians and Reptiles*, *3rd Edition*. Boston: Houghton Mifflin Co.

U.S. Army Corps of Engineers (Corps). 2014. *Preliminary Jurisdictional Determination Letter.* October 14, 2014.

U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 1974. *Soil Survey of Sacramento County, California*. USDA, NRCS, in cooperation with the Regents of the University of California (Agricultural Experiment Station).

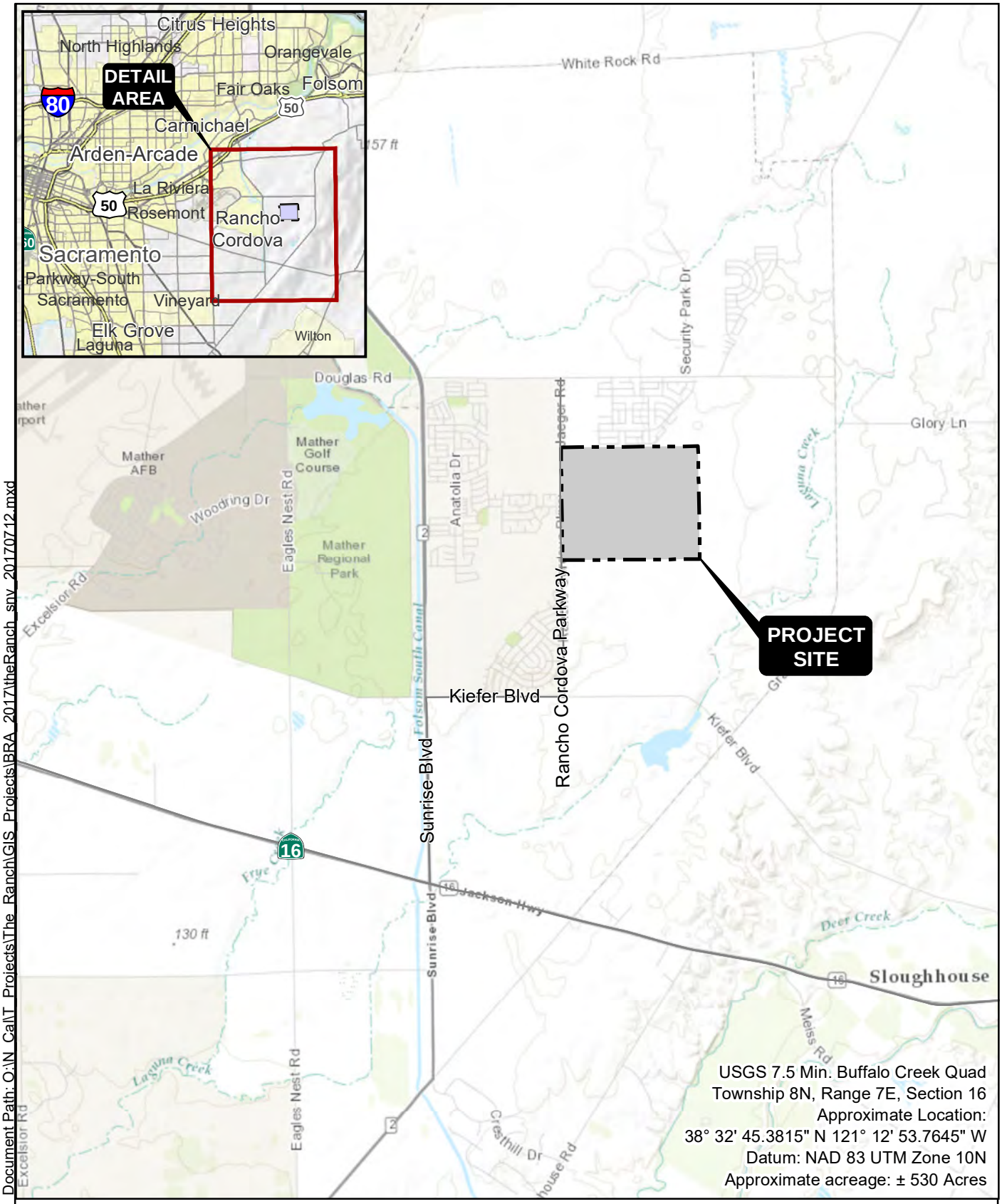
USDA, NRCS. 2017. *Web Soil Survey*. Available online at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.html. [Accessed 07/11/2017].

U.S. Fish and Wildlife Service (USFWS). 2017. *Information for Planning and Conservation* (IPaC) *Trust Resource Report: The Ranch, Sacramento County*. [Accessed 07/11/2017].

U.S. Geological Survey (USGS). 1967 (1980 edition). *Buffalo Creek, California*. 7.5 -minute series topographic quadrangle. U.S. Department of the Interior.

Zeiner, D.C., W.R. Laudenslayer Jr., K.E. Mayer, and M. White, eds. 1990. *California's Wildlife Volume II: Birds*, State of California: The Resource Agency, Department of Fish and Game, Sacramento, CA.

DRAFT



USGS 7.5 Min. Buffalo Creek Quad
Township 8N, Range 7E, Section 16
Approximate Location:
38° 32' 45.3815" N 121° 12' 53.7645" W
Datum: NAD 83 UTM Zone 10N
Approximate acreage: ± 530 Acres

Document Path: Q:\N_Cal\T_Projects\The_Ranch\GIS_Projects\BRA_2017\theRanch_snv_20170712.mxd

SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

© 2017

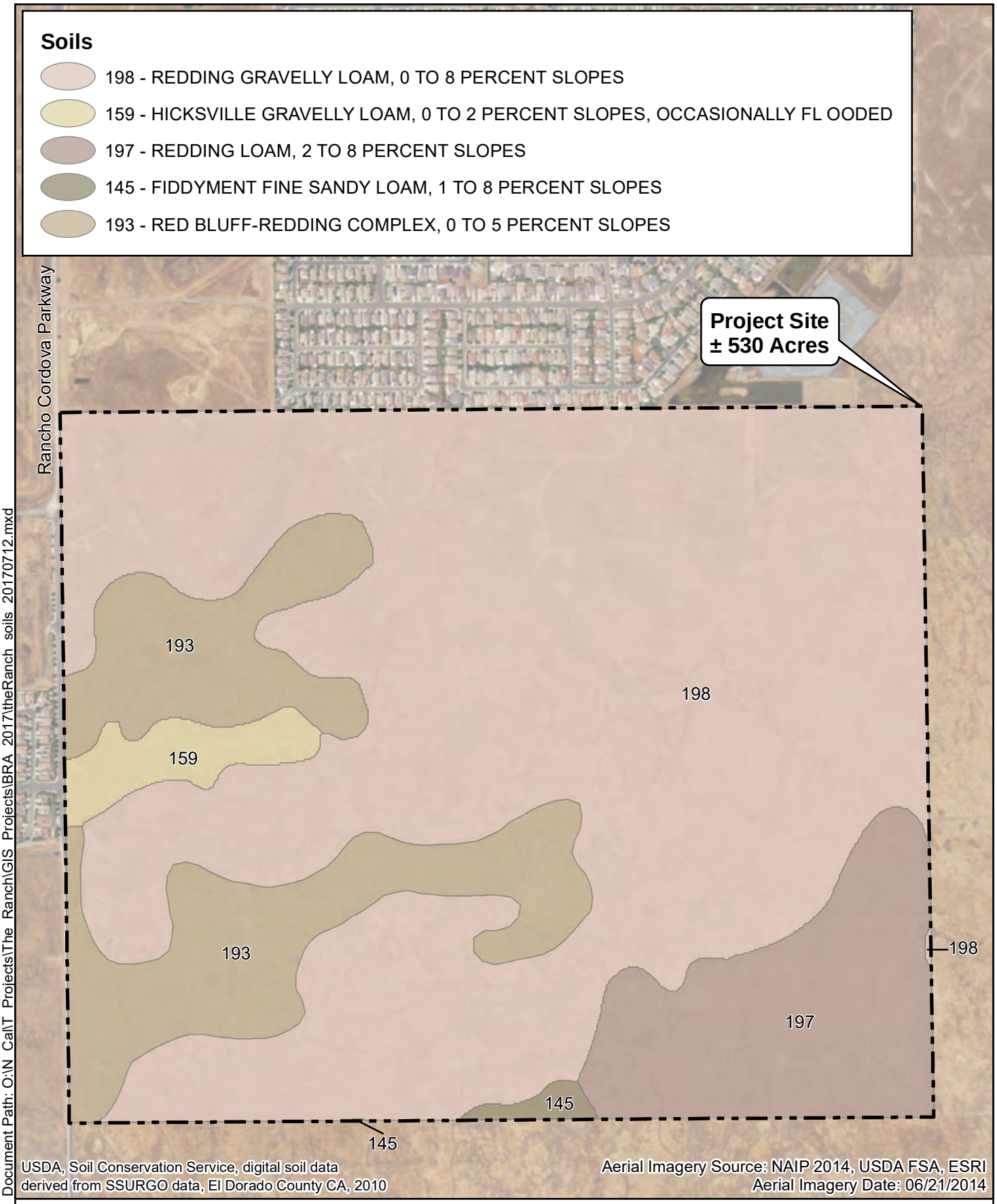
N

0 0.5 1
Miles
1 in = 1 miles

Drawn By: JFI
QA/QC: AMP
Date: 07/27/2017

FIGURE 1

Document Name: theRanch_snv_20170712.mxd : 10/13/2017 1:09:28 PM



Document Path: O:\N Cal\T Projects\The Ranch\GIS Projects\BRA 2017\theRanch soils 20170712.mxd

SOILS

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE
© 2017

N

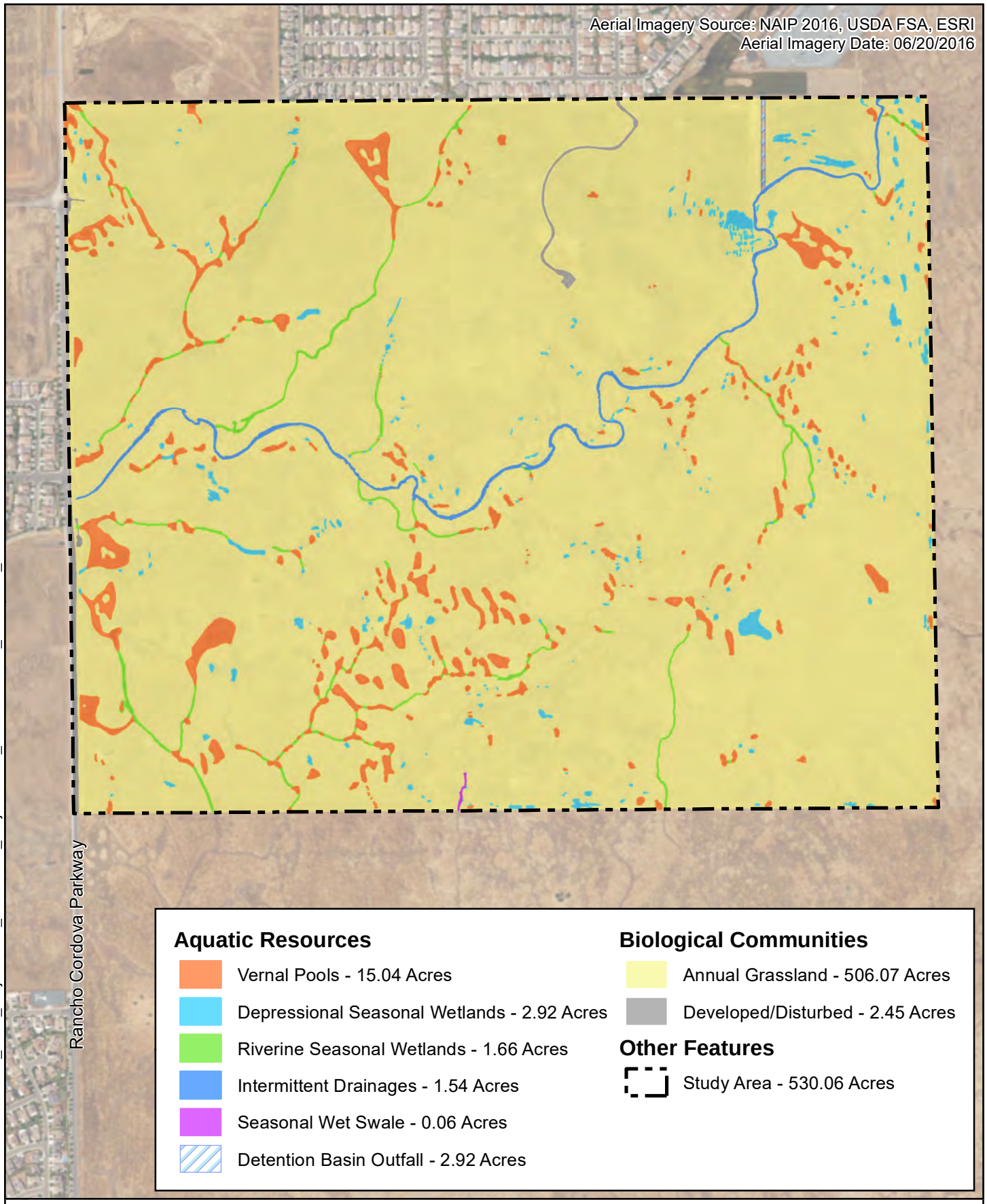
0 400 800
Feet
1 inch = 800 feet

Drawn By: JFI
QA/QC: AMP
Date: 07/27/2017

FIGURE 2

THE RANCH

Document Name: theRanch_soils_20170712.mxd : : 10/13/2017 1:14:09 PM



Document Path: O:\N_Cal\T_Projects\The_Ranch\GIS_Projects\BRA_2017\theRanch_bioComms_20170713.mxd

BIOLOGICAL COMMUNITIES

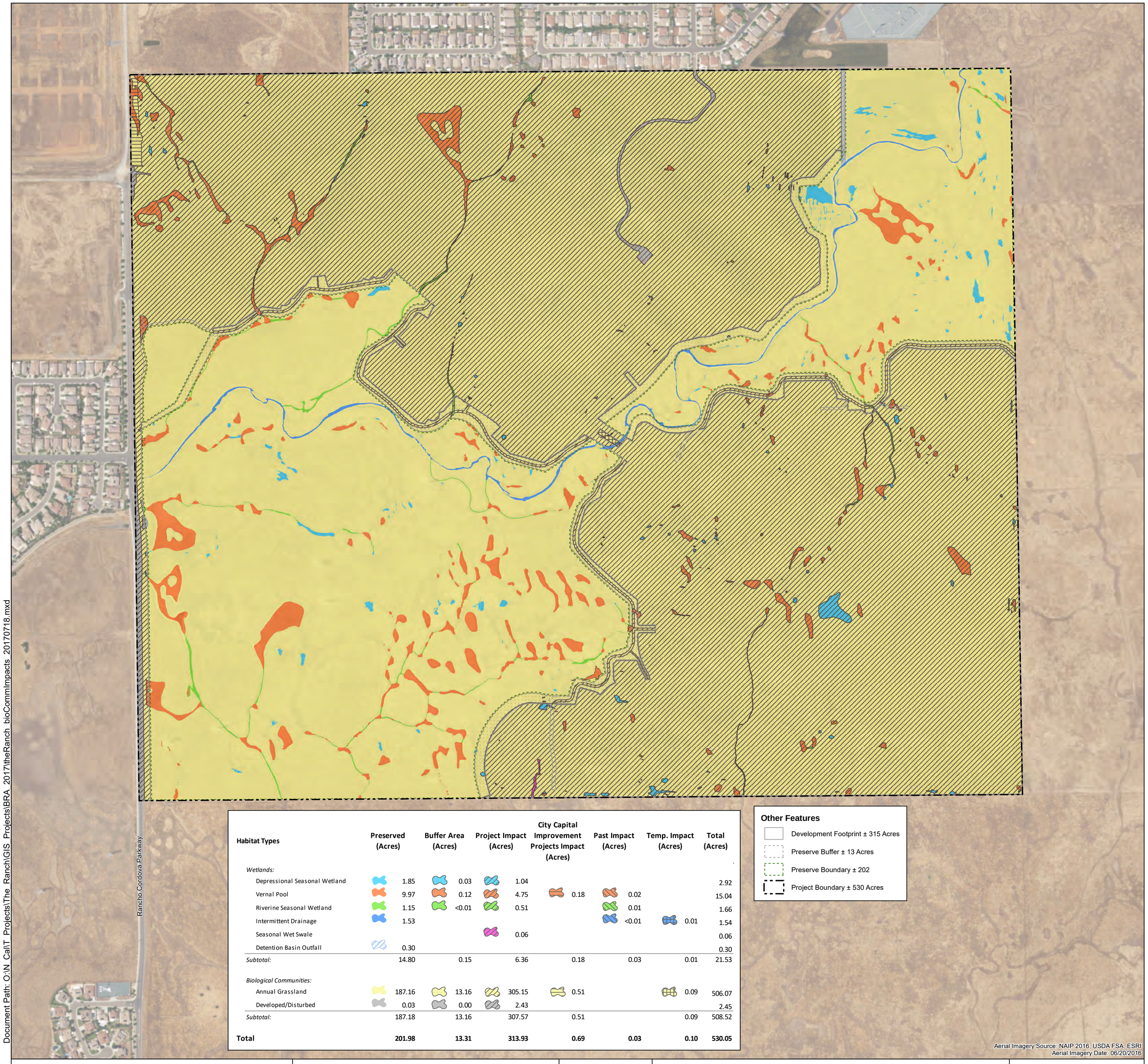
FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE
© 2017

N

0 400 800
Feet
1 inch = 800 feet

Drawn By: JFI
QA/QC: AMP
Date: 07/12/2017

FIGURE 3



Habitat Types	Preserved (Acres)	Buffer Area (Acres)	Project Impact (Acres)	City Capital Improvement Projects Impact (Acres)	Past Impact (Acres)	Temp. Impact (Acres)	Total (Acres)
Wetlands:							
Depressional Seasonal Wetland	1.85	0.03	1.04				2.92
Vernal Pool	9.97	0.12	4.75	0.18	0.02		15.04
Riverine Seasonal Wetland	1.15	<0.01	0.51		0.01		1.66
Intermittent Drainage	1.53				<0.01	0.01	1.54
Seasonal Wet Swale			0.06				0.06
Detention Basin Outfall	0.30						0.30
Subtotal:	14.80	0.15	6.36	0.18	0.03	0.01	21.53
Biological Communities:							
Annual Grassland	187.16	13.16	305.15	0.51		0.09	506.07
Developed/Disturbed	0.03	0.00	2.43				2.45
Subtotal:	187.18	13.16	307.57	0.51		0.09	508.52
Total	**201.98**	**13.31**	**313.93**	**0.69**	**0.03**	**0.10**	**530.05**

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE
Drawn By: JFI QAQC: MUB Date: 07/27/2017 © 2017

IMPACTS TO BIOLOGICAL COMMUNITIES

N

0 600 1,200
Feet
1 inch = 300 feet

FIGURE 4

Document Path: O:\N Cal\T Projects\The Ranch\GIS Projects\BRA 2017\theRanch bioCommImpacts 20170718.mxd

Document Name: theRanch_bioCommImpacts_20170718.mxd : : 10/13/2017 1:32:06 PM

Appendix A — Applicable Sections of the City of Rancho Cordova General Plan

DRAFT

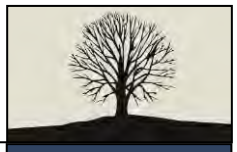


TABLE OF CONTENTS

Introduction **3**

Purpose **3**

Related Plans and Programs 4

Relationship to Other General Plan Elements 7

Issues and Considerations **7**

Natural Resources Setting 7

Plant and Animal Habitat 8

Wetlands and Creeks 8

Water Resources 8

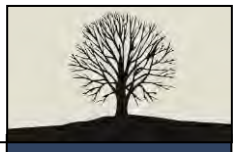
Soils/Aggregate Resources 9

Issues this Element Attempts to Solve 10

Goals, Policies, and Actions **10**

THIS PAGE INTENTIONALLY LEFT BLANK

IX NATURAL RESOURCES ELEMENT



VISION STATEMENT

Rancho Cordova will achieve a balance of natural resources and urban form through the compatible preservation of natural resources within the man-made environment. Natural resources will be protected, conserved, and reflected in the built environment. Creek corridors, preserves, trees, and open space areas will enhance neighborhoods and public spaces. The community's water resources will be conserved and protected from contamination. All new development will be consistent with stormwater regulations and protect against erosion. The community will strive to conserve energy and to recycle construction materials, green waste, and consumer goods.

INTRODUCTION

Natural resources connect with urban life in many ways, providing an important relationship between humans and the natural environment; including biological resources, and water resources. Ensuring quality management and protection of the City's numerous natural resources will contribute to Rancho Cordova's environmental health as well as to quality of life for residents. The City will become a leader in natural resource conservation, managing natural resources to ensure long-term sustainability while evaluating new opportunities and techniques in conservation.

PURPOSE

The Natural Resources Element identifies the ways in which Rancho Cordova will protect, maintain, and enhance its natural resources for the betterment of current residents and future generations. In combination, the Natural Resources Element and the Open Space, Parks and Trails Element represent the conservation element of the General Plan. The Open Space, Parks and Trails Element contains details on the City's Open Space Plan. It also attempts to balance the present needs of resource users with the need for resource conservation for the common good. The goals, policies, and actions in this Element will foster the preservation of Rancho Cordova's many valuable natural resources, including wildlife, habitat, water resources, soils, and mineral resources.

RELATED PLANS AND PROGRAMS

The Natural Resources Element relates to several other federal, State and local plans and programs, including the following:

- **National Environmental Policy Act.** The National Environmental Policy Act (NEPA) is a federal environmental review process for projects that have a federal nexus (e.g., impact federal resources or lands, receive federal funding, or require federal approval or permits). NEPA requires federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions. This Element is consistent with the intent of NEPA. It contains a goal and supporting policies and actions related to protecting and preserving diverse wildlife and plant habitat.

- **Federal Endangered Species Act.** The Federal Endangered Species Act (FESA) is a federal law that protects species that are endangered or threatened with extinction. FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined as harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (16 USC 1532, 50 CFR 17.3). Actions in this Element require the City to coordinate with federal agencies on wetland preserves and creek corridors.

- **Vernal Pool Recovery Plan.** The U.S. Fish & Wildlife Service's Vernal Pool Recovery Plan (Recovery Plan) covers 33 plant and animal species that occur exclusively or primarily within the California and southern Oregon vernal pool ecosystem. As drafted, the Recovery Plan identifies a five-part strategy to ameliorate or eliminate threats to affected species and to preserve intact vernal pools. This Element contains a goal, policies and actions related to preserving wetlands.

- **Section 404 of the Clean Water Act (404 Permits).** Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waters of the United States (waters of the U.S.), including wetlands and vernal pools. Activities in waters of the U.S. that are regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. This Element contains a goal, policies and actions related to preserving and mitigating for the loss of wetlands.

- **Section 401 of the Clean Water Act (Water Quality Certification).** Section 401 of the Clean Water Act requires a State Water Quality Certification for all federal permit or license applications for any activity that may result in a discharge to a water body to ensure compliance with state water quality standards. Most Certifications are issued in connection with section 404 permits for dredge and fill discharges. The Central Valley Regional Water Quality Board issues Section 401 water quality certifications for projects in Rancho Cordova. This Element contains a goal with supporting policies and actions related to creeks and a goal with supporting policies and actions related to water quality.

- **Section 402 of the Clean Water Act (NPDES Permits).** Section 402 of the Clean Water Act establishes permit programs to authorize discharge of storm water from municipal storm sewer systems. Rancho Cordova has a Municipal Stormwater Permit under the National Pollutant Discharge Elimination System (NPDES) Permit Program with Sacramento County, Elk Grove, Galt and the City of Sacramento. The Regional Water Quality Control Board, Central Valley Region, issues and administers the Sacramento NPDES municipal stormwater permit. This Element contains a policy and supporting actions related to urban runoff and discharging materials into creeks.

- **California Environmental Quality Act.** The California Environmental Quality Act (CEQA) is the State's environmental review process that requires public agencies to identify the significant environmental effects of a project and either avoid the significant environmental effects, where feasible, or mitigate the significant environmental effects, where feasible. This Element contains an action that specifically requires CEQA analysis of projects.

- **California Endangered Species Act.** The California Endangered Species Act is the State's listing of endangered and threatened species. It requires state agencies to consult with the California Department of Fish and Game (CDFG) when preparing CEQA documents to ensure that the state lead agency actions do not jeopardize the existence of listed species. This Element contains a goal and supporting policies and actions related to protecting and preserving diverse wildlife and plant habitat, and an action requiring coordination with CDFG on Swainson's hawk mitigation.

- **California Fish and Game Code.** The California Fish and Game Code contains laws and regulations relating to California's fish, wildlife, plants, and their habitats. The Code is administered by the California Department of Fish and Game. This Element contains a goal and supporting policies and actions related to protecting and

preserving diverse wildlife and plant habitat, and an action requiring coordination with CDFG on Swainson's hawk mitigation.

- **Surface Mining and Reclamation Act.** The Surface Mining and Reclamation Act (SMARA) addresses the need for a continuing supply of mineral resources and to prevent or minimize the negative impacts of surface mining to public health, property and the environment. SMARA's requirements apply to all surface mining operations in California that disturb more than one acre or remove more than 1,000 cubic yards of material including, but is not limited to, prospecting and exploratory activities, dredging and quarrying, streambed skimming, borrow pitting, and the stockpiling of mined materials. This Element contains a goal and supporting policies and actions related to environmentally sensitive extraction of minerals and reclamation.

- **California Integrated Waste Management Act.** The California Integrated Waste Management Act (CIWMA) requires each city and county to prepare, adopt, and submit to the California Integrated Waste Management Board a source reduction and recycling element (SRRE) that demonstrates how the jurisdiction will meet the IWMA's mandated diversion goals. This Element contains a goal and supporting policies and actions related to waste reduction, reuse, recycling and composting.

- **California Public Resources Code, Sections 41500-41510.** The Public Resources Code (PRC) requires each city and county to prepare, adopt and submit to the Waste Management Board a program for the safe collection, recycling, treatment, and disposal of hazardous wastes that are generated by households. This Element contains a goal and supporting policies and actions related to recycling and a goal and supporting policies and actions related to recycling of hazardous materials.

- **South Sacramento Habitat Conservation Plan (SSHCP).** The South Sacramento Habitat Conservation Plan (SSHCP) is a mitigation plan being prepared and managed by Sacramento County that seeks strategies that allow commercial, residential, and other development, while balancing the needs of sensitive plant and animal species. The SSHCP covers land within Sacramento County, including portions of the cities of Rancho Cordova, Elk Grove and Galt. The SSHCP is intended to consolidate environmental efforts to protect and enhance wetlands (primarily vernal pools) and upland habitats to provide ecologically viable conservation areas. The SSHCP will also minimize regulatory hurdles and streamline the development permit process for projects that are covered by and consistent with the plan. This Element contains a goal with supporting policies and actions related to protecting and preserving diverse wildlife and plant habitat, a policy about participation in an HCP, and a goal with supporting policies and actions related to preserving natural wetlands.

- **American River Parkway Plan.** The American River Parkway Plan was adopted by the City of Sacramento, Sacramento County and the State Legislature to manage the

Parkway's natural resources and promote recreation in a natural environment with minimal impacts. Sacramento County is currently updating the American River Parkway Plan. The ARPP Update is required because the context and usage of the three areas has changed considerably since the Plan was adopted. The City of Rancho Cordova is participating in the ARPP Update. This regional resource/amenity passes through the northern portion of Rancho Cordova. This Element contains a goal with supporting policies and actions related to protecting and preserving diverse wildlife and plant habitat.

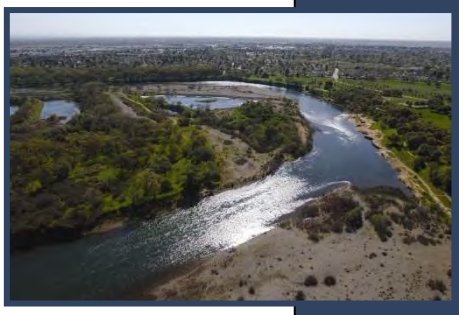
Relationship to Other General Plan Elements

The Natural Resources Element is closely related to the Open Space, Parks, and Trails Element and Air Quality Element of the General Plan. The Open Space, Parks and Trails Element contains goals, policies and actions that establish the open space plan for the City. Together, the two elements represent the conservation element of the General Plan. The Air Quality Element contains policies about maximizing air quality benefits through the use of landscaping and trees, which are directly related to policies in the Natural Resources Element. Where appropriate, cross-references are provided to alert the reader to information in the other elements.

ISSUES AND CONSIDERATIONS

Natural Resources Setting

The Planning Area contains many varied natural resources, from habitats to creeks to water supplies. Each resource has an important function within the City and the region. The City does not contain forests, harbors, or fisheries. Therefore, the Natural Resources Element does not contain goals, policies or actions related to such resources.



Plant and Animal Habitat

A variety of unique and valuable habitats are found within the Planning Area, including, but not limited to, oak and cottonwood woodlands, various grasslands, vernal pool areas, and open water and rivers. The habitats of the Planning Area contain numerous special status plant and animal species. A comprehensive list of the habitats and species in the Planning Area is provided in the Background Report that accompanies the General Plan.

Table NR-1 at the end of this Element includes a current list of special-status species that occur within the Rancho Cordova Planning Area.

Wetlands and Creeks

Wetlands and creeks in the Planning Area provide a variety of functions to the community. Creeks provide important ecosystem functions. The riparian habitat associated with creeks supports diverse and abundant plant and animal life and provides movement corridors for animals. Wetlands in the project area also have important ecological functions in that they support unique assemblages of specially adapted biota. In addition to their ecological functions, wetlands and creeks provide important water filtration and treatment, water supply, water storage, and recreational functions.

Water Resources

The Planning Area contains several surface water and groundwater resources. Major surface water resources include the American River, the Cosumnes River, Morrison Creek, Laguna Creek, Elder Creek, Buffalo Creek, Blodgett Reservoir, and the Folsom South Canal. Groundwater is found in aquifer zones underneath the Planning Area.

Former Aerojet and Boeing operations associated with rocket testing resulted in groundwater contamination in portions of the Planning Area. The groundwater contamination spread in a plume that extends south and west within Rancho Cordova, as well as north under the American River into Carmichael. The Environmental Protection Agency (EPA) designated the Aerojet property as a Superfund site. A site is only designated as a Superfund site if it has been contaminated by hazardous waste and if the Environmental Protection Agency (EPA) has identified the site as a candidate for cleanup because it poses a risk to human health and/or the environment. In 2000, the EPA proposed a plan to clean up the plume of groundwater contamination to the west of the Aerojet property and to ensure continued, safe water supplies for area residents. Aerojet has

installed wells, pipelines, and treatment systems in the first phase of their effort to remove the groundwater contamination. Cleaning of the contamination officially began in 1979.

The current groundwater remediation is anticipated to be a long-term commitment, possibly operating more than 100 years. A significant volume of extracted and treated groundwater, possibly exceeding 30,000 acre-feet per year, is expected to be discharged to the American River. After flowing downstream to the Sacramento River and south to the Freeport pumping station, the water will be introduced into the County's municipal water system. The use of this water has been established through legal agreements between Aerojet, Sacramento County, and affected local water agencies.

Water is provided to the Rancho Cordova's Planning Area by three water purveyors including Sacramento County Water Agency (SCWA) Zone 40, Golden State Water Company (GSWC), and California-American Water Company (Cal-Am). The City's water supply is currently provided by a combination of ground and surface water resources. Future water supplies will be provided from a variety of sources, including: water from the Central Valley Project; appropriate water supplies; water transfer supplies; groundwater; recycled water; surface water from the American River; SMUD transfer water; and Aerojet replacement water.

A Water Supply Evaluation was prepared for the General Plan to identify water supply needs of the proposed General Plan under buildout of proposed land uses in the City's current boundaries as well as the Planning Area outside of the City under the State law providing for coordination between cities and counties and water planning activities of water purveyors and agencies. This work involved consultation with the current public and private water purveyors in the Planning Area, as well as requests for formal consultation regarding water supply availability by the City. Urban Water Management Plans (UWMP) for all water purveyors were obtained and used in the Water Supply Evaluation. The UWMPs identified the purveyor's existing and projected future water supplies and projected water demands through 2030 within each of their service areas.

Soils/Aggregate Resources

The soils in the Planning Area are largely expansive clay soils, which tend to present challenges for construction. The Planning Area also contains approximately 10,275 acres of mine tailings, which are comprised of high-quality aggregate resources and possibly mineral resources such as gold. There are several existing mining operations within the Planning Area, some of which may expand in the future. These operations will play an important role in supplying materials for the build-out of the community.

IX NATURAL RESOURCES ELEMENT

Issues this Element Attempts to Solve

The goals, policies, and actions in this Element attempt to solve the following issues, raised during discussion of natural resource conservation:

- Protecting wildlife and wetlands areas.

- Encouraging the City and various public agencies to work together to establish natural resource protection areas both inside and outside of the City.

- Ensuring compatibility and mutual benefit, to the maximum extent feasible, between mitigation preserves and urban development.

- Reducing the impacts of new development on the use of water and mineral resources.

- Ensuring the availability of aggregate resources to support construction within the City.

- Maintaining continuous and uninterrupted connections between mitigation preserves providing habitat corridors that allow species migration and minimize habitat and species isolation.

- Reducing solid waste production and promoting recycling activities that seek to reduce the amount of solid waste to state-mandated levels.

GOALS, POLICIES, AND ACTIONS

The goals of this element are as follows and are listed subsequently with corresponding policies and actions. The term "feasible" as used in the Natural Resources Element of the City General Plan shall be defined as follows: "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

- **Goal NR1: Protect and preserve diverse wildlife and plant habitats, including habitat for special status species.**

- **Goal NR.2: Preserve the City's rich and diverse natural wetlands.**

- **Goal NR.3: Preserve and maintain creek corridors and wetland preserves with useable buffer zones throughout the new development areas as feasible.)**

- **Goal NR.4: Encourage the planting and preservation of high-quality trees throughout the City.**

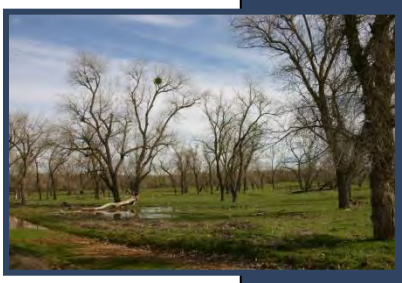
- **Goal NR.5: Protect the quantity and quality of the City's water resources.**

- **Goal NR.6: Support the environmentally sensitive extraction of minerals and the subsequent reclamation of mined areas.**

- **Goal NR.7: Reduce per capita energy consumption.**

- **Goal NR.8: Promote waste reduction, reuse, recycling, and composting efforts.**

GOAL NR.1 - PROTECT AND PRESERVE DIVERSE WILDLIFE AND PLANT HABITATS, INCLUDING HABITAT FOR SPECIAL STATUS SPECIES.



Policy NR.1.1 - Protect rare, threatened, and endangered species and their habitats in accordance with State and federal law.

- **Action NR.1.1.1** - Incorporate habitat preserves and interconnected wildlife corridors in new development areas to allow for animal movement where feasible and as necessary for viability of protected species.

- **Action NR.1.1.2** – Review projects through the entitlement process and CEQA analysis to ensure that they comply with this policy if the site contains unique habitat, creeks, and/or wooded corridors.

Cross reference: LU.3.4

- **Action NR.1.1.3** - As part of the consideration of development applications for individual Planning Areas containing habitats that support special-status plant and animal species that are planned to be preserved, the City may require that these preserved habitats have interconnections with other habitat areas where feasible and appropriate to promote the viability of the preserved habitat to support the special-status species identified. The determination of the design and size of the "interconnections" shall be made by the City, with the consideration of a recommendation from a qualified professional, after California Department of Fish and Game and U.S. Fish and Wildlife Service are provided with an opportunity to comment.

- **Action NR.1.1.4** - Prior to the approval of any public or private development project in areas containing trees, the City shall require that a determinate survey be conducted during the nesting season (March 1 and August 31) to identify if active nesting by birds protected under the Migratory Bird Treaty Act (MBTA) is taking place. If all site disturbance is to occur outside this time, the actions described in this mitigation measure are not required. If nesting activity is observed, consultation with the City of Rancho Cordova Planning Department shall be conducted in order to determine the appropriate mitigation, if any, required to minimize impacts to nesting birds. No activity may occur within 100 feet of any nesting activity or as otherwise required following consultation with the California Department of Fish and Game.

Policy NR.1.2 - Conserve Swainson's hawk habitat consistent with State policies and Department of Fish and Game guidelines.

- **Action NR.1.2.1** – Establish a Swainson's Hawk Ordinance in coordination with the California Department of Fish and Game to establish the process of mitigating for the loss of Swainson's hawk foraging habitat based on habitat value lost to development. The ordinance will set forth a process where habitat lost to development will be mitigated through the permanent protection of equivalent or better existing habitat conditions (referred to hereafter as "mitigation lands"). The specific required mitigation ratios (habitat acreage lost versus mitigation lands) and any other provisions to mitigation process shall be established through technical studies as part of the development of the ordinance and will take into account value of habitat to be converted in relation to habitat value of the mitigation lands (e.g., relation to nesting sites), proximity of the mitigation lands to adjacent conditions affecting habitat (e.g., nearby land uses and already permanently protected lands), and other relevant factors. The ordinance will also establish standards ensuring that mitigation land will be adequately protected and managed in perpetuity (e.g., via conservation easement, deed restriction or other appropriate method), and setting forth the timing of the required provision of mitigation lands in relation with the timing of the loss of habitat in the City (as its boundaries may be changed through subsequent annexations), such that mitigation lands shall be provided no later than prior to ground disturbance.

Policy NR.1.3 – Promote educational programs that inform the public about natural resources.

- **Action NR.1.3.1** – Coordinate with non-profit groups, educational institutions, and other agencies to provide environmental education programs that inform the public about the City's natural resources, existing preserve sites, and cohabitation with common urban wildlife populations.

Policy NR.1.4 - Discourage the planting of invasive species.

- **Action NR.1.4.1** - Create an educational leaflet that identifies common invasive species and recommends the planting of non-invasive species.

- **Action NR.1.4.2** - The City shall adopt and maintain a Noxious Weed Ordinance. The Noxious Weed Ordinance shall include regulatory standards for construction activities that occur adjacent to natural areas to inhibit the establishment of noxious weeds through accidental seed import.

Policy NR.1.5 - Ensure the protection of wildlife through the establishment of programs to control feral pet populations.

Policy NR.1.6 – Participate in the development of a habitat conservation plan to address the unique biological resources in Rancho Cordova.

Policy NR.1.7 – Prior to project approval, the City shall require a biological resources evaluation for private and public development projects in areas identified to contain or possibly contain listed plant and/or wildlife species based upon the City's biological resource mapping provided in the General Plan EIR or other technical materials.

- **Action NR.1.7.1** - For those areas in which special status species are found or likely to occur, the City shall require feasible mitigation of impacts to those species that ensure that the project does not contribute to the decline of the affected species such that their decline would impact the viability of the species. Feasible mitigation shall be determined by the City after the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) are provided an opportunity to comment, and may emphasize a multi-species approach. This may include development or participation in a habitat conservation plan.

Policy NR.1.8 - The City shall encourage creation of habitat preserves that are immediately adjacent to each other in order to provide interconnected open space areas for animal movement.

Policy NR.1.9 - The City shall require that impacts to riparian habitats be mitigated at a no net loss of existing function and value based on field survey and analysis of the riparian habitat to be impacted. No net loss may be accomplished by avoidance of the habitat, restoration of existing habitat, or creation of new habitat, or through some combination of the above.

Policy NR.1.10 - The placement of new roadways within habitat preserves shall be discouraged, but is not prohibited. This Policy shall not apply to roadways shown in the Circulation Element or needed to meet goals or policies of the Circulation Element.

Policy NR.1.11 - In such cases where a new roadway crosses a habitat preserve or separates two adjacent preserves, the roadway shall include design features, where feasible and appropriate, to allow for the movement of wildlife across or beneath the road without causing a hazard for vehicles, bicycles and pedestrians on the roadway.

GOAL NR.2 - PRESERVE THE CITY'S RICH AND DIVERSE NATURAL WETLANDS.

Policy NR.2.1 – Require mitigation that provides for "no net loss" of wetlands consistent with current State and federal policies.

- **Action NR.2.1.1** - During the environmental review process, evaluate feasible on-site alternatives that will reduce impacts to wetland resources and effectively preserve these resources.

Policy NR.2.2 - Ensure that direct and indirect effects to wetland habitats are mitigated to the extent feasible by environmentally sensitive project siting and design or other measures.

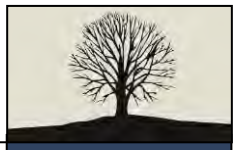
Policy NR.2.3 – Work with private and non-profit conservation organizations to ensure competitive pricing for mitigation bank credits by allowing government agencies, non-profit organizations, and private landowners to establish vernal pool preserves, designate mitigation areas, create and restore vernal pools, and sell credits to developers for off-site mitigation.

Policy NR.2.4 - Educate the public on the importance and benefit of wetlands areas.

- **Action NR.2.4.1** - Develop trails and associated educational facilities (e.g., information kiosks, signage) around wetland and vernal pool preserves where possible while maintaining the integrity of sensitive natural resources.

- **Action NR.2.4.2** – Consider constructing low impact trails interior to preserves, such as elevated board walkways, in coordination with the U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers.

Policy NR.2.5 - The City shall require that drainage improvements that discharge into areas of wetlands to be preserved are, to the maximum extent feasible, designed to mimic the undeveloped surface water flow conditions of the area in terms of seasonality, volume, and flow velocity.



GOAL NR.3 - PRESERVE AND MAINTAIN CREEK CORRIDORS AND WETLAND PRESERVES WITH USEABLE BUFFER ZONES THROUGHOUT THE NEW DEVELOPMENT AREAS AS FEASIBLE.

Policy NR.3.1 - Coordinate with property owners and local interest groups, such as the Sacramento Urban Creeks Council, to restore, enhance, and preserve creeks in Rancho Cordova.

Policy NR.3.2 - In general, the City will encourage the preservation of existing location, topography, and meandering alignment of natural creeks. The modification, re-creation and realignment of creek corridors shall recreate the character of the natural creek corridor to the extent feasible, appropriate and consistent with other City policies. Channelization and the use of concrete within creek corridors shall be discouraged, but is not prohibited.

- **Action NR.3.2.1** – Develop guidelines for channel creation or modification that will ensure channel meander, naturalized side slope, and varied channel bottom elevation are considered in design.

- **Action NR.3.2.2** – Adopt and implement improvement standards for soft bottom channels.

Policy NR.3.3 – Encourage the creation of secondary flood control channels where the existing channel supports extensive riparian vegetation.

- **Action NR 3.3.1 –** Work with affected local, state, and federal agencies, including SACOG, the California Department of Water Resources, Delta Keepers, and the U.S. Army Corps of Engineers, to determine when natural creek corridors can and should accommodate storm flows or if separate storm water conveyance structures are necessary.

Cross reference: OSPT 2.3

Policy NR.3.4 – Encourage projects that contain wetland preserves or creeks, or are located adjacent to wetland preserves or creeks, to be designed for visibility and, as appropriate, access.

- **Action NR.3.4.1** - Establish performance standards for natural resource preserves that accomplish the following:

  – Provide sufficient width for a mowed firebreak (where necessary), adjacent passive recreation uses, and access for channel maintenance and flood control.

– Offer sufficient width in and/or adjacent to preserves to allow for existing and created wildlife habitat, species sensitive to human disturbance, vegetative filtration for water quality, corridor for wildlife habitat linkage, protection from runoff, and other impacts of urban uses adjacent to the corridor.

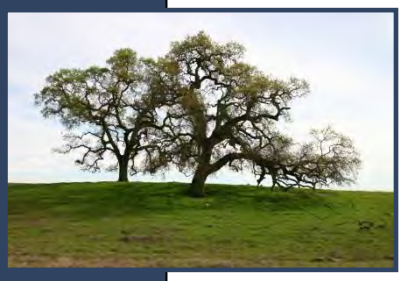
– Allow for sufficient width adjacent to natural resource preserves to allow for trails and greenbelts.

– Prohibit the placement of water quality treatment structures designed to meet pollutant discharge requirements within mitigation preserves.

- **Action NR.3.4.2** – Establish standards that allow public access in the floodplain and buffers along creek corridors and preserves. Mitigation measures shall be incorporated into environmental documents and conditions of approval that require open-view fencing adjacent to preserves.

- **Action NR.3.4.3 –** Establish standards and/or guidelines for development adjoining wetland preserves or creeks to maximize visibility by designing the land plan with public streets on at least one side of the corridor or preserve with vertical curbs, gutters, footpath(s), street lighting, and post and cable barriers to prevent unauthorized vehicular entry into creek corridors and preserves.

GOAL NR.4 – ENCOURAGE THE PLANTING AND PRESERVATION OF HIGH-QUALITY TREES THROUGHOUT THE CITY.



Policy NR.4.1 - Conserve native oak and landmark tree resources for their historic, economic, aesthetic, educational, and environmental value.

- **Action NR.4.1.1 -** Implement the City's Tree Preservation and Protection Ordinance (and update as necessary) to establish minimum requirements for preserving native trees and landmark trees in the City, including a definition of the size, species, and age requirements of landmark, oak, and other trees to be protected and/or replaced.

- **Action NR.4.1.2** - Where feasible, require underground utility lines that are in close proximity to oaks and other landmark trees to be designed and installed to minimize impacts to trees. Work with the utility provider(s) to coordinate transmission line location and other potential impacts associated with the undergrounding of the utilities.

- **Action NR.4.1.3** - Establish development guidelines that require all oak habitat to be avoided to the maximum extent feasible. When avoidance is not possible, require mitigation efforts that result in preservation of in-kind habitat in the Planning Area.

Policy NR.4.2 - Improve overall landscaping quality and sustainability in all areas visible to the public.

- **Action NR.4.2.1** - Create development guidelines to establish minimum planting standards and require appropriate tree species and planting densities within newly landscaped areas that are visible to or shared by the public. An adopted Tree List should be used as a guideline for all tree plantings within the City.

Cross reference: UD.2.6.2

- **Action NR.4.2.2** - Create development guidelines that address landscaping standards and that require appropriate tree species and densities in buffer areas. The guidelines should also ensure that medians will include native plantings and trees, and will be wide enough to support the long-term viability of the plantings.

Cross reference: UD.2.6.2

- **Action NR.4.2.3** - Provide leaflets and planting guides that promote the use of drought-tolerant native vegetation in home landscaping.

- **Action NR.4.2.4** – Discourage the use of invasive non-native species.

- **Action NR.4.2.5** – Establish a mistletoe abatement and remediation program.

- **Action NR.4.2.6** - Establish guidelines to require planting of trees to reduce "heat island" effects, in order to reduce the need for air conditioning and thus conserve energy.

Policy NR.4.3 - Promote trees as economic and environmental resources for the use, education, and enjoyment of current and future generations.

- **Action NR.4.3.1** - Achieve "Tree City USA" status. This will require the City to continue to implement the City's Tree Preservation and Protection Ordinance (and update as necessary), appoint a board, department or commission to advise the city on tree issues, spend two dollars per capita on community forestry activities, and hold an Arbor Day celebration.

Cross reference: AQ.2.4

- **Action NR.4.3.2** - Designate local funds to educate the public on tree planting and preservation.

- **Action NR.4.3.3** - Coordinate with SMUD to offer programs or other resources to provide property owners with information on proper tree selection, proper location to reduce heat transfer effects, planting and maintenance.

- **Action NR.4.3.4** – Actively participate in the Sacramento Tree Foundation Greenprint Program.

Policy NR.4.4 - Prior to the approval of any public or private development project in areas identified or assumed to contain trees, the City shall require that a determinate survey of trees species and size be performed. If any native oaks or other native trees six inches or more in diameter at breast height (dbh), multitrunk native oaks or native trees of 10 inches or greater dbh, or non-native trees of 18 inches or greater dbh that have been determined by a certified arborist to be in good health are found to occur, such trees shall be avoided if feasible. If such trees cannot be avoided, the project applicant shall do one of the following:

- All such trees shall be replaced at an inch-for-inch ratio. A replacement tree planting plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the City of Rancho Cordova for approval prior to removal of trees; or,

- The project applicant shall submit a mitigation plan that provides for complete mitigation of the removal of such trees in coordination with the City of Rancho Cordova. The mitigation plan shall be subject to the approval of the City.

- If the City of Ranch Cordova adopts a tree preservation ordinance at any time in the future, any future development activities shall be subject to that ordinance instead.

GOAL NR.5 - PROTECT THE QUANTITY AND QUALITY OF THE CITY'S WATER RESOURCES.

Policy NR.5.1 - Promote water conservation within existing and future urban uses.

- **Action NR.5.1.1** - Install water-conserving landscaping and irrigation on City-owned and operated facilities.

- **Action NR.5.1.2** - Require development project approvals to include a finding that all feasible and cost-effective options for conservation and water reuse are incorporated into project design.

- **Action NR.5.1.3** - Establish a program that requires per capita water consumption to be reduced by at least 20 percent by 2030 from 2006 baseline conditions consistent with State law. The program shall include the following measures:

- Restrict water usage through metering or establishing designated watering days for the City's residences and businesses.
- Promote water conservation efforts through education.
- Implement standards that require low-flow appliances and fixtures in all new development.
- Work with water providers and water conservation agencies to create an incentive program that encourages retrofitting existing development with low-flow water fixtures.
- Require new development and landscaped public areas to utilize state-of-the-art irrigation systems that reduce water consumption (e.g., gray-water systems).
- Encourage drought-tolerant and native vegetation.

- **Action NR.5.1.4** – Require water purveyors to include a provision for water supply monitoring and reporting in the franchise agreements.

Policy NR.5.2 - Encourage the use of treated wastewater to irrigate parks, golf courses, and landscaping.

- **Action NR.5.2.1** – Establish a Large-Scale Recycled Water Program and Citywide Recycled Water Distribution System Ordinance.
- **Action NR.5.2.2** – Coordinate with the City's water purveyors and the SRCSD to establish a connected "purple pipe" system throughout the City's new development areas that uses recycled water.

Policy NR.5.3 - Protect surface and ground water from major sources of pollution, including hazardous materials contamination and urban runoff.

- **Action NR.5.3.1** - Restrict hazardous materials storage in the 100-year and 200-year floodplain to prevent surface water contamination.

Cross reference: S.5.3

Cross reference: S.5.1

- **Action NR.5.3.2** - Educate the community on laws governing the proper handling of hazardous materials, especially those laws which pertain to discharging materials into creeks.

- **Action NR.5.3.3** - Install appropriate signage to deter the discharge of hazardous materials into storm drains.

- **Action NR.5.3.4** - Future land uses that are anticipated to utilize hazardous materials or waste shall be required to provide adequate containment facilities to ensure that surface water and groundwater resources are protected from accidental releases. This shall include double-containment, levees to contain spills, and monitoring wells for underground storage tanks, as required by local, state, and federal standards. Future land uses that include on-site storage of hazardous materials and waste comply with all applicable local, state and federal regulations, including those regulating the use, storage, handling and disposal of hazardous materials.

Policy NR.5.4 - Prevent contamination of the groundwater table and surface water, and remedy existing contamination to the extent practicable.

- **Action NR.5.4.1** – Provide information on pollution prevention, disposal of hazardous waste and chemicals, liability and clean-up on the City's website and in educational materials and brochures.

- **Action NR.5.4.2** - Require clean-up of contaminated ground and surface water by current and/or past owners or polluters.

- **Action NR.5.4.3** - Encourage pollutant cleansing companies to use the latest technologies available in order to expedite the cleansing process and do the least harm to the environment.

Policy NR.5.5 – Minimize erosion to stream channels resulting from new development in urban areas consistent with State law.

- **Action NR.5.5.1** - Require development projects to contain urban runoff control strategies and requirements that are consistent with Master Drainage Plans and the City's urban runoff management program.

Cross reference: 5.2.3.1

- **Action NR.5.5.2** - Require development within newly urbanizing areas to incorporate runoff control measures into their site design or to participate in an area-wide

runoff control management effort consistent with standards developed by the Public Works Department.

- **Action NR.5.5.3** - Encourage new development to incorporate features such as grassy swales, multi-use retention or detention basins, and integrated drainage systems to enhance water quality. Work with the Cordova Recreation and Park District to establish standards for integrating retention/detention basins into park sites and create examples of desirable and innovative natural drainage features.

- **Action NR.5.5.4** - Require the use of best management practices to protect receiving waters from the adverse effects of construction activities, sediment and urban runoff consistent with current state law.

Policy NR.5.6 - Incorporate Storm Water, Urban Runoff, and Wetland Mosquito Management Guidelines and Best Management Practices into the design of water retention structures, drainage ditches, swales, and the construction of mitigated wetlands in order to reduce the potential for mosquito-borne disease transmission.

Policy NR.5.7 - Continue to cooperate and participate with the County, other cities, and the Regional Water Quality Control Board regarding compliance with the joint National Pollutant Discharge Elimination System Permit (NPDES No. CAS082597) or any subsequent permit and support water quality improvement projects in order to maintain compliance with regional, state and federal water quality requirements.

Policy NR.5.8 - The City shall require groundwater impact evaluations be conducted for the Grant Line West, Westborough, Aerojet, Glenborough, Mather and Jackson Planning Areas to determine whether urbanization of these areas would adversely impact groundwater remediation activities associated with Mather and Aerojet prior to the approval of large-scale development. Should an adverse impact be determined, a mitigation program shall be developed in consultation with applicable local, state, and federal agencies to ensure remediation activities are not impacted. This may include the provision of land areas for groundwater remediation facilities, installation/extension of necessary infrastructure, or other appropriate measures.

GOAL NR.6 - SUPPORT THE ENVIRONMENTALLY SENSITIVE EXTRACTION OF MINERALS AND THE SUBSEQUENT RECLAMATION OF MINED AREAS.

Policy NR.6.1 – Ensure that the environmental effects of mining and reclamation on aquifers, streams, scenic views, and surrounding residential uses are prevented or minimized.

- **Action NR.6.1.1** – Regulate surface mining operations as required by California's Surface Mining and Reclamation Act of 1975 ("SMARA"), Public Resources Code Section 2207 (relating to annual reporting requirements), and State Mining and Geology Board regulations for surface mining and reclamation practice.

- **Action NR.6.1.2** – Coordinate mining operations and urban development to minimize conflicts between residents and mining, particularly where mining is required before urbanization.

- **Action NR.6.1.3** – Require inactive mined lands to be reclaimed to a usable condition that is readily adaptable to the future, anticipated land uses.

Policy NR.6.2 – Eliminate residual hazards to the public health and safety.

- **Action NR.6.2.1** – Establish and require minimum setbacks of future and reauthorized surface mining from adjoining residential land uses.

- **Action NR.6.2.2** - Prohibit the use of cyanide-leaching systems for gold extraction.

Policy NR.6.3 - While mining activities are anticipated to be phased out within the City, the City recognizes the right of these uses to continue and will require setbacks, buffers, screening, and other appropriate measures to allow for the continued operation of mining activities.

GOAL NR.7 - REDUCE PER CAPITA ENERGY CONSUMPTION.

Cross reference: H.6.1

Policy NR.7.1 - Increase energy conservation Citywide.

- **Action NR.7.1.1** - Develop educational programs to increase energy conservation at the household and business levels.

- **Action NR.7.1.2** - Develop a comprehensive program to conserve energy resources at City-operated facilities.

Policy NR.7.2 - Promote the development and use of advanced energy technology and building materials in Rancho Cordova.

Cross reference: LU.2.7

Policy NR.7.3 - Encourage the development of energy efficient buildings and subdivisions.

- **Action NR 7.3.1** - Offer incentives (e.g., reduced fees, expedited entitlement processing, density bonus) for plans/projects that exceed Title 24 energy efficiency requirements by ten percent.

Policy NR.7.4 - Promote energy rebate programs offered by local energy providers (e.g., SMUD, PG&E) as a way to bring energy efficiency into older neighborhoods and developments.

- **Action NR.7.4.1** - Consider the following items as ways to implement this policy:
  - Fund a program that offers incentives for adding energy efficient systems into existing developments;
  - Work with local utility providers to make the public aware of energy rebate programs; and
  - Work with community organizations, such as SMUD, to encourage the inclusion of energy efficient systems in remodels and retrofits of existing development.

GOAL NR.8 - PROMOTE WASTE REDUCTION, REUSE, RECYCLING, AND COMPOSTING EFFORTS.

Policy NR.8.1 - Support recycling efforts by developing a set of programs to educate residents on recycling and provide recycling services.

- **Action NR.8.1.1 -** Continue providing curbside recycling and green waste service to all single-family and duplex residences in Rancho Cordova.
- **Action NR.8.1.2** - Create and facilitate a series of educational workshops for the public and businesses on composting and recycling. Provide at least one program to increase recycling by occupants of multi-family housing.
- **Action NR.8.1.3** - Encourage all office, commercial, and multi-family complexes to provide recycling bins and collection service for paper, plastic, glass, and metal.
- **Action NR.8.1.4** - Provide recycling centers at City facilities (e.g., City Hall, libraries) that are available to the public free-of-charge.

- **Action NR.8.1.5** - Provide locations for household hazardous wastes to be recycled.

- **Action NR.8.1.6** – Remove impediments to successful recycling.

Policy NR.8.2 - Encourage all companies that do business in Rancho Cordova to recycle and reuse construction scraps, demolition materials, concrete, industrial waste, and green waste.

- **Action NR.8.2.1** - Encourage the school districts within the Planning Area to support recycling at school sites by placing easily accessible recycling bins, providing educational programs on recycling, and using recycled products.

Cross reference: N.1.5

Policy NR.8.3 - Promote the use of rubberized asphalt on all public roadways in an effort to recycle old tires and reduce noise impacts. Implementation of this policy will help to preserve aggregate resources.

Policy NR.8.4 - Encourage the use of recycled materials and source reduction (also known as waste prevention) by governmental agencies and local businesses.

- **Action NR.8.4.1** - Ensure that at least 50 percent of the City's office supply purchases are comprised of recycled or reusable products.

Policy NR.8.5 - Meet state mandates for solid waste reduction and recycling. Increase recycling efforts beyond those required by state law through supporting businesses that buy and sell re-used materials, such as materials exchange centers.

- **Action NR.8.5.1** - Implement the State's source reduction and recycling element (required by the California Integrated Waste Management Act) and the household hazardous waste element (required by PRC 41500-41510).

Policy NR.8.6 - Encourage the use of recycled-content products and construction materials.

Policy NR.8.7 - Maintain contact with Sacramento County and Allied Waste (or its successor) regarding the capacity projections of Kiefer Landfill and Lockwood Landfill to ensure an adequate capacity in their disposal facilities for the long-term disposal needs of Rancho Cordova.

TABLE NR-1
SPECIAL STATUS SPECIES OCCURRING WITHIN THE RANCHO CORDOVA PLANNING AREA

Scientific Name	Common Name	State Listing Status	Federal Listing Status	Other Status
Plant Species				
Downingia pusilla	Dwarf downingia	None	None	CNPS:2 R-E-D: 1-2-1
Gratiola heterosepala	Boggs Lake hedge-hyssop	Endangered	None	CNPS: 1B R-E-D: 1-2-2 USFWS: SC
Juncus leiospermus	Ahart's dwarf rush	None	None	CNPS: 1B R-E-D: 3-2-3 USFWS: SC
Legenere limosa	Legenere	None	None	CNPS: 1B R-E-D: 2-3-3 USFWS: SC
Narvarretia myersii ssp. myersi	Pincushion navarretia	None	None	CNPS: 1B R-E-D: 3-3-3 USFWS: SC
Orcuttia tenuis	Slender orcutt grass	Endangered	Threatened	CNPS: 1B R-E-D: 2-3-3
Orcuttia viscida	Sacramento orcutt grass	Endangered	Endangered	CNPS: 1B R-E-D: 3-3-3
Sagittaria sanfordii	Sanford's arrowhead	None	None	CNPS: 1B R-E-D: 2-2-3 USFWS: SC
Amphibian Species				
Spea (Scaphiopus) hammondii	Western spadefoot	None	None	CDFG: CSC USFWS: SC
Bird Species				
Accipiter cooperii	Cooper's hawk	None	None	CDFG: CSC
Agelaius tricolor	Tricolored blackbird	None	None	CDFG: CSC USFWS: SC
Ardea alba	Great egret	None	None	

Scientific Name	Common Name	State Listing Status	Federal Listing Status	Other Status
Ardea herodias	Great blue heron	None	None	
Asio flammeus (nesting)	Short-eared Owl	None	None	CDFG: CSC
Athene cunicularia (burrow sites)	Burrowing owl	None	None	CDFG: CSC USFWS: SC
Buteo swainsoni	Swainson's hawk	Threatened	None	
Circus cyaneus (nesting)	Northern harrier	None	None	CDFG: CSC
Elanus leucurus	White-tailed kite	None	None	CDFG: fully protected
Eremophila alpestris actia	California horned lark	None	None	CDFG: CSC
Icteria virens (nesting)	Yellow-breasted chat	None	None	CDFG: CSC
Lanius ludovicianus (nesting)	Loggerhead shrike	None	None	CDFG: CSC USFWS: SC
Plegadis chihi (rookery site)	White-faced ibis	None	None	CDFG: CSC USFWS: SC
Riparia riparia	Bank swallow	Threatened	None	
Invertebrate Species				
Branchinecta lynchi	Vernal pool fairy shrimp	None	Threatened	
Branchinecta mesovallensis	Midvalley fairy shrimp	None	None	USFWS: SC
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	None	Threatened	
Lepidurus packardi	Vernal pool tadpole shrimp	None	Endangered	
Linderiella occidentalis	California linderiella (fairy shrimp)	None	Endangered	USFWS: SC
Mammal Species				
Antrozous pallidus	Pallid bat	None	None	CDFG: CSC
Bassariscus astutus	Ringtail	None	None	CDFG: CFP

Scientific Name	Common Name	State Listing Status	Federal Listing Status	Other Status
Myotis ciliolabrum	Western small-footed myotis	None	None	USFWS: SC
Myotis evotis	Long-eared myotis	None	None	USFWS: SC
Myotis thysanodes	Fringed myotis	None	None	USFWS: SC
Myotis volans	Long-legged myotis	None	None	USFWS: SC
Myotis yumaensis	Yuma myotis	None	None	USFWS: SC
Taxidea taxus	American badger	None	None	CDFG: CSC
Reptile Species				
Emys (=Clemmys) marmorata marmorata	North-western pond turtle	None	None	CDFG: CSC USFWS: SC
Key to Ranks and Lists				
CDFG: CSC	California Species of Special Concern			
CDFG: CFP	California Fully Protected			
USFWS: SC	USFWS Species of Concern			
CNPS Lists:				
List 1A: Plants Presumed Extinct in California				
List 1B: Plants Rare, Threatened or Endangered in California or Elsewhere				
List 2: Plants Rare, Threatened or Endangered in California, But More Common Elsewhere				
List 3: Plants About Which We Need More Information – A Review List				
List 4: Plants of Limited Distribution – A Watch List				

Scientific Name	Common Name	State Listing Status	Federal Listing Status	Other Status
CNPS R-E-D Codes:				

R Rarity

1 Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time

2 Distributed in a limited number of occurrences, occasionally more if each occurrence is small

3 Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported

E Endangerment

1 Not Endangered

2 Endangered in a portion of its range

3 Endangered throughout its range

D Distribution

1 More or less widespread outside California

2 Rare outside California

3 Endemic to California

Source: Ecosystem Sciences, March 2005 and California Department of Fish and Game (CDFG). 2006. California Natural Diversity Database. Wildlife & Habitat Data Analysis Branch, Department of Fish and Game (Version: 09 December 2005)

Appendix B — Regionally Occurring Listed and Special-Status Species

Regulatory Status Legend

FE = Federal endangered FT = Federal threatened FC = Federal candidate PT = Federal proposed threatened FPD = Federal proposed for delisting FD = Federal delisted FSC = Federal Species of Concern	CE = California state endangered CT = California state threatened CFP = California fully protected CSC = California Species of Special Concern CSA = California Special Animals List CR = California state rare	1A = plants presumed extinct in California 1B = plants rare, threatened, or endangered in California and elsewhere 2 = plants rare, threatened, or endangered in California, but common elsewhere 3 = plants about which we need more information 4 = plants of limited distribution

DRAFT

Table 1 — Legally Protected Species

Special-Status Species	Regulatory Status	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Plants				
Boggs Lake hedge-hyssop *Gratiola heterosepala*	--; CE; SLC; 1B	Annual herb found in shallow ponds and margins of vernal pools from 30 to 7800 feet above sea level.	April – June	**None**; Though, the vernal pools within the Study Area provide habitat for this species, this species was not observed during the June 12 and 13, 2017, rare plant survey. There are five CNDDB occurrences within five miles of the Study Area.
El Dorado bedstraw *Galium californicum* ssp. *sierrae*	FE; --; --; 1B	Annual herb found in open pine forests and oak woodlands on gabbroic soils from 300 to 2000 feet above sea level.	May – June	**None**; the Study Area does not provide habitat for this species.
Ione manzanita *Arctostaphylos myrtifolia*	FT; --; --; 1B	Perennial evergreen shrub found in chaparral and open woodlands on Ione soils from 200 to 2000 feet.	November – March	**None**; the Study Area does not provide habitat for this species.
Ione buckwheat *Eriogonum apricum* var. *apricum*	FE; CE; --; 1B	Perennial herb found in chaparral on Ione soil from 200 to 500 feet.	July – October	**None**; the Study Area does not provide habitat for this species.
Irish Hill buckwheat *Eriogonum apricum* var. *prostratum*	FE; CE; --; 1B	Perennial herb found in chaparral on Ione soil from 300 to 400 feet above sea level.	June – July	**None**; the Study Area does not provide habitat for this species.
Layne's ragwort *Packera layneae*	FT; --; --; 1B	Perennial herb found in chaparral and oak and pine woodlands on rocky serpentine or gabbroic soil from 600 to 3500 feet.	April – August	**None**; the Study Area does not provide habitat for this species.
Pine Hill ceanothus *Ceanothus roderickii*	FE; --; --; 1B	Perennial evergreen shrub found in chaparral and oak and pine woodlands on serpentine or gabbroic soils from 800 to 3500 feet.	April – June	**None**; the Study Area does not provide habitat for this species.
Pine Hill flannelbush *Fremontodendron decumbens*	FE; --; --; 1B	Perennial evergreen shrub found in chaparral and oak and pine woodlands on rocky gabbroic or serpintine soils from 1400 to 2500 feet above sea level.	April – July	**None**; the Study Area does not provide habitat for this species.
Sacramento Orcutt grass *Orcuttia viscida*	FE; CE; SLC; 1B	Annual herb found in vernal pools from 100 to 350 feet above sea level. It is known only in Sacramento County.	April – July	**None**; Though, the vernal pools within the Study Area provide habitat for this species, this species was not observed during the June 24, 2009, and June 12 and 13, 2017, rare plant surveys. There are eight CNDDB occurrences within five miles of the Study Area.
Slender Orcutt grass *Orcuttia tenuis*	FT; CE; SLC; 1B	Annual herb found in vernal pools and the margins of stock ponds from 100 to 5700 feet above sea level.	May – July	**None**; Though, the vernal pools within the Study Area provide habitat for this species, this species was not observed during the June 24, 2009, and June 12 and 13, 2017, rare plant surveys. There is one CNDDB occurrence within five miles of the Study Area.
Invertebrates				
Conservancy fairy shrimp *Branchinecta conservatio*	FE; --; --; --	Crustacean found in vernal pools from 10 to 500 feet above sea level. This species if found in Butte, Tehama, Glenn, Yolo, Solano, Stanislaus, Merced, and Ventura counties.	Wet season	**None**; the project site is outside of the known range for this species.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT; --; SLC; --	Insect found in riparian areas of chaparral and oak woodland up to 500 feet above sea level. Species leaves bore holes on the trunk of its host plant, blue elderberry shrub.	Year-round	**None**; the Study Area does not provide habitat for this species. There are five CNDDB occurrences within 5 miles of the Study Area.
Vernal pool fairy shrimp *Branchinecta lynchi*	FT; --; SLC; --	Crustacean found in vernal pools and similar ephemeral wetlands.	Wet season	**High**; the vernal pools and other wetlands within the Study Area provide habitat for this species. There are 22 CNDDB occurrences within five miles of the Study Area.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE; --; SLC; --	Crustacean found in vernal pools and similar natural and artificial seasonally ponded waterbodies.	Wet season	**Present**; this species was observed by a Foothill biologist during a 2004 reconnaissance survey. There are 43 CNDDB occurrences within five miles of the Study Area.
Fish				
Central Valley steelhead *Oncorhynchus mykiss irideus*	FT; --; CSC; --	Salmonid found in the ocean, rivers, creeks, and lakes. They can survive for extended periods in waters up to 70° F.	Year-round	**None**; the Study Area does not provide habitat for this species.
Delta smelt *Hypomesus transpacificus*	FT; CE; --; --	Found in bays, rivers, and sloughs.	Year-round	**None**; the Study Area does not provide habitat for this species.

DRAFT

Special-Status Species	Regulatory Status	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Amphibians/ Reptiles				
California red-legged frog *Rana draytonii*	FT; CSC; --; --	Found in or near quiet, permanent waterbodies. Individuals may range up to a mile from water along riparian corridors.	Summer	**None**; the Study Area is not within the known extant range of this species.
California tiger salamander *Ambystoma californiense*	FT; CT; SLC; --	Found in grasslands and pine and oak woodlands. Breeds in ponded water. Spends summers in small mammal burrows. Found in the Central Valley from Kern to Yolo County.	November – February	**None**; though the grassland, burrows, and detention basin outfall of the Study Area provide habitat for this species, the Study Area is outside of the know range for this species and this species has not been observed during previous focused surveys.
Giant garter snake *Thamnophis gigas*	FT; CT; SLC; --	Agricultural wetlands, irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and associated uplands.	Spring – Fall	**None**; The Study Area does not provide habitat for this species.
Birds				
Western snowy plover *Charadrius alexandrinus nivosus*	FT; CSC; --; --	Nests on beaches.	Spring – Fall (Nesting)	**None**; the Study Area does not provide nesting habitat for this species.
Bank swallow *Riparia*	--; CT; --; --	Nests in large colonies, excavating nest burrows in steep riverbank cliffs, gravel pits, and highway cuts.	Spring – Fall (Nesting)	**None**; the Study Area does not provide habitat for this species.
White-tailed kite *Elanus leucurus*	--; CFP; SLC; --	Found in savanna, open woodland, marshes, and fields. Nests in isolated trees or woodlands areas with open foraging habitat.	Year-round	**Present**; this species was observed foraging within the Study Area during the June 12, 2017, rare plant survey.
California black rail *Laterallus jamaicensis*	BCC; CT; --; --	Found in coastal and freshwater marshes.	Year-round	**None**; the Study Area does not provide habitat for this species.
Bald eagle *Haliaeetus leucocephalus*	BCC; CE; --; --	Nests in mountainous habitats near permanent waterbodies. Winters near permanent waterbodies.	Year-round (Nesting and Wintering)	**None**; the Study Area does not provide habitat for this species.

Table 1 includes federal threatened or endangered species and eagles, and State threatened, endangered, or fully protected species.

DRAFT

Table 2 — Species Subject to CEQA Review

Special-Status Species	Regulatory Status	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Plants				
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	--; --; SLC; 1B	Annual herb found in vernal pool margins and grasslands from 100 to 330 feet above sea level.	March – May	**Low**; the vernal pool margins within the Study Area provide habitat for this species, though this species was not observed during previous focused botanical surveys. There are two CNDDB occurrences within five miles of the Study Area.
Dwarf downingia *Downingia pusilla*	--; --; SLC; 2	Annual herb found in vernal pools and grasslands from sea level to 1500 feet above sea level.	March – May	**Low**; the vernal pools and grasslands within the Study Area provide habitat for this species.
El Dorado mule ears *Wyethia reticulata*	--; --; --; 1B	Perennial herb found in chaparral, pine and oak woodlands, and coniferous forests on clay or gabbroic soil from 1000 to 1500 feet above sea level.	April – August	**None**; the Study Area does not provide habitat for this species.
Legenere *Legenere limosa*	--; --; SLC; 1B	Annual herb found in vernal pools from 10 to 3000 feet above sea level.	April – June	**None;** Though the vernal pools within the Study Area provide habitat for this species, this species was not observed during the June 12 and 13, 2017, rare plant survey. There are 13 CNDDB occurrences within five miles of the Study Area.
Pincushion navarretia *Navarretia myersii* ssp. *myersii*	--; --; --; 1B	Annual herb found in vernal pools from 60 to 1000 feet above sea level.	April – May	**Low**; the vernal pools within the Study Area provide habitat for this species.
Parry's horkelia *Horkelia parryi*	--; --; --; 1B	Perennial herb found in chaparral and pine and oak woodlands from 250 to 3000 feet above sea level.	April – September	**None**; the Study Area does not provide habitat for this species.
Red Hills soaproot *Chlorogalum grandiflorum*	--; --; --; 1B	Perennial herb found in chaparral, pine and oak woodlands, and coniferous forests from 800 to 5500 feet above sea level.	May – June	**None**; the Study Area does not provide habitat for this species.
Sanford's arrowhead *Sagittaria sanfordii*	--; --; SLC; 1B	Perennial emergent herb found in marshes and swamps from 0 to 2,200 feet above sea level.	May - October	**None**; the Study Area does not provide habitat for this species.
Tuolumne button-celery *Eryngium pinnatisectum*	--; --; --; 1B	Annual to perennial herb found in pine and oak woodlands, coniferous forests, and vernal pools from 200 to 3000 feet above sea level.	May – August	**None;** Though the vernal pools and grassland within the Study Area provide habitat for this species, this species was not observed during the June 12 and 13, 2017, rare plant survey.
Invertebrates				
California linderiella *Linderiella occidentalis*	--; CSA; --; --	Vernal pools, swales, and ephemeral freshwater habitat.	Wet season	**High**; the vernal pools within the Study Area provide habitat for this species. There are 25 CNDDB occurrences within five miles of the Study Area.
Amphibians/ Reptiles				
Western spadefoot *Spea hammondii*	--; CSC; SLC; --	Toad found in grasslands, chaparral, and pine and oak woodlands up to 4,500 feet above sea level. Breeds in seasonal wetland habitat including vernal pools.	Wet season	**High**; the grassland of the Study Area provide habitat for this species and there is suitable breeding habitat onsite. There is one CNDDB occurrence within five miles of the Study Area.
Northwestern western pond turtle *Emys marmorata*	--; CSC; SLC; --	Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodlands, forests, and grassland.	November – February	**None**; the Study Area does not provide habitat for this species. There are two CNDDB occurrences within five miles of the Study Area.
Birds				
Allen's hummingbird *Selasphorus sasin*	BCC; --; --; --	Found in chaparral, thickets, oak woodland, mixed evergreen forests, coniferous forests, riparian woodland, and residential areas.	Spring, Fall	**None**; the Study Area does not provide habitat for this species.
Cooper's hawk *Accipiter cooperii*	--; CWL; SLC; --	Nests in riparian corridors. Forages in woodlands and riparian areas.	Spring – Fall (Nesting)	**None**; the Study Area does not provide habitat for this species.
Costa's hummingbird *Calypte costae*	BCC; --; --; --	Found in desert, semi-desert, brush foothills, and chaparral.	Spring – Fall (Nesting)	**None**; the Study Area does not provide habitat for this species.
Double-crested cormorant *Phalacrocorax auritus*	--; CSA; --; --	Found in lakes, ponds, rivers, lagoons, swamps, coastal bays, marine islands, and seacoasts.	Spring (Nesting Colony)	**None**; the Study Area does not provide habitat for this species.

DRAFT

Special-Status Species	Regulatory Status	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Ferruginous hawk *Buteo regalis*	BCC; CFP; SLC; --	Found in open habitats in grasslands, shrub steppes, sagebrush, deserts, saltbush-greasewood shrublands, and outer edges of pinyon-pine and other forests.	Winter	**High**; the grassland of the Study Area provides suitable wintering habitat for this species. There is one CNDDB occurrence within five miles of the Study Area.
Golden eagle *Aquila chrysaetos*	--; CFP; --; --	Found in open to semi-open prairie, sagebrush, arctic and alpine tundra, savannah or sparse woodland.	Year-round	**High**; the grassland of the Study Area provides suitable foraging habitat for this species. There is one CNDDB occurrence within five miles of the Study Area.
Grasshopper sparrow *Ammodramus savannarum*	BCC; CSC; --; --	Found in grasslands with sparse coverage of woody vegetation.	Spring – Fall (Nesting)	**Low**; the grassland of the Study Area provides habitat for this species.
Great blue heron *Ardea herodias*	--; CSA; --; --	Found in marshes, lakes, rivers, bays, lagoons, ocean beaches, mangroves, fields, and meadows. Nests high in trees.	Spring – Fall (Nesting colony)	**None**; the grassland of the Study Area provides foraging habitat for this species and this species was observed flying over the Study Area during the June 12, 2017, rare plant survey. However, there is no nesting habitat within the Study Area.
Great egret *Ardea alba*	--; CSA; --; --	Found in marshes, swampy woods, tidal estuaries, lagoons, mangroves, streams, lakes, fields, and meadows.	Spring – Fall (Nesting colony)	**None**; the grassland of the Study Area provides foraging habitat for this species. There is no nesting habitat within the Study Area.
Lewis' woodpecker *Melanerpes lewis*	BCC; --; --; --	Found in coniferous forests and oak woodlands.	Spring – Fall (Nesting)	**None**; the Study Area does not provide habitat for this species.
Loggerhead shrike *Lanius ludovicianus*	BCC; CSC; SLC; --	Found in open habitats with scattered shrubs, trees, posts, fences and utility lines for perches. Nests in densely foliaged tree or shrub.	Spring – Fall (Nesting)	**Low**; the Study Area provides foraging habitat for this species.
Long-billed curlew *Numenius americanus*	BCC; --; --; --	Found in mudflats and shallow marsh areas.	Spring (Nesting)	**None**; the Study Area does not provide habitat for this species.
Marbled godwit *Limosa fedoa*	BCC; --; --; --	Found in marshes and flooded plains.	Winter	**None**; the Study Area does not provide habitat for this species.
Merlin *Falco columbarius*	--; CWL; --; --	Found in marshes, deserts, seacoasts, lagoons, open pine and oak woodlands, and fields.	Winter	**Low**; the grassland of the Study Area provides habitat for this species.
Mountain plover *Charadrius montanus*	BCC; CSC; --; --	Winters in California in agricultural fields and grasslands.	Winter	**Low**; the grassland of the Study Area provides suitable wintering habitat for this species.
Nuttall's woodpecker *Picoides nuttallii*	BCC; --; --; --	Found in low-elevation riparian deciduous and oak habitats.	Year-round	**None**; the Study Area does not provide habitat for this species.
Oak titmouse *Baeolophus inornatus*	BCC; --; --; --	Found in oak savannah and oak woodlands.	Spring – Fall (Nesting)	**None**; the Study Area does not provide habitat for this species.
Peregrine falcon *Falco peregrinus*	BCC; CFP; --; --	Found in open areas near cliffs including tundra, moorlands, steppe, seacoasts, mountains, forests, and urban areas.	Spring – Fall (Nesting)	**None**; the Study Area does not provide nesting habitat for this species.
Rufous hummingbird *Selasphorus rufus*	BCC; --; --; --	Nests within berry tangles, shrubs, and conifers.	Spring (Nesting)	**None**; the Study Area does not provide nesting habitat for this species.
Short-eared owl *Asio flammeus*	--; CSC; --; --	Found in marshes, bogs, dunes, prairies, grassy plains, old fields, tundra, moorland, river valleys, meadows, savanna, open woodland, and heathland.	Spring – Fall (Nesting)	**Low**; the grassland of the Study Area provides habitat for this species.
Swainson's hawk *Buteo swainsoni*	BCC; CT; SLC; --	Found in savanna, open pine-oak woodland and cultivated lands with scattered trees.	Spring – Fall (Nesting)	**None**; the project site does not provide nesting habitat for this species. There are 11 CNDDB occurrences within five miles of the Study Area.
Tricolored blackbird *Agelaius tricolor*	BCC; CCE; SLC; --	Nests in dense blackberry, cattail, tules, willow, or wild rose within emergent wetlands.	Spring – Fall (Nesting colony)	**None**; the Study Area does not provide nesting habitat for this species.
Western burrowing owl *Athene cunicularia*	BCC; CSC; SLC; --	Nests in burrows in the ground, often in old ground squirrel burrows or badger, within open dry grassland and desert habitat.	Year-round	**High**; the grassland and burrows of the Study Area provide habitat for this species. There are 12 CNDDB occurrences within five miles of the Study Area.
Western grebe *Aechmophorus occidentalis*	BCC; --; --; --	Found in marshes, lakes, and bays.	Year-round	**None**; the Study Area does not provide habitat for this species.
Williamson's sapsucker *Sphyrapicus thyroideus*	BCC; --; --; --	Found in coniferous forests year-round and oak and pine woodland in winter.	Year-round	**None**; the Study Area does not provide habitat for this species.

DRAFT

Special-Status Species	Regulatory Status	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Mammals				
American badger *Taxidea taxus*	--; CSC; SLC; --	Found in open areas and brushlands.	Year-round	**Low**; the grassland of the Study Area provides habitat for this species.
Pallid bat *Antrozous pallidus*	--; CSC; --; --	Found in mountainous areas, intermontane basins, lowland desert scrub, arid deserts, grasslands, and coniferous forests	Spring - Fall	**Low**; the grassland of the Study Area provides habitat for this species.
Silver-haired bat *Lasionycteris noctivagans*	--; CSA; --; --	Found in coniferous forests near lakes, ponds, and streams.	Spring - Fall	**None**; the Study Area does not provide habitat for this species.

Table 2 includes state and federal species of concern and Rank 1 and 2 CNPS species.

Table 3 — Other Species of Interest

Special-Status Species	Regulatory Status	Habitat Requirements	Identification/ Survey Period	Potential for Occurrence
Plants				
Bisbee peak rush-rose *Crocanthemum suffrutescens*	--; --; --; 3	Perennial evergreen shrub found in chaparral from 250 to 2,200 feet above sea level.	Apr – August	**None**; the Study Area does not provide habitat for this species.
Brandegee's clarkia *Clarkia biloba* ssp. *brandegeeae*	--; --; --; 4	Annual herb found in chaparral, pine and oak woodlands, and coniferous forests from 250 to 3,000 feet above sea level.	May – July	**None**; the Study Area does not provide habitat for this species.
Brewer's calandrina *Calandrinia breweri*	--; --; --; 4	Annual herb found in disturbed sites and burns in chaparral and coastal scrub on sandy or loamy soil from 30 to 4,000 feet above sea level.	March - June	**None**; the Study Area does not provide habitat for this species.
Hoary navarretia *Navarretia eriocephala*	--; --; --; 4	Annual herb found in pine and oak woodlands and grasslands from 30 to 1,300 feet above sea level.	May – June	**Low**; the grassland of the Study Area provides habitat for this species.
Jepson's wooly sunflower *Eriophyllum jepsonii*	--; --; --; 4	Perennial herb found in chaparral, pine and oak woodlands, and coastal scrub from 650 to 3400 feet above sea level.	Apr – June	**None**; the Study Area does not provide habitat for this species.
Stinkbells *Fritillaria agrestis*	--; --; --; 4	Perennial bulbiferous herb found in chaparral, pine and oak woodlands, pinyon and juniper woodlands, and grasslands from 30 to 5100 feet above sea level.	Mar – June	**None**; the Study Area does not provide habitat for this species.
Invertebrates				
Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	--; CSA; --; --	Found in upland areas near vernal pools.	Spring - Fall	**Low**; the upland grassland near vernal pools of the Study Area provides habitat for this species.
Andrenid bee *Andrena subapasta*	--; CSA; --; --	Found near grassland forbs.	Spring – Fall	**Low**; the grassland of the Study Area provides habitat for this species.
Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	--; CSA; SLC; --	Found in shallow water.	Summer – Fall	**Low**; the vernal pools and other wetlands within the Study Area provide habitat for this species.
Hairy water flea *Dumontia oregonensis*	--; CSA; --; --	Found in shallow water.	Summer – Fall	**Low**; the vernal pools and other wetlands within the Study Area provide habitat for this species.
Mid-valley fairy shrimp *Branchinecta mesovallensis*	--; CSA; SLC; --	Crustacean found in vernal pools, vernal swales, and other ephemeral water bodies.	Wet season	**Low**; the vernal pools and other wetlands within the Study Area provide habitat for this species.

Table 3 includes Rank 3 and 4 CNPS species and non-listed invertebrates, which may not be subject to CEQA review.

DRAFT

Appendix C — Plants and Wildlife Observed in the Study Area

DRAFT

Plant Species Observed within the Study Area

Family	Scientific Name	Common Name	Native or Invasive
Apiaceae	*Eryngium vaseyi*	Coyote-thistle	N
Asteraceae	*Psilocarphus brevissimus*	Woolly-marbles, woollyheads	N
Asteraceae	*Centromadia fitchii*	Spikeweed	N
Asteraceae	*Lasthenia fremontii*	Fremont's goldfields	N
Asteraceae	*Leontodon saxatilis*	Hairy hawkbit	I
Asteraceae	*Cotula coronopifolia*	Brass-buttons	I
Boraginaceae	*Plagiobothrys stipitatus*	Great Valley popcornflower	N
Brassicaceae	*Raphanus* sp.	Radish	I
Convolvulaceae	*Convolvulus arvensis*	Bindweed, orchard morning-glory	I
Crassulaceae	*Crassula aquatica*	Crassula	N
Euphorbiaceae	*Croton* sp.	Croton	N
Geraniaceae	*Erodium botrys*	Storksbill, filaree	I
Juncaceae	*Juncus bufonius*	Toad rush	N
Lamiaceae	*Trichostema lanceolatum*	Vinegar weed	N
Lamiaceae	*Pogogyne zizyphoroides*	Sacramento beardstyle	N
Lythraceae	*Lythrum hyssopifolia*	Loosestrife	I
Onagraceae	*Epilobium* sp.	Willowherb	--
Orobanchaceae	*Parentucellia viscosa*	Parentucellia	I
Plantaginaceae	*Gratiola ebracteata*	Bractless hedge-hyssop	N
Poaceae	*Polypogon monspeliensis*	Annual beard grass, rabbitfoot grass	I
Poaceae	*Hordeum marinum* ssp. *gussoneanum*	Mediterranean barley	I
Poaceae	*Elymus caput-medusae*	Medusa head	I
Poaceae	*Festuca perennis*	Rye grass	I
Poaceae	*Festuca myuros*	Rattail sixweeks grass	I
Poaceae	*Bromus hordeaceus*	Soft chess	I
Poaceae	*Avena fatua*	Wild oat	I
Poaceae	*Aegilops triuncialis*	Barbed goat grass	I
Polygonaceae	*Rumex crispus*	Curly dock	I
Ranunculaceae	*Ranunculus bonariensis var. trisepalus*	Buttercup	N
Rosaceae	*Rubus armeniacus*	Himalayan blackberry	I
Rubiaceae	*Galium aparine*	Goose grass	N
Themidaceae	*Brodiaea elegans* ssp. *elegans*	Harvest brodiaea	N

Wildlife Species Observed within the Study Area

Scientific Name	Common Name
Ardea herodias	Great blue heron
Callipepla californica	California quail
Charadrius vociferus	Killdeer
Elanus leucurus	White-tailed kite
Himantopus mexicanus	Black-necked stilt
Zenaida macroura	Mourning dove

APPENDIX C.3

Special-Status Plant Survey

October 20, 2017

Olga Sciorelli
Land Development Manager
K. Hovnanian Homes
3721 Douglas Boulevard, Suite 150
Roseville, CA 95661

RE: Special-Status Plant Survey for The Ranch (Jaeger 530) Project located in the City of Rancho Cordova, Sacramento County, California

Dear Ms. Sciorelli:

This report summarizes the results of the focused botanical survey for special-status plant species on The Ranch Project (aka Jaeger 530) (Project Site), located in Sacramento County, California. The survey was conducted in accordance with and subject to guidelines provided by the California Department of Fish and Wildlife (CDFW) and the California Native Plant Society (CNPS). The purpose of the survey was to determine whether three special-status plants, Sacramento Orcutt grass (*Orcuttia viscida*), slender Orcutt grass (*Orcuttia tenuis*), and Boggs lake hedge-hyssop (*Gratiola heterosepala*), occur within the Project Site.

LOCATION

The Project Site is located in southeastern Sacramento County, approximately five miles south of U.S. Highway 50, immediately east of Rancho Cordova Parkway, and north of Jackson Road (Highway 16) within the City of Rancho Cordova. The Project Site is located in Township 8 North, Range 7 East, Section 16 within the 7.5-minute USGS *Buffalo Creek, California* quadrangle (**Figure 1**).

METHODOLOGY

Two Foothill Associates' biologists conducted a focused botanical survey within the evident and identifiable blooming period of the potentially occurring special-status species listed in this letter on June 12 and 13, 2017.

Transects were systematically walked throughout the whole of the Project Site, with special attention paid to areas that contained suitable habitat for the special-status plant species. In this case, five-foot transects were walked throughout each vernal pool on the Project Site and all riverine wetland features were surveyed.

DRAFT

The survey was conducted by two biologists with the following qualifications: experience with conducting floristic surveys; intimate knowledge of plant taxonomy and plant community ecology and classification; familiarity with the plants of the area, including special-status and locally significant plants; familiarity with the appropriate State and federal statutes related to plants and plant collecting; and experience with analyzing impacts of project activities on native plants and plant communities.

ENVIRONMENTAL SETTING

The Project Site consists of approximately 530 acres of land that comprises non-native annual grassland as well as 21.42 acres of various wetland features including: vernal pools (15.39 acres), depressional seasonal wetlands (2.80 acres), riverine seasonal wetlands (1.68 acres), and intermittent drainages (1.55 acres). The general topography of the Project Site is gently sloping from approximately 176 feet above mean sea level (MSL) in the southwest corner to 192 feet above MSL in the northeast corner of the Project Site (54 to 59 meters). The majority of the Project Site (approximately 356 acres) is proposed for development including residential housing, parks, a shopping center, and detention basins. Approximately 174 acres will be preserved in perpetuity.

RESULTS AND CONCLUSIONS

Although the Project Site contains potential habitat for three special-status plant species, these species were not observed during the botanical survey. One *Gratiola* species was observed and identified to species (*Gratiola ebracteata*), a common gratiola. Dominant plant species observed in the uplands on the Project Site include: medusahead rye (*Elymus caput-medusae*), Italian rye grass (*Festuca perennis*), rattail sixweeks grass (*Festuca myuros*), barley (*Hordeum murinum*), oat (*Avena* sp.), wild rye (*Elymus* sp.), spikeweed (*Centromadia fitchii*), rose clover (*Trifolium hirtum*), and long-beaked filaree (*Erodium botrys*). Dominant species observed within the wetland features on the Project Site include: coyote thistle (*Eryngium vaseyi*), spikerush (*Eleocharis macrostachya*), seaside barley (*Hordeum marinum*), woolly marbles (*Psilocarpus brevissimus*), hyssop loosestrife (*Lythrum hyssopifolium*), rabbitsfoot grass (*Polypogon monspeliensis*), Fremont's goldfields (*Lasthenia fremontii*), and toad rush (*Juncus bufonius*). A complete list of plants observed within the Project Site is enclosed as **Attachment A** of this report.

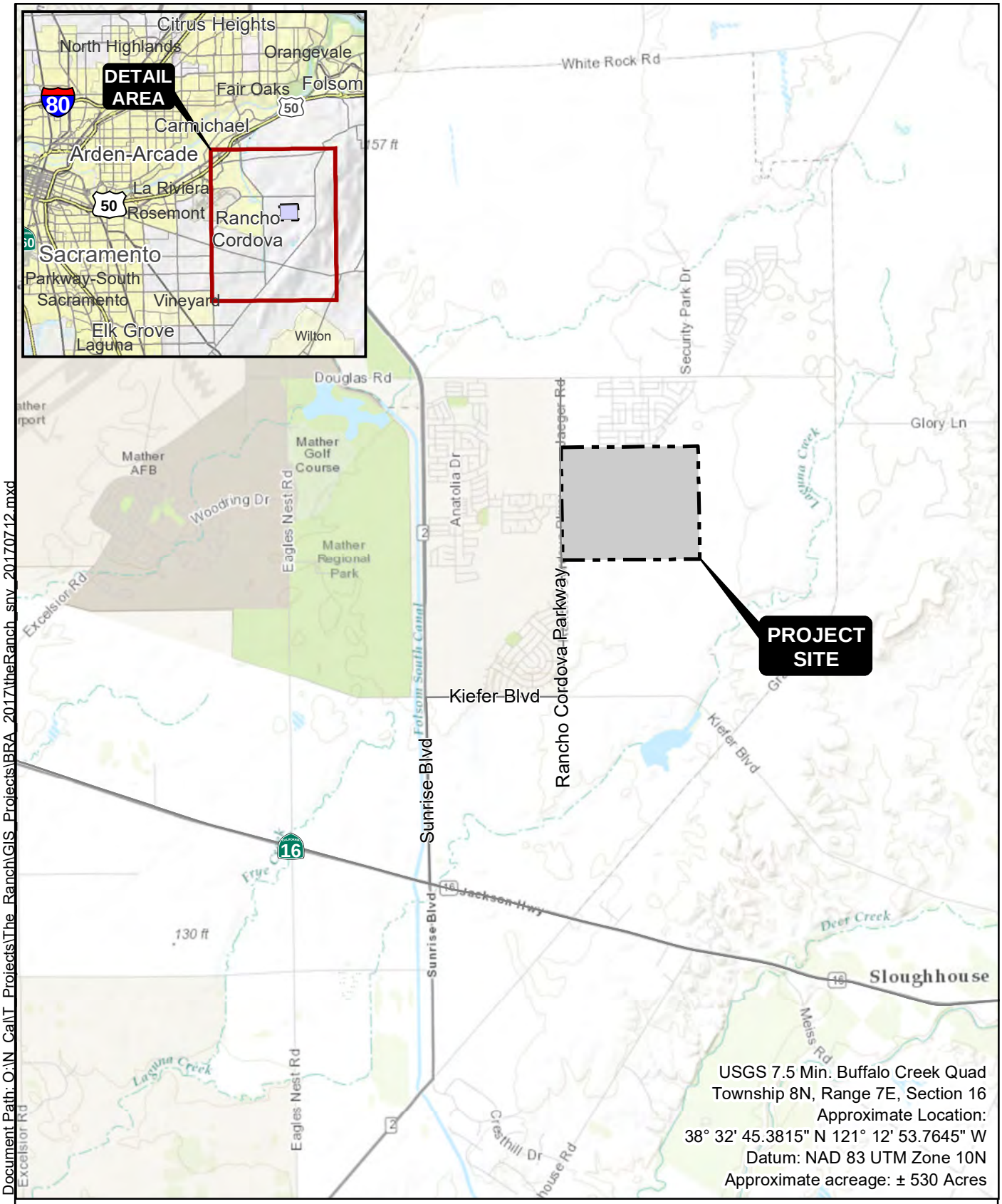
If you have any questions please contact me at your earliest convenience at (916) 435-1202 or via email at zneider@foothill.com.

Sincerely,

Zachary Neider
Biologist

Enclosures (2)

DRAFT



USGS 7.5 Min. Buffalo Creek Quad
Township 8N, Range 7E, Section 16
Approximate Location:
38° 32' 45.3815" N 121° 12' 53.7645" W
Datum: NAD 83 UTM Zone 10N
Approximate acreage: ± 530 Acres

Document Path: Q:\N_Cal\T_Projects\The_Ranch\GIS_Projects\BRA_2017\theRanch_snv_20170712.mxd

SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

© 2017

N

0 0.5 1
Miles
1 in = 1 miles

Drawn By: JFI
QA/QC: AMP
Date: 07/27/2017

FIGURE 1

Document Name: theRanch_snv_20170712.mxd : 10/13/2017 1:09:28 PM

Attachment A
Plant Species Observed within the Study Area

Family	Scientific Name	Common Name	Native or Invasive
Apiaceae	*Eryngium vaseyi*	Coyote-thistle	N
Asteraceae	*Psilocarphus brevissimus*	Woolly-marbles, woollyheads	N
Asteraceae	*Centromadia fitchii*	Spikeweed	N
Asteraceae	*Lasthenia fremontii*	Fremont's goldfields	N
Asteraceae	*Leontodon saxatilis*	Hairy hawkbit	I
Asteraceae	*Cotula coronopifolia*	Brass-buttons	I
Boraginaceae	*Plagiobothrys stipitatus*	Great Valley popcornflower	N
Brassicaceae	*Raphanus* sp.	Radish	I
Convolvulaceae	*Convolvulus arvensis*	Bindweed, orchard morning-glory	I
Crassulaceae	*Crassula aquatica*	Crassula	N
Euphorbiaceae	*Croton* sp.	Croton	N
Geraniaceae	*Erodium botrys*	Storksbill, filaree	I
Juncaceae	*Juncus bufonius*	Toad rush	N
Lamiaceae	*Trichostema lanceolatum*	Vinegar weed	N
Lamiaceae	*Pogogyne zizyphoroides*	Sacramento beardstyle	N
Lythraceae	*Lythrum hyssopifolia*	Loosestrife	I
Onagraceae	*Epilobium* sp.	Willowherb	--
Orobanchaceae	*Parentucellia viscosa*	Parentucellia	I
Plantaginaceae	*Gratiola ebracteata*	Bractless hedge-hyssop	N
Poaceae	*Polypogon monspeliensis*	Annual beard grass, rabbitfoot grass	I
Poaceae	*Hordeum marinum ssp. gussoneanum*	Mediterranean barley	I
Poaceae	*Elymus caput-medusae*	Medusa head	I
Poaceae	*Festuca perennis*	Rye grass	I
Poaceae	*Festuca myuros*	Rattail sixweeks grass	I
Poaceae	*Bromus hordeaceus*	Soft chess	I
Poaceae	*Avena fatua*	Wild oat	I
Poaceae	*Aegilops triuncialis*	Barbed goat grass	I
Polygonaceae	*Rumex crispus*	Curly dock	I
Ranunculaceae	*Ranunculus bonariensis var. trisepalus*	Buttercup	N
Rosaceae	*Rubus armeniacus*	Himalayan blackberry	I
Rubiaceae	*Galium aparine*	Goose grass	N
Themidaceae	*Brodiaea elegans* ssp. *elegans*	Harvest brodiaea	N

APPENDIX D

Cultural Resources Appendices

CONTENTS

Appendix D.1: Determination of Eligibility and Effect

Appendix D.2: The Ranch Updated Cultural Resources Inventory and Evaluation, Rancho Cordova, Sacramento County, California

APPENDIX D.1

Determination of Eligibility and Effect (Confidential)

DETERMINATION OF ELIGIBILITY AND EFFECT FOR THE JAEGER 530 PROJECT AREA SACRAMENTO COUNTY, CALIFORNIA

Prepared by

Melinda A. Peak
Peak & Associates, Inc.
3941 Park Drive, Suite 20-329
El Dorado Hills, CA 95762
(916) 939-2405

Prepared for

Foothill Associates
655 Menlo Drive, Suite 100
Rocklin, CA 95765-3718
(916) 435-1202

January 2005
(Job #04-192)

DETERMINATION OF ELIGIBILITY AND EFFECT FOR THE JAEGER 530 PROJECT AREA SACRAMENTO COUNTY, CALIFORNIA

Prepared by

Melinda A. Peak
Peak & Associates, Inc.
3941 Park Drive, Suite 20-329
El Dorado Hills, CA 95762
(916) 939-2405

Prepared for

Foothill Associates
655 Menlo Drive, Suite 100
Rocklin, CA 95765-3718
(916) 435-1202

January 2005
(Job #04-192)

INTRODUCTION

The project involves the residential development of a 530 acre tract of land. The parcel lies on the east side of Jaeger Road, south of Douglas Road, and one mile east of Sunrise Boulevard (Figure 1). The project area is located includes the southern portion of section 16, Township 8 north, Range 7 east, mapped on the Buffalo Creek United States Geological Survey 7.5 minute quadrangle.

Because the proposed work will require Clean Water Act (CWA) permitting from the United States Army Corps of Engineers, the applicant will participate as a consulting party to assist the federal agency in demonstrating compliance with Section 106 of the NHPA (16 U.S.C. 470f; regulations codified at 36 CFR § 800).

Melinda A. Peak, senior historian with Peak & Associates, Inc. served as principal investigator for the study, with Ann Peak directing the field survey team (resumes, Appendix 1).

REGULATORY CONTEXT

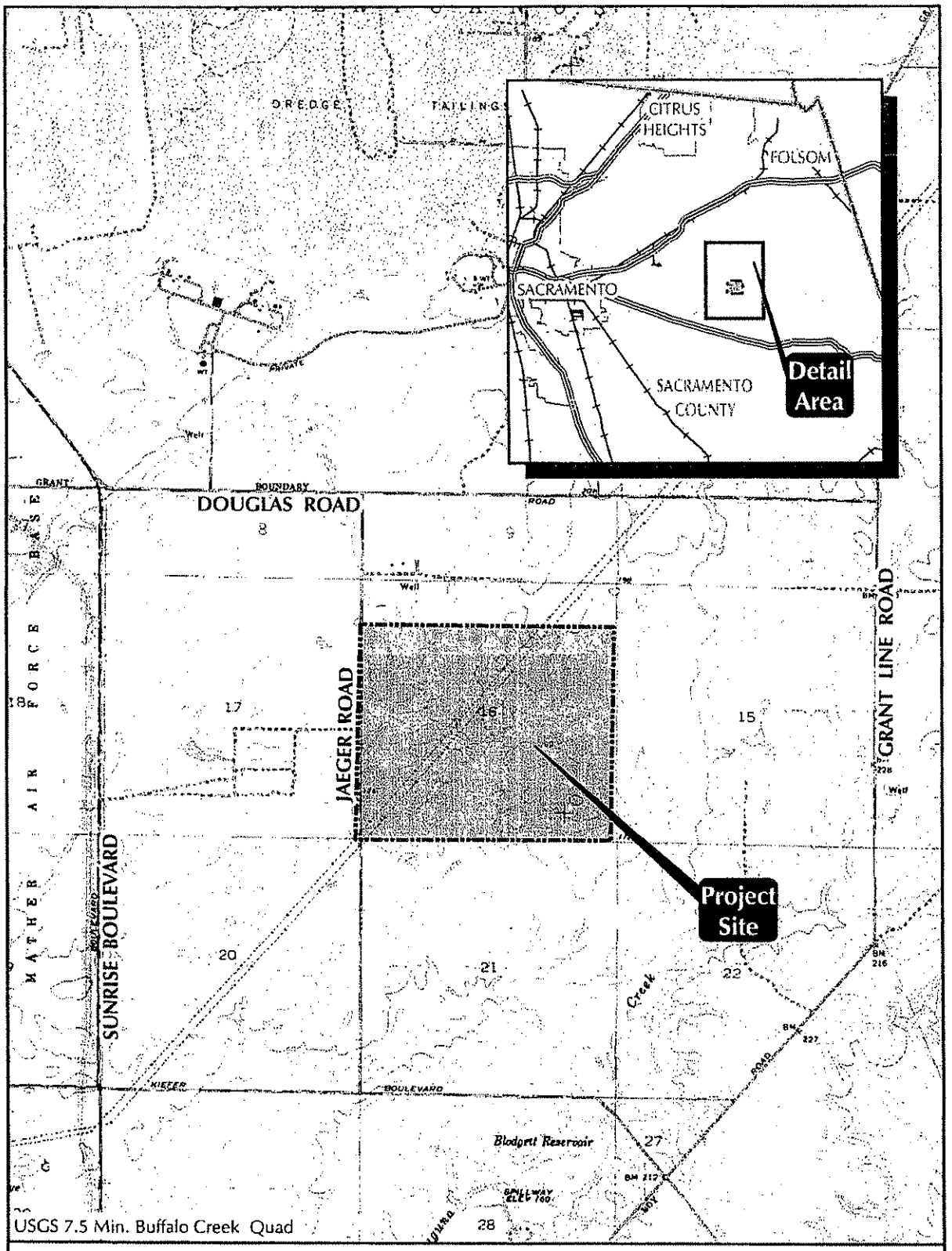
The Section 106 review process is implemented using a five step procedure: 1) identification and evaluation of historic properties; 2) assessment of the effects of the undertaking on properties that are eligible for the National Register; 3) consultation with the State Historic Preservation Office (SHPO) and other agencies for the development of a memorandum of agreement (MOA) that addresses the treatment of historic properties; 4) receipt of Advisory Council on Historic Preservation comments on the MOA or results of consultation; and 5) the project implementation according to the conditions of the MOA.

The Section 106 compliance process may not consist of all the steps above, depending on the situation. For example, if identification and evaluation result in the documented conclusion that no properties included in or eligible for inclusion are present, the process ends with the identification and evaluation step.

FRAMEWORK FOR EVALUATION

Decisions regarding management of cultural resources hinge on determinations of their significance (36 CFR 60.2). As part of this decision-making process the National Park Service has identified components which must be considered in the evaluation process, including:

- criteria for significance;



SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING
LANDSCAPE ARCHITECTURE
© 2003

N

0 1500 3000
SCALE IN FEET

Drawn By: MAB
Date: 11/20/03

FIGURE 1

JAEGER 530

site_and_vicinity.mxd

- historic context; and
- integrity.

Criteria for Significance

Significance of cultural resources is measured against the National Register criteria for evaluation:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and,
>
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) that are associated with the lives of persons significant in our past; or
>
> (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

Historic Context

The historic context is a narrative statement "that groups information about a series of historic properties based on a shared theme, specific time period, and geographical area" To evaluate resources in accordance with federal guidelines, these sites must be examined to determine whether they are examples of a defined "property type". The property type is a "grouping of individual properties based on shared physical or associative characteristics". Through this evaluation, each site is viewed as a representative of a class of similar properties rather than as a unique phenomenon.

A well developed historical context helps determine the association between property types and broad patterns of American history. Once this linkage is established, each resource's potential to address specific research issues can be explicated.

Integrity

For a property to be eligible for listing in the National Register it must meet one of the criteria for significance (36 CFR 60.4 [a ,b, c, or d]) and retain integrity. Integrity is defined as "the authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric period".

The following discussion is derived from National Register Bulletin 15 ("How to Apply the National Register Criteria for Evaluation").

Within the concept of integrity, there are seven aspects or qualities that define integrity in various combinations. The seven aspects are: location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity, a property will possess several or usually most of these aspects. The retention of specific aspects is necessary for a property to convey this significance. Determining which of the seven aspects are important involves knowing why, where and when the property is significant.

The prescribed steps in assessing integrity are as follows:

- define the essential physical features that must be present for a property to represent its significance;
- determine whether the essential physical features are visible enough to convey their significance;
- determine whether the property needs to be compared with similar properties; and,
- determine, based on the significance and essential physical features, which aspects of integrity are particularly vital to the property being nominated and if they are present.

Ultimately, the question of integrity is answered by whether or not the property retains the identity for which it is significant.

All properties change over time. It is not necessary for a property to retain all its historic physical features or characteristics. However, the property must retain the essential physical features that enable it to convey its historic identity. The essential physical features are those features that define why a property is significant.

A property's historic significance depends on certain aspects of integrity. Determining which of the aspects is most important to a particular property requires an understanding of the property's significance and its essential physical features. For example, a property's historic significance can be related to its association with an important event, historical pattern or person. A property that is significant for its historic association is eligible for listing if it retains the essential physical

features that made up its character or appearance during the period of its association with the important event, historical pattern, or person.

A property important for association with an event, historical pattern, or person ideally might retain some features of all seven aspects of integrity. Integrity of design and workmanship, however, might not be as important to the significance, and would not be relevant if the property were an archeological site. A basic integrity test for a property associated with an important event or person is whether a historical contemporary would recognize the property as it exists today. For archeological sites that are eligible under Criteria a and b, the seven aspects of integrity can be applied in much the same way as they are to buildings, structures, or objects.

In sum, the assessment of a resource's National Register eligibility hinges on meeting two conditions:

- the site must possess the potential to be eligible for listing in the National Register under one of the evaluation criteria either individually or as a contributing element of a district based on the historic context that is established; and

- the site must possess sufficient integrity, i.e. it must retain the qualities that make it eligible for the National Register.

For the National Register, "a district possesses a significant concentration, linkage, or continuity of ... objects united historically or aesthetically by plan or physical development." The identity of a district derives from the relationship of its resources, which can be an arrangement of functionally related properties.

CULTURAL HISTORY

Archeological Background

The Sacramento Delta was one of the first regions in California to attract intensive archeological fieldwork. Between 1893 and 1901, avocational archeologist J. A. Barr excavated many prehistoric mounds in the Stockton area. He collected nearly 2000 artifacts during the course of his investigations. H. C. Meredith was another avocational archeologist of the period who pursued collecting in the same Stockton locality. Meredith (1899, 1900) did publish a compilation of his own and Barr's findings, and these appear to constitute the earliest accounts of delta archeology. Holmes (1902), from the Smithsonian Institution, further elaborated on the delta or "Stockton District" archeology, presenting illustrations of artifacts collected by Meredith and Barr.

It was Elmer J. Dawson who first recognized culture changes through time in delta archeology. Though he was an amateur archeologist, Dawson understood the necessity of keeping accurate

notes on grave associations and provenience of artifacts. He collaborated with W. E. Schenck to produce an overview of northern San Joaquin Valley archeology (Schenck and Dawson 1929). The overview contained information on more than 90 prehistoric sites as well as data on previous collectors.

By 1931, the focus of archeological work was directed toward the Cosumnes River locality, where survey and exploration were conducted by Sacramento Junior College (Lillard and Purves 1936). Excavations, especially at the stratified Windmiller mound (CA-SAC-107), suggested three temporally distinct cultural traditions: Early, Transitional, and Late. Information grew as a result of excavations at other mounds in the delta and lower Sacramento Valley by Sacramento Junior College and the University of California, Berkeley.

Previous investigations in the project region have focused upon very detailed archival research of Spanish sources (Bennyhoff 1977), reexamination of earlier work (Ragir 1972; Schulz 1981; Doran 1980) and archeological investigations at a number of small sites (Schulz et al. 1979; Schulz and Simons 1973; Soule 1976). Several of the previously investigated sites probably represent satellite encampments or small villages associated with major villages. The majority of the sites appear to be relatively late in time, and probably represent Plains Miwok. The activities practiced are varied, but detailed studies on the faunal collection suggest seasonality of occupation and a focus on fish species other than the main channel varieties.

Writing the definitive summary of California archeology, Moratto (1984: 529-547) devoted an entire chapter to linguistic prehistory. For the Central Valley region, Moratto points out that some Early Horizon and Middle Horizon central California archeological sites appear at least in part, contemporaneous, based on existing radiocarbon dates. Cultural materials recovered from CA-SJO-68, an Early Horizon site, are thought to relate to date to 4350 ± 250 B.P or 2350 B.C. On the other hand, a Middle Horizon component at CA-CCO-308 dates to 4450 ± 400 B.P. or 2450 B.C. The antiquity of other Early and Middle Horizon sites demonstrate an overlap of the two horizons by a millennium or more.

One explanation proposes that the Middle Horizon represents an intrusion of ancestral Miwok speaking people into the lower Cosumnes, Mokelumne, and Sacramento River areas from the Bay Area. The Early Horizon may represent older Yokuts settlements or perhaps the speakers of a Utian language who were somehow replaced by a shift of population(s) from the bay.

Ethnological Background

The project area lies in the territory attributed to the Nisenan, a branch of the Maidu group of the Penutian language family. Tribes of this language family dominated the Central Valley, San Francisco Bay areas, and western Sierra Nevada foothills at the coming of the white man. The Nisenan controlled the drainages of the Yuba, Bear, and American rivers, along with the lower portion of the Feather River. The tribes of this whole region referred to themselves as Nisenan, meaning "people," in contrast to the surrounding tribes, in spite of close linguistic and cultural

similarities. For this reason, they are usually named by this term rather than the more technical "Southern Maidu." In any event, the local main village was of more importance to the people than the tribal designation, and groups identified themselves by the name of the central village.

Their northern boundary has not been clearly established due to similarity in language to neighboring groups. The eastern boundary was the crest of the Sierra Nevada mountains. Probably a few miles south to the confluence of the American and Sacramento rivers on the valley floor was their southern boundary. The western boundary extended from this point upstream to the mouth of the Feather River.

The Valley Maidu settlement pattern was basically oriented to major river drainages, with ancillary villages located on tributary streams and sloughs. Major villages often supported a population exceeding five hundred people (Wilson and Towne 1978:389). The flat grasslands between water courses were used for collecting vegetable foods and hunting, but these activities leave little, if any, archeological evidence.

Both the valley and foothill Nisenan lived by hunting and gathering, with the latter being more important. Acorns in the forms of meal, soup or bread provided the staple diet, augmented by a wide variety of seeds and tubers. Hunting and fishing were regularly practiced, but provided less of the diet than vegetable foods. The bedrock mortar and pestle were employed to process the acorn meats into flour, and the mortar cups are frequently found throughout the range of oak trees. Both salmon and eel were caught at Salmon Falls near Folsom.

Religion was in the form of the "Kuksu Cult," a widespread pattern among the California Indians. Ceremonies congregated in the semi-subterranean dancehouse located at the central village and "cry sites" where the annual mourning ceremony for the dead took place. Later, the religious revival of the ghost dance also affected this area.

In 1833, the great epidemic swept through the Sacramento Valley. This epidemic has been attributed to malaria (Cook 1955:308), and is estimated to have killed seventy-five percent of the native population, leaving only a shadow of the original Maidu to face the intruding miners and settlers. The Nisenan of the mountain areas felt little of the impact of European settlement in California as compared to the Valley Nisenan, who were subjected to some missionization. The Mountain Nisenan, remote from these early impacts, were overwhelmed by the gold rush. Native ways of life were almost totally abandoned, and today only a few families in Placer, Nevada, Yuba, and El Dorado counties identify themselves as Nisenan and can speak the language (Wilson and Towne 1978).

Historical Context

The project area lies just south of the southern boundary of the Rancho Rio de los Americanos, a grant of over 35,500 acres on the south side of the American River, made to William Leidesdorff by the Mexican governor. Leidesdorff died in San Francisco in 1848, and Joseph L.

Folsom, who had come to California as assistant quartermaster of Stevenson's New York Volunteers, purchased the estate from the heirs at a low price, becoming one of the wealthiest men in California. The town of Folsom was laid out on the rancho in 1855 as the terminus of the Sacramento Valley Railroad, and named in his honor (Hoover, Rensch and Rensch 1970:300).

The project area lies near the route of White Rock Road, an important early route into El Dorado County and the mining region. It was first used in 1848, connecting Sacramento to Placerville. A number of inns grew up along this road to provide food and lodging to the drivers of the slow-moving freight wagons that used this roadway, carrying supplies to the mining towns. The discovery of the Comstock lode in Nevada in the 1860s brought increased traffic on this road. The completion of the Central Pacific in 1869 brought an end to the era of heavy freight hauling, with goods more efficiently shipped via rail from Sacramento to Nevada, or directly from the East.

The agricultural value of the land was soon recognized, and the lands of the area claimed for use by permanent settlers. The lands of the project area were of limited agricultural value, used for seasonal grazing or for the cultivation of grain. In many areas, small land tracts were originally claimed by a number of individuals who attempted to make a living by farming and ranching. It was soon discovered that the long dry period between May and October with no rainfall caused the grasses to dry off, leaving the land useless for grazing livestock except in the winter and spring. Cattle and sheep ranchers were forced to move their herds to the mountains to a summer range. This was not cost-efficient except for landowners who had large tracts of land at the lower elevations to support large herds that could be moved seasonally. As a result, many sold their small tracts to their neighbors and moved on to other pursuits, with some families amassing thousands of acres in the region for their cattle and sheep.

One of the later uses for land in the region was for mining with dredgers. To the north of the project area, the Natomas Company acquired much of the land from the early ranchers. The proximity of water made this property viable for dredging, although it is at the edge of what could be dredged due to the topography.

A description of the dredging process follows:

> A bucket-line dredge floats in a pond which moves along with the dredge. The gravel is constantly excavated by the endless chain of moving buckets. Digging is started at the top of the bank and as the bucket-line moves upward, the dredge swings to the left and right, pivoting about the spud, a heavy pole at the stern with its point imbedded in the rock tailings. The side swinging is accomplished by the port and starboard bow lines which are carried from the underwater end of the digging ladder to the shore blocks and back to the bow fair-leads on the forward deck, thence to the swing winch, usually mounted inside the deck house on the starboard side.

> The buckets elevate the material to a main hopper ahead of a revolving trommel. The gravel is washed and classified in the trommel. Trommel oversize or tailings are discharged to a rubber conveyor belt or so-called stacker belt where the material is stacked astern of the dredge as large tailing piles. The tailings left by bucket-line dredges consist of huge furrow-like ridges of gravels, cobbles and small boulders which are 50 feet or more above the adjacent land surface (Carlson 1955:136).

On-site dredging reportedly occurred between 1915 and 1962 to the north of the project area. The average depth of dredging at the site is reported to have been between 80 and 110 feet.

Beginning in 1950, the Natomas Company sold off large tracts of dredged-over lands to Aerojet General Corporation (AGC) to be used in part of the development and testing of missile propulsion systems. The project area was sold to AGC in 1956. By the mid-1950s, Aerojet held over 18,000 acres. The vast acreage of dredge tailings, available at a low cost, provided Aerojet insulation from those who might be disturbed by the noise, at a location in fairly close proximity to housing for a large work force (Lindström and Wells 1989:32).

Between 1956 and 1961, about 1,700 acres of the site were leased to McDonnell Douglas Corporation (MDC). MDC constructed test stands, buildings, and various facilities into the Administration, Alpha, and DM-14 areas. In 1961, MDC purchased the 4,000 acre property from AGC to establish the site as a static rocket test facility. MDC divided the property in nine areas, seven of which were developed into test and assembly facilities. The developed areas were designated: Alpha Complex, Beta Complex, Kappa Complex, Gamma Complex, Sigma Complex, DM-14 Area and the Administration and Support Area. The two undeveloped areas include the proposed Delta Complex in the northwest quadrant of the site, and an unassigned area for future expansion along the eastern edge of the property. MDC used the site for the assembly and testing of rocket systems through 1969, when the last static test firing occurred.

Between 1962 and 1972, certain parcels of the site were leased to the National Aeronautics and Space Administration (NASA). The site was maintained in a state of readiness for the NASA program between 1969 and 1972. The site was deactivated between 1972 and 1977, with the metal portions of the test stands demolished and dismantled for scrap. In 1977, the Administration Area was converted to an industrial park. MDC divided the area into numerous parcels offered for sale or lease. AGC reacquired the project area in 1984, with the exception of some of the parcels in the Security Park. The CDC Cattle Company has used much of the site for grazing since 1971 (ENSR Consulting and Engineering 1993).

Site Specific Historical Context

George Frederick Jaeger was born in Germany in October 1840. His family immigrated to the United States in 1845. In the 1860 Federal Census (taken in June), there are two 19-year-old men named George Jaeger born in Germany and residing in the United States with their parents—one in Missouri and one in Wisconsin. The George Jaeger who purchases land in the

study area is undoubtedly one of these individuals, but without extensive research, it is not possible to tell which one is the correct individual.

The first record of George Jaeger in California is in 1875, when he marries Emma Henrietta Reese in El Dorado County (El Dorado County marriages). Emma Reese was born in California in 1857, with parents Henry and Henrietta Reese born in Prussia and Germany (Federal Census 1870). Her father worked as a miner in 1870, and the family lived in the Placerville Township.

On January 1, 1879, their first daughter was born at Reservoir Hill in El Dorado County (*Mountain Democrat*, 1-11-1879). In the 1880 Federal Census, George Jaeger is listed in El Dorado County in the Placerville Township as a 38-year-old miner, with his wife Emma, 23, and their one-year-old daughter, Etta.

In 1880, George Jaeger purchased lands including the study area, apparently deciding to switch his occupation to ranching and farming. Louis Lepetit was shown in the County tax assessment roll as the owner of several tracts of land in the County, including all of section 16 and the fractional south half of section 9 (Township 8 North Range 7 East). The only improvement listed is $20 on the property in section 9, likely for fencing. Jaeger paid the second tax installment in November 1880, suggesting his purchase of the property between April an November of 1880.

By 1885, Jaeger was listed as the owner of the 850-acre tract, valued at $12,750. He had a house and fences worth $1,250. Other property included furniture valued at $100, an organ at $50, farming tools ($50), machinery ($100), wagons worth $150, harnesses worth $25, 4 horses and 4 colts valued at $550, 10 cows worth $300, 15 head of cattle, poultry and $400 in wheat.

In 1887, twin girls were born to the family: Maybel and Myrtle. The 1888-1889 County Directory listed Jaeger in the community of Cosumne, apparently his post office at the time. By 1890, Jaeger had continued to prosper. He had improvements valued at $1,000, with personal property of $1,925, including $250 in monies loaned to others, calves, cattle, colts, cows, farm tools, furniture, wheat, harnesses, horses, and wagons. In the 1891-1892 County Directory, his residence is listed as "four miles north" of Cosumne.

In 1892, the Sacramento County Great Register of Voters provided a physical description of Jaeger: 5' 9" in height, with light hair and complexion with blue eyes. He was then listed at Michigan Bar, apparently the closest precinct at the time. He was reported to be a naturalized citizen by virtue of his father's naturalization.

In 1900, the family was listed on the ranch in Lee Township. George and Emma Jaeger lived with their three daughters: Etta, a 21-year-old bookkeeper at a drugstore; and 12-year-old twins, Maybel and Myrtle.

Jaeger apparently raised hay and grain on his land, as well as some livestock. His hers was too small for him to have moved it annually to land at higher elevations when it dried out after the spring rains ended. He must have irrigated a portion of his lands as pasture for the livestock.

Jaeger's home appears to have been located in section 9. Jaeger may have also had some difficulty in sustaining operations at the ranch, as the involvement of his daughters in ranch activities would have been limited due to the attitudes toward the role of women at this time.

George Jaeger apparently moved his family in to the City of Sacramento in about 1905 or 1906 as he is listed in the 1904 Great Register of Voters at Sloughhouse, apparently on his ranch until 1904. George may have been in ill health, or may have wished to retire from farming with increasing age. He purchased a home at 1523 F Street.

Jaeger died on February 14, 1907 at age 66. The family had a visitation at their home on the 16th, with a private funeral. No other detail on his life was provided in the obituaries (*Sacramento Union* 2-16-1907).

In his will, Jaeger left three-fifths of his estate to his wife, with the remaining two-fifths to be shred by his three daughters. The will was signed on February 9, 1907, five days before his death. In early 1908, Emma Jaeger filed a final account for the estate. Jaeger owned four houses in the City of Sacramento, a 414-acre ranch in the Florin area, a 200-acre ranch as well as the 850-acre main ranch. He had sold his 480-acre holdings in El Dorado County to Alex F. Forni. The total value of the estate was over $37,000.

Apparently, two of the houses in Sacramento were rental properties. The ranch was apparently rented the ranch to the Little Brothers. Income was received for hay sold. Sacramento County maps continue to show the study area as owned by the George F. Jaeger estate through at least 1923. The 1920 Federal Census indicates that Mrs. Jaeger lived with her unmarried daughter Myrtle on 27th Street in the City of Sacramento, with their occupation listed as "none", suggesting they continued to receive income from the ranch property.

RESEARCH

A records search was conducted for the project area at the North Central Information Center of the California Historical Resources Information System in November 2004. No sites have been identified in or adjacent to the project area. CA-SAC-308H has been used to record all of the mining tailings and features of the American River Mining District, and it is assumed that the nearby dredger tailings are considered part of that "site."

NATIVE AMERICAN CONSULTATION

A letter was sent to the Native American Heritage Commission (NAHC) requesting a check of the Sacred Lands files (Appendix 2). The check failed to reveal any properties listed as Sacred Lands. The NAHC did provide a list of individuals and groups to contact regarding the property.

Letters were sent to Leland Daniels; Glenn Villa Sr. and Pamela Baumgarter, of the Ione Band of Miwok Indians; Clifford McKean, Miwok Indian Community of the Wilton Rancheria; Dwight Dutschke, Sierra Native American Council; and Mary Daniels-Tarango, Wilton Rancheria. No replies have been received to date.

FIELD ASSESSMENT

Ann Peak (resume, Appendix 1), assisted by Sue Merritt (graduate student in Anthropology, CSU Sacramento) and Leland Daniels (archeological technician of Miwok descent), completed a field survey of the project site in December 2004, with a complete inspection of the proposed project site. Ground visibility was fair to good. Based on the results of this inspection, it can be confirmed that there are no prehistoric nor historic period resources located within the project area.

EFFECTS OF THE PROPOSED PROJECT

As a result of the identification and evaluation efforts, an agency official may find that there are no historic properties present or there are historic properties present but the undertaking will have no effect upon them as defined in Section 800.16 (i).

If the agency official finds there are historic properties which may be affected by the undertaking, the agency official shall apply the criteria of adverse effect. "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association" (Section 800.5 (a)).

There are three possible findings:

- **Finding of no historic properties affected:** There is no effect of any kind on the historic properties.

- **Finding of no adverse effect:** There could be an effect, but the effect would not be harmful to the characteristics that qualify the property for inclusion in the National Register; or

- **Adverse effect:** There could be an effect, and that effect could diminish the integrity of such characteristics.

There were no historic properties recorded within the project area. With regard to Section 106 of the NHPA, it is recommended that agency seek concurrence from the California SHPO with a finding of "no historic properties affected" per § 800.4(d) (1).

REFERENCES

Bennyhoff, James A.

1977 Ethnogeography of the Plains Miwok. *Center for Archeological Research at Davis Publication* 5. Davis.

Carlson, D.W.

1955 Sacramento County Placer Mines. *California Journal of Mines and Geology*, volume 51, pp. 134-142.

Clark, William B.

1970 Gold Districts of California. *California Division of Mines and Geology Bulletin* 193.

Cook, Sherburne F.

1955 The Aboriginal Populations of the San Joaquin Valley, California. *University of California Anthropological Records* 16(2). Berkeley.

Cross, Ralph H.

1954 *The Early Inns of California: 1844-1869.* Cross & Brandt, San Francisco

Davis, Winfield

1890 *An Illustrated History of Sacramento County, California.* The Lewis Publishing Company, Chicago.

Doran, G.

1980 *Paleodemography of the Plains Miwok Ethnolinguistic Area, Central California.* Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.

ENSR Consulting and Engineering

1993 Preliminary Endangerment Assessment: Inactive Rancho Cordova Test Site (IRCTS), Rancho Cordova, California. Ms. on file, Aerojet General Corporation.

Holmes, W.H.

1902 Anthropological Studies in California. *Smithsonian Institution, Report of the U.S. National Museum for 1900*:155-187. Washington D.C.

Hoover, Mildred, Hero E. Rensch, Ethel G. Rensch and William N. Abeloe

1990 *Historic Spots in California* (Fourth Edition), revised by Douglas E. Kyle. Stanford University Press, Stanford.

Lillard, Jeremiah B. and William K. Purves
1936 The Archeology of the Deer Creek-Cosumnes Area, Sacramento County, California. *Sacramento Junior College, Department of Anthropology Bulletin* 1. Sacramento.

Lindström Susan and John Wells
1989 A Cultural Resource Evaluation of Aerojet General Corporation, Sacramento Plant, Sacramento County. Ms. On file, North Central Information Center.

Meredith, H.C.
1899 Aboriginal Art in Obsidian. *Land of Sunshine* 11:255-258.

1900 Archaeology in California: Central and Northern California. In *Prehistoric Implements*, edited by W.K. Moorehead, pp. 258-294. Robert Clarke, Cincinnati.

Moratto, Michael J.
1984 *California Archaeology*. Academic Press, New York.

Mountain Democrat newspaper.

Natomas Company of California
1922 Map of American River Lands Showing Dredgeable Areas, Prospecting and Progress. On file, Sacramento Archives and Museum Collection Center [SAMCC 81/31/1558a-c].

Peak & Associates, Inc.
1982 Cultural Resource Assessment of the Undredged Areas of the McDonnell-Douglas Properties, Sacramento County, California. Ms. On file, North Central Information Center.

1989 Cultural Resource Assessment of the Sunrise-Douglas Property, Sacramento County, California. Ms. On file, North Central Information Center.

1992 Cultural Resource Assessment of the Sunrise-Douglas Community and Specific Plan, Sacramento County, California. Ms. On file, North Central Information Center.

1999 Cultural Resource Assessment for the Proposed Rio del Oro Project Area, Sacramento County, California. Ms. On file, North Central Information Center.

Ragir, Sonia
1972 The Early Horizon in Central California Prehistory. *University of California Research Contributions* 15. Berkeley.

Reed, Walter G.
1923 *History of Sacramento County, California.* Historic Record Co., Los Angeles.

Sacramento Union newspaper.

Schenck, W. Egbert and Elmer Dawson
1929 Archeology of the Northern San Joaquin Valley. *University of California Publications in American Archeology and Ethnology* 25(4):289-413. Berkeley.

Schultz, Peter D.
1981 *Osteoarchaeology and Subsistence Change in Prehistoric Central California.* Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.

Schulz, Peter, D. Abels and Eric Ritter
1979 Archeology of the Johnson Site (CA-Sac-65), Sacramento County, California. *California Department of Parks and Recreation, Archaeological Reports* 18:1-31.

Schulz, Peter and Dwight Simons
1973 Fish Species Diversity in a Prehistoric Central California Indian Midden. *California State Department of Fish and Game* 59(2):107-113. Sacramento.

Slaymaker, Charles
1988 Letter report to James Rains, County of Sacramento, regarding the Sunrise Douglas Property. Ms. on file, North Central Information Center, California State University, Sacramento.

Soule, William E.
1976 Archeological Excavations at CA-Sac-329 Near Walnut Grove, Sacramento County, California. Ms. on file, North Central Information Center, California State University, Sacramento.

Thompson & West
1880 *History of Sacramento County, California.* Thompson & West, publishers, Oakland. Reprinted by Howell-North, Berkeley, 1960.

Wilson, Norman L. and Arlene Towne
1978 Nisenan. In *California,* edited by Robert F. Heizer, pp. 387-397. Handbook of North American Indians, vol. 8, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

APPENDIX 1

Resumes

PEAK & ASSOCIATES, INC.
RESUME

MELINDA A. PEAK
Senior Historian/Archeologist
3941 Park Drive, Suite 20 #329
El Dorado Hills, CA 95762
(916) 939-2405

January 2004

PROFESSIONAL EXPERIENCE

Ms. Peak has served as the principal investigator on a wide range of prehistoric and historic excavations throughout California. She has directed laboratory analyses of archeological materials, including the historic period. She has also conducted a wide variety of cultural resource assessments in California, including documentary research, field survey and report preparation.

In addition, Ms. Peak has developed a second field of expertise in applied history, specializing in site specific research. She is a registered professional historian and has completed a number of historical research projects. Ms. Peak has been a regular lecturer for courses in the Capital Campus Public History program (California State University, Sacramento), teaching cultural resource law and site specific research methods.

Through her education and experience, Ms. Peak meets the Secretary of Interior Standards for historian, architectural historian, prehistoric archeologist and historic archeologist.

EDUCATION

M.A. - History - California State University, Sacramento, 1989
Thesis: *The Bellevue Mine: A Historical Resources Management Site Study in Plumas and Sierra Counties, California*
B.A. - Anthropology - University of California, Berkeley, 1976

RECENT PROJECTS

In recent months, Ms. Peak has completed several determination of eligibility and effect documents in coordination with the Corps of Engineers for projects requiring federal permits, assessing the eligibility of a number of sites for the National Register of Historic Places. She has also completed historical research projects on a wide variety of topics for a number of projects including the development of navigation and landings on the Napa River, a farmhouse dating to

the 1860s, an early roadhouse, and a section of an electric railway line. She also completed an NRHP evaluation of Folsom Dam for the Corps of Engineers.

In recent years, Ms. Peak has prepared a number of cultural resource overviews and predictive models for blocks of land proposed for future development for general and specific plans. She has been able to direct a number of surveys of these areas, allowing the model to be tested.

She served as principal investigator for the multi-phase Twelve Bridges Golf Club project in Placer County. She served as liaison with the various agencies, helped prepare the historic properties treatment plan, managed the various phases of test and data recovery excavations, and completed the final report on the analysis of the test phase excavations of a number of prehistoric sites. She is currently involved as the principal investigator for the Clover Valley Lakes project adjacent to Twelve Bridges in the City of Rocklin, coordinating contacts with Native Americans, the Corps of Engineers and the Office of Historic Preservation.

Ms. Peak has served as project manager for a number of major survey and excavation projects in recent years, including the many surveys and site definition excavations for the 172-mile-long Pacific Pipeline proposed for construction in Santa Barbara, Ventura and Los Angeles counties. She also completed an archival study in the City of Los Angeles for the project. She also served as principal investigator for the 1997 coaxial cable removal project for AT&T.

Additionally, she completed a number of small surveys, served as a construction monitor at several urban sites, and directed the excavations of several historic complexes in Sacramento, Placer and El Dorado Counties.

Ms. Peak is the author of a chapter and two sections of the recently published history (1999) of Sacramento County, *Sacramento: Gold Rush Legacy, Metropolitan Legacy*. She is currently preparing text for the second Sacramento County history volume, to be published by Heritage Media in 2005.

RESUME

ANN S. PEAK **February 2004**
Consulting Archeologist

PROFESSIONAL EXPERIENCE

Ms. Peak has had over thirty years of extensive experience in both the public and private sectors, in providing professional archeological services. She has completed archeological work in all cultural areas of California, western Great Basin, and southeastern Oregon. Her projects include contracts with federal, state and local agencies and private firms.

She has directed all types of cultural resource-related projects, including field surveys, test excavations, data recovery programs, intensive archival research and cultural resource management.

EDUCATION

M.A. - Anthropology - California State University, Sacramento, 1975
B.A. - Anthropology - California State University, Sacramento, 1972
Studies in public health and microbiology, University of California, Berkeley, 1949-1950

RECENT PROJECTS

Ms. Peak most recently served as principal investigator for the data excavations at CA-PLA-592, -613, -618, -619, and -620, prehistoric midden sites in the Sierran foothills. In 1993, she served as the principal investigator for the excavations at CA-PLU-88, a large seasonal camp site with prehistoric rock art in the Plumas National Forest. She also completed the recordation and analysis of the numerous petroglyphs present within a portion of the site

Ms. Peak served as the principal investigator for the various surveys and site testing for the 172-mile-long Pacific Pipeline project proposed for construction in Santa Barbara, Ventura and Los Angeles counties. She has completed a number of smaller surveys throughout northern California and Nevada.

Ms. Peak has extensive experience in Great Basin culture areas, directing a number of large block surveys for proposed new mines or re-operations of historic mine sites throughout Nevada.
She has served as principal or field director and co-author on other large projects completed in recent years, including excavations of two historic sites in Sacramento County and one in El Dorado County, several prehistoric sites within the proposed Haystack Reservoir in Merced County and a prehistoric site within the area of the proposed Susanville Correctional Center expansion.

APPENDIX 2

Native American Consultation

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

November 4, 2004

Robert A. Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 20, #329
El Dorado Hills, Ca 95762

Sent by Fax: 916-939-2406
Number of Pages: 5

RE: Proposed Sunrise-Douglas Planned Community, Sacramento County; Riverview subdivision, Sacramento County and Boessow subdivision, Sacramento County

Dear Mr. Gerry:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Sacramento County
November 4, 2004

Sierra Native American Council
Dwight Dutschke, Chairperson
Box 12045 Miwok
Ione , CA 95640
(209) 274-2357

Miwok Indian Community of the Wilton Rancheria
Clifford McKean
9301 Rancheria Drive Miwok
Wilton , CA 95693
(916) 687-6747

Shingle Springs Band of Miwok Indians
Jeff Murray, Cultural Resources Manager
P.O. Box 1340 Miwok
Shingle , CA 95682 Maidu
(530) 676-8010
(530) 676-8033 Fax

Ione Band of Miwok Indians
Matthew Franklin, Chairperson
PO Box 1190 Miwok
Ione , CA 95640
(209) 274-6753
(209) 274-6636 Fax

Wilton Rancheria
Mary Daniels-Tarango
7916 Farnell Way Miwok
Sacramento, , CA 95823
(916) 427-2909 Home
(916) 322-9867 Work

Leland Daniels
7531 Maple Leaf Lane Miwok
Sacramento , CA 95828
(916) 689-7330

United Auburn Indian Community of the Auburn
Jessica Tavares, Chairperson
575 Menlo Drive, Suite 2 Maidu
Rocklin , CA 95765 Miwok
916 663-3720
916 663-3727 - Fax

Ione Band of Miwok Indians
Glen Villa, Sr., Cultural Committee
PO Box 1132 Miwok
Ione , CA 95640
gvilla@cdepot.net
(209) 274-0372

Billie Blue Elliston
604 Pringle Ave., #42 Miwok
Galt , CA 95632
916 375-5900 work

Randy Yonemura
4305 - 39th Avenue Miwok
Sacramento , CA 95824
(916) 421-1600

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Boessow South subdivision, Sacramento County.

Native American Contacts
Sacramento County
November 4, 2004

El Dorado Miwok Tribe
Jeri Scambler, Chairperson
PO Box 1284 Miwok
El Dorado , CA 95623
miwoktribe@hotmail.com
530-363-3257

El Dorado Miwok Tribe
Ernest Faircloth, Cultural Preservation
PO Box 258 Miwok
El Dorado , CA 95623
(530) 626-7572

Ione Band of Miwok Indians
Pamela Baumgarner, Tribal Administrator
PO Box 1190 Miwok
Ione , CA 95640
admin@ionemiwok.org
(209) 274-6753
(209) 274-6636 Fax

Ione Band of Miwok Indians
Christine Boston, Environmental Coordinator
PO Box 1190 Miwok
Ione , CA 95640
christine@ionemiwok.org
(209) 274-6753
(209) 274-6636 Fax

El Dorado Miwok Tribe
Randy Yonemura
4305 - 39th Avenue Miwok
Sacramento , CA 95824
(916) 421-1600

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Boessow South subdivision, Sacramento County.

Native American Contacts
Sacramento County
November 4, 2004

Rose Enos
15310 Bancroft Road Maidu
Auburn , CA 95603 Washoe
(530) 878-2378

Joe Marine
1025 35th Avenue, Apt 9 Maidu
Sacramento , CA 95822
916 429-7307

Shingle Springs Band of Miwok Indians
Jeff Murray, Cultural Resources Manager
P.O. Box 1340 Miwok
Shingle , CA 95682 Maidu
(530) 676-8010
(530) 676-8033 Fax

United Auburn Indian Community of the Auburn
Jessica Tavares, Chairperson
575 Menlo Drive, Suite 2 Maidu
Rocklin , CA 95765 Miwok
916 663-3720
916 663-3727 - Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Sunrise-Douglas Planned Community, Sacramento County.

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY
Twenty-firth Anniversary: 11/26/00

October 29, 2004

Ms. Debbie Pilas-Treadway
Native American Heritage Commission
915 Capitol Mall, Room 288
Sacramento, CA 95814

Dear Ms. Pilas-Treadway:

Peak & Associates, Inc. has contracted with Foothill Associates, Inc., to perform a cultural resources assessment of parts of the Sunrise-Douglas Planned Community in Sacramento County. The overall project area, including planned improvements of Sunrise Boulevard, is depicted on the enclosed maps. We have performed surveys of parts of this area several years ago. We are now contracted to complete the coverage. Since the older surveys were conducted before Native American consultation was commonplace, we wish to request information on the entire project area. The project lies in Sections 7 - 10,15 - 17 and 20 of T8N, R7E. Portions of the Sunrise Boulevard part of the project area are in T9N, R7E (no sections – Rio de los Americanos grant.) The project is mapped on the Buffalo Creek and Carmichael (Sunrise Boulevard) 7.5' USGS quadrangles, which are the base for the attached maps.

Because of wetland issues, and transportation funding, this is a federal undertaking. In accordance with the Secretary of the Interior's Guidelines for implementing Section 106, we are requesting a list of appropriate Native American contacts for the project area. We also request a check of the Sacred Lands Inventory for any potential conflicts.

Thank you for your assistance.

Sincerely,

Robert A. Gerry
Consulting Archeologist

//RG

■ 3941 Park Drive, Suite 20, #329, El Dorado Hills, CA 95762/Phone: (916)939-2405/Fax: 939-2406/email: peakinc@jps.net
☐ 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/Fax: 342-0273/email: peakinc@cmc.net

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

October 29, 2004

Mr. Leland Daniels
7531 Maple Leaf Lane
Sacramento, CA 94828

Dear Mr. Daniels:

Peak & Associates, Inc. has contracted with Foothill Associates, Inc., to perform a cultural resources assessment of parts of the Sunrise-Douglas Planned Community in Sacramento County. The overall project area, including planned improvements of Sunrise Boulevard, is depicted on the enclosed maps. We have performed surveys of parts of this area several years ago. We are now contracted to complete the coverage. Since the older surveys were conducted beore Native American consultation was commonplace, we are requesting information on the entire project area.

We are contacting individuals identified by the Native American Heritage Commission as persons who might have information to contribute regarding potential Native American concerns in the project area. Any information or concerns that you may have regarding village sites, traditional properties or modern Native American uses in any portion of the project vicinity will be welcomed. If you know other individuals who are familiar with the vicinity, we would welcome this information as well.

We recognize that much of the information about protected and sacred sites may be confidential within your community and cannot be shared with those outside of your community. We will work with you to minimize impact on your cultural resources. Please contact me to discuss how we can accomplish protection of your cultural resources within your limits of confidentiality and the needs of the project. Any confidential information you share will be kept confidential, so long as you make it clear which information is confidential and to what extent. We will have to communicate to our client that an area must be avoided, but we do not have to go into detail as to why.

Thank you for your assistance.

Sincerely,

Robert A. Gerry
Consulting Archeologist

RG//
Encl.

■ 3941 Park Drive, Suite 20-329, El Dorado Hills, CA 95762/Phone: (916)939-2405/Fax: 939-2406/email: peakinc@jps.net
□ 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/Fax: 342-0273/email: peakinc@cmc.net

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

October 29, 2004

Ione Band of Miwok Indians
Ms.Pamela Baumgartner, Tribal Administrator
PO Box 1190
Ione, CA 95840

Dear Ms.Baumgartner:

Peak & Associates, Inc. has contracted with Foothill Associates, Inc., to perform a cultural resources assessment of parts of the Sunrise-Douglas Planned Community in Sacramento County. The overall project area, including planned improvements of Sunrise Boulevard, is depicted on the enclosed maps. We have performed surveys of parts of this area several years ago. We are now contracted to complete the coverage. Since the older surveys were conducted beore Native American consultation was commonplace, we are requesting information on the entire project area.

We are contacting individuals identified by the Native American Heritage Commission as persons who might have information to contribute regarding potential Native American concerns in the project area. Any information or concerns that you may have regarding village sites, traditional properties or modern Native American uses in any portion of the project vicinity will be welcomed. If you know other individuals who are familiar with the vicinity, we would welcome this information as well.

We recognize that much of the information about protected and sacred sites may be confidential within your community and cannot be shared with those outside of your community. We will work with you to minimize impact on your cultural resources. Please contact me to discuss how we can accomplish protection of your cultural resources within your limits of confidentiality and the needs of the project. Any confidential information you share will be kept confidential, so long as you make it clear which information is confidential and to what extent. We will have to communicate to our client that an area must be avoided, but we do not have to go into detail as to why.

Thank you for your assistance.

Sincerely,

Robert A. Gerry
Consulting Archeologist

RG//
Encl.

■ 3941 Park Drive, Suite 20-329, El Dorado Hills, CA 95762/Phone: (916)939-2405/Fax: 939-2406/email: peakinc@jps.net
☐ 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/Fax: 342-0273/email: peakinc@cmc.net

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

October 29, 2004

Ione Band of Miwok Indians
Mr.Glenn Villa, Sr., Cultural Committee
PO Box 1132
Ione, CA 95840

Dear Mr.Villa:

Peak & Associates, Inc. has contracted with Foothill Associates, Inc., to perform a cultural resources assessment of parts of the Sunrise-Douglas Planned Community in Sacramento County. The overall project area, including planned improvements of Sunrise Boulevard, is depicted on the enclosed maps. We have performed surveys of parts of this area several years ago. We are now contracted to complete the coverage. Since the older surveys were conducted beore Native American consultation was commonplace, we are requesting information on the entire project area.

We are contacting individuals identified by the Native American Heritage Commission as persons who might have information to contribute regarding potential Native American concerns in the project area. Any information or concerns that you may have regarding village sites, traditional properties or modern Native American uses in any portion of the project vicinity will be welcomed. If you know other individuals who are familiar with the vicinity, we would welcome this information as well.

We recognize that much of the information about protected and sacred sites may be confidential within your community and cannot be shared with those outside of your community. We will work with you to minimize impact on your cultural resources. Please contact me to discuss how we can accomplish protection of your cultural resources within your limits of confidentiality and the needs of the project. Any confidential information you share will be kept confidential, so long as you make it clear which information is confidential and to what extent. We will have to communicate to our client that an area must be avoided, but we do not have to go into detail as to why.

Thank you for your assistance.

Sincerely,

Robert A. Gerry
Consulting Archeologist

RG//
Encl.

■ 3941 Park Drive, Suite 20-329, El Dorado Hills, CA 95762/Phone: (916)939-2405/Fax: 939-2406/email: peakinc@jps.net
□ 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/Fax: 342-0273/email: peakinc@cmc.net

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

October 29, 2004

Miwok Indian Community of the Wilton Rancheria
Mr. Clifford McKean
9301 Rancheria Drive
Wilton, CA 95693

Dear Mr. McKean:

Peak & Associates, Inc. has contracted with Foothill Associates, Inc., to perform a cultural resources assessment of parts of the Sunrise-Douglas Planned Community in Sacramento County. The overall project area, including planned improvements of Sunrise Boulevard, is depicted on the enclosed maps. We have performed surveys of parts of this area several years ago. We are now contracted to complete the coverage. Since the older surveys were conducted beore Native American consultation was commonplace, we are requesting information on the entire project area.

We are contacting individuals identified by the Native American Heritage Commission as persons who might have information to contribute regarding potential Native American concerns in the project area. Any information or concerns that you may have regarding village sites, traditional properties or modern Native American uses in any portion of the project vicinity will be welcomed. If you know other individuals who are familiar with the vicinity, we would welcome this information as well.

We recognize that much of the information about protected and sacred sites may be confidential within your community and cannot be shared with those outside of your community. We will work with you to minimize impact on your cultural resources. Please contact me to discuss how we can accomplish protection of your cultural resources within your limits of confidentiality and the needs of the project. Any confidential information you share will be kept confidential, so long as you make it clear which information is confidential and to what extent. We will have to communicate to our client that an area must be avoided, but we do not have to go into detail as to why.

Thank you for your assistance.

Sincerely,

Robert A. Gerry
Consulting Archeologist

RG//
Encl.

■ 3941 Park Drive, Suite 20-329, El Dorado Hills, CA 95762/Phone: (916)939-2405/Fax: 939-2406/email: peakinc@jps.net
□ 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/Fax: 342-0273/email: peakinc@cmc.net

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

October 29, 2004

Sierra Native American Council
Mr. Dwight Dutschke, Chairperson
PO Box 12045
Ione, CA 95640

Dear Mr. Dutschke:

Peak & Associates, Inc. has contracted with Foothill Associates, Inc., to perform a cultural resources assessment of parts of the Sunrise-Douglas Planned Community in Sacramento County. The overall project area, including planned improvements of Sunrise Boulevard, is depicted on the enclosed maps. We have performed surveys of parts of this area several years ago. We are now contracted to complete the coverage. Since the older surveys were conducted beore Native American consultation was commonplace, we are requesting information on the entire project area.

We are contacting individuals identified by the Native American Heritage Commission as persons who might have information to contribute regarding potential Native American concerns in the project area. Any information or concerns that you may have regarding village sites, traditional properties or modern Native American uses in any portion of the project vicinity will be welcomed. If you know other individuals who are familiar with the vicinity, we would welcome this information as well.

We recognize that much of the information about protected and sacred sites may be confidential within your community and cannot be shared with those outside of your community. We will work with you to minimize impact on your cultural resources. Please contact me to discuss how we can accomplish protection of your cultural resources within your limits of confidentiality and the needs of the project. Any confidential information you share will be kept confidential, so long as you make it clear which information is confidential and to what extent. We will have to communicate to our client that an area must be avoided, but we do not have to go into detail as to why.

Thank you for your assistance.

Sincerely,

Robert A. Gerry
Consulting Archeologist

RG//
Encl.

■ 3941 Park Drive, Suite 20-329, El Dorado Hills, CA 95762/Phone: (916)939-2405/Fax: 939-2406/email: peakinc@jps.net
□ 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/Fax: 342-0273/email: peakinc@cmc.net

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

October 29, 2004

Wilton Rancheria
Ms. Mary Daniels-Tarango
7916 Farnell Way
Sacramento, CA 95823

Dear Ms. Daniels-Tarango:

Peak & Associates, Inc. has contracted with Foothill Associates, Inc., to perform a cultural resources assessment of parts of the Sunrise-Douglas Planned Community in Sacramento County. The overall project area, including planned improvements of Sunrise Boulevard, is depicted on the enclosed maps. We have performed surveys of parts of this area several years ago. We are now contracted to complete the coverage. Since the older surveys were conducted beore Native American consultation was commonplace, we are requesting information on the entire project area.

We are contacting individuals identified by the Native American Heritage Commission as persons who might have information to contribute regarding potential Native American concerns in the project area. Any information or concerns that you may have regarding village sites, traditional properties or modern Native American uses in any portion of the project vicinity will be welcomed. If you know other individuals who are familiar with the vicinity, we would welcome this information as well.

We recognize that much of the information about protected and sacred sites may be confidential within your community and cannot be shared with those outside of your community. We will work with you to minimize impact on your cultural resources. Please contact me to discuss how we can accomplish protection of your cultural resources within your limits of confidentiality and the needs of the project. Any confidential information you share will be kept confidential, so long as you make it clear which information is confidential and to what extent. We will have to communicate to our client that an area must be avoided, but we do not have to go into detail as to why.

Thank you for your assistance.

Sincerely,

Robert A. Gerry
Consulting Archeologist

RG//
Encl.

■ 3941 Park Drive, Suite 20-329, El Dorado Hills, CA 95762/Phone: (916)939-2405/Fax: 939-2406/email: peakinc@jps.net
☐ 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/Fax: 342-0273/email: peakinc@cmc.net

APPENDIX D.2

The Ranch Updated Cultural Resources Inventory and Evaluation, Rancho Cordova, Sacramento County, California

THE RANCH

Updated Cultural Resources Inventory and Evaluation
Rancho Cordova, Sacramento County, California

Section 16, T. 8N, R. 7E MDM
Buffalo Creek 7.5' USGS Quadrangle
Approximately 530 Acres

Prepared By
Ric Windmiller
Archaeologist

with a Contribution by
Dana Supernowicz
Architectural Historian

Windmiller Consulting, Inc.
2280 Grass Valley Hwy #205
Auburn, California 95603

Prepared For

Foothill Associates, Inc.
590 Menlo Drive #5
Rocklin, California 95765

June, 2018

Management Summary

The Ranch is a proposed 530-acre mixed use community in the south portion of the City of Rancho Cordova, Sacramento County, California. The Ranch lies on the east side of Jaeger Road, south of Douglas Road, one mile east of Sunrise Boulevard and one mile west of Grant Line Road.

As a Clean Water Act, Section 404 permit is required for the undertaking, the U.S. Army Corps of Engineers must initiate a National Historic Preservation Act, Section 106 consultation in an effort to avoid harm to any historic properties listed in or eligible for the National Register of Historic Places.. Twelve years have elapsed since the previous cultural resources inventory and evaluation. To conform with current Corps requirements, an updated records search, current Native American and historical society contacts, field work to document current conditions and an updated, stand-alone technical report are required.

In an updated effort to identify historic properties listed on or eligible for the National Register, the present study included an updated records search by the North Central Information Center, California Historical Resources Information System, a review of recent satellite images of the project area, a review of previous studies in the project vicinity, an updated sacred lands file search by the Native American Heritage Commission, contact with tribes listed by the commission, contact with historical societies, on-line searches and a field survey along widely spaced transects to evaluate the adequacy of the previous study. In addition, an architectural historian who meets the Secretary of the Interior's professional qualifications standards assessed the National Register eligibility of the high voltage electrical transmission towers and lines that now may meet the 50 year threshold for eligibility.

As a result of these efforts, only one cultural resource was identified during the study: the two parallel alignments of high voltage electrical transmission towers and lines located in The Ranch Area Potential Effects. Designated P-34-5210 by the North Central Information Center, the transmission towers and lines were assessed as not eligible for the National Register individually or as contributing resources of a historic district under any criterion of eligibility. The study concludes that no historic properties will be affected by the proposed undertaking.

Contents

Management Summary i

Introduction 1

Project Description 1

The Undertaking 3

Area of Potential Effects 3

Literature Review 3

- Environment 5
- Prehistory 5
- Ethnography 7
- History 9
- Records Search Results 11

Native American and Historical Society Coordination 12

Research Methods 13

Description of Cultural Resources 14

- Prehistoric Resources 14
- Historic Resources 14

Assessment of Eligibility 14

- Prehistoric Resources 15
- Historic Resources 15

Assessment of Effect 16

References Cited 16

Appendix A: Other Figures 20

Appendix B: Records Search Results 23

Appendix C: Native American and Historical Society Coordination 52

Appendix D: Confidential Location of Cultural Resources 62

Appendix E: Confidential Record Forms 64

List of Figures

Figure 1. Project location and vicinity 2

Figure 2. Area of Potential Effects 4

Figure 3. Looking east across APE towards Grant Line Road 21

Figure 4. Looking west across APE towards Sunrise Boulevard 21

Figure 5. Looking north across APE towards Douglas Road 22

Figure 6. Looking south across APE towards Grant Line Road and Jackson Road 22

Figure 7. Confidential location of cultural resources 63

List of Tables

Table 1. Native American and historical society contacts 53

Introduction

The Ranch is a proposed 530-acre mixed use community in the south portion of the City of Rancho Cordova, Sacramento County, California. The Ranch lies on the east side of Jaeger Road, south of Douglas Road, one mile east of Sunrise Boulevard and one mile west of Grant Line Road (see Figure 1, below).

In 2005, Peak & Associates, Inc. conducted a cultural resources inventory and evaluation of the "Jaeger 530," now known as, "The Ranch." The Peak & Associates study included a a records search at the North Central Information Center, detailed historic context based on archival research, a sacred lands file search by the Native American Heritage Commission, an attempt to contact Native Americans listed by the commission, and a field survey. The study concluded that no prehistoric or historic period resources were located within the project area.(Peak 2005b:12).

As a Clean Water Act, Section 404 permit is required for the undertaking, the U.S. Army Corps of Engineers will initiate a National Historic Preservation Act, Section 106 consultation. Twelve years have passed since the Peak & Associates study. To conform with current Corps requirements, an updated records search, updated Native American and historical society contacts and field work to document the current conditions were completed, the results of which follow in this stand-alone report.

Project Description

The proposed project will be a mixed-use community in the City of Rancho Cordova consisting of low- to high-density residential development, neighborhood parks and mixed-use commercial development. In addition, the expansion of Chrysanthy Boulevard is a vital west-east connector street within the City of Rancho Cordova. Land uses proposed by The Ranch Project are consistent with the land use designations identified by the *Rancho Cordova General Plan*, under the land use authority of the City of Rancho Cordova. The project is located and configured to use infrastructure extensions of the Sunridge Specific Plan area, including sewer mains, sewer trunk lines, gas and electric mains and water mains.

The applicant proposes development of 1,266-1,300 units, including 642 gated single-family active adult units with a club house, and 634-658 conventional single-family units. In addition, six acres are dedicated for commercial use per the City of Rancho Cordova General Plan and five acres are currently reserved for multi-family residential (apartments) in accordance with the City of Rancho Cordova's Affordable Housing Plan. A network of bicycle and pedestrian trails (four acres) will be incorporated into the land plan and provide connectivity from existing Anatolia Bike Trail to the west and south to the proposed middle and high school campuses located directly south of the project site. A grade separated pedestrian/bicycle crossing (at Chrysanthy) is proposed within the PG&E easement.

In addition to development, the proposed project will preserve approximately 198 acres of the parcel in an on-site open space/wetland preserve that will be deeded to a third-party conservation entity to be maintained in perpetuity. The applicant will incorporate protections for the preservation of wetland resources within the preserve, including preserve fencing, long-term funding and management of the preserve in perpetuity and protection of the preserve from drainage and runoff generated from development areas through the construction of several proposed detention basins in the development.

Onsite infrastructure associated with the project will include the construction of internal access roads, the proposed alignment of Chrysanthy Boulevard bisecting the project site, connecting to the current termini of Chrysanthy Boulevard. In addition, Rancho Cordova Parkway will be widened to four lanes. The proposed

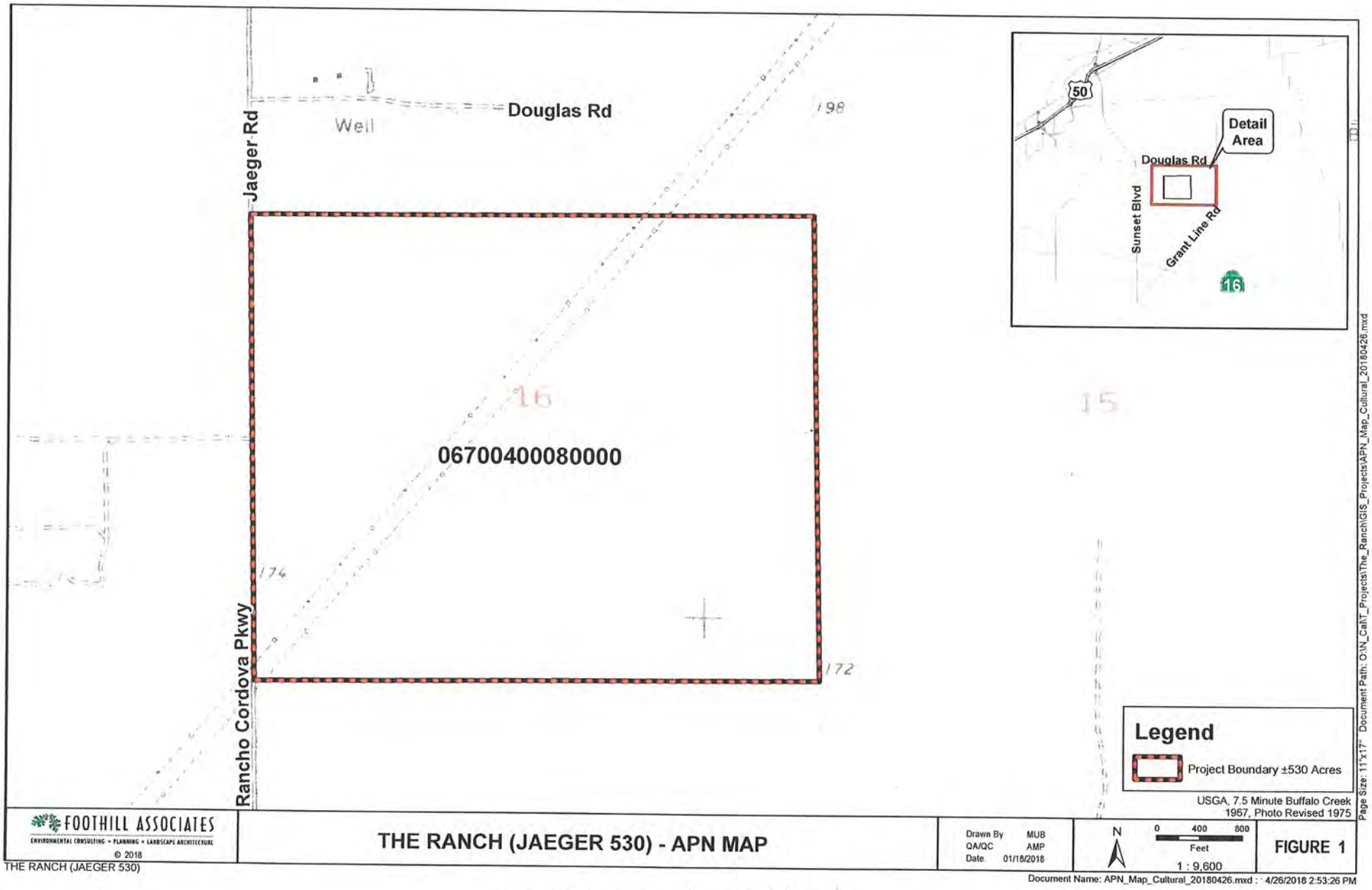


Figure 1. Project location and vicinity.

North Campus Road located along the southern boundary will be constructed as required by the City of Rancho Cordova. The improvements will include outside lane, curb, gutter and detached sidewalk along the residential frontage.

A total of 21.53 acres of jurisdictional aquatic resources have been mapped within the project site including 2.92 acres of depressional seasonal wetlands, 15.04 acres of vernal pools, 1.66 acres of riverine seasonal wetlands, 0.06 acres of riverine seasonal wet swales, 1.54 acres of intermittent drainages, and 0.30 acres of drainage basin out-falls. The U.S. Army Corps of Engineers issued a Preliminary Jurisdictional Determination on October 14, 2014 concurring with the 21.53 acres of aquatic resources mapped with the project site.

As proposed, project development will result in the fill of 6.37 acres of aquatic resources including 1.056 acres of depressional seasonal wetlands, 4.752 acres of vernal pools, 0.507 acres of riverine seasonal wetlands, and 0.059 acres of riverine seasonal wet swales . A total of 0.01 acre of temporary impacts will occur associated with utility placement with a spanned crossing along Chrysanthy Boulevard.

Approximately 20,554 cubic yards of clean fill will be placed in 6.37 acres of waters of the U.S. in order to accommodate construction of the proposed development using various types of standard construction equipment, including scrapers, bulldozers, and excavators.

The Undertaking

Since the project would affect waters of the United States, the project proponent must meet requirements of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act, and therefore, is seeking a permit from the U.S. Army Corps of Engineers, Sacramento District.

Area of Potential Effects

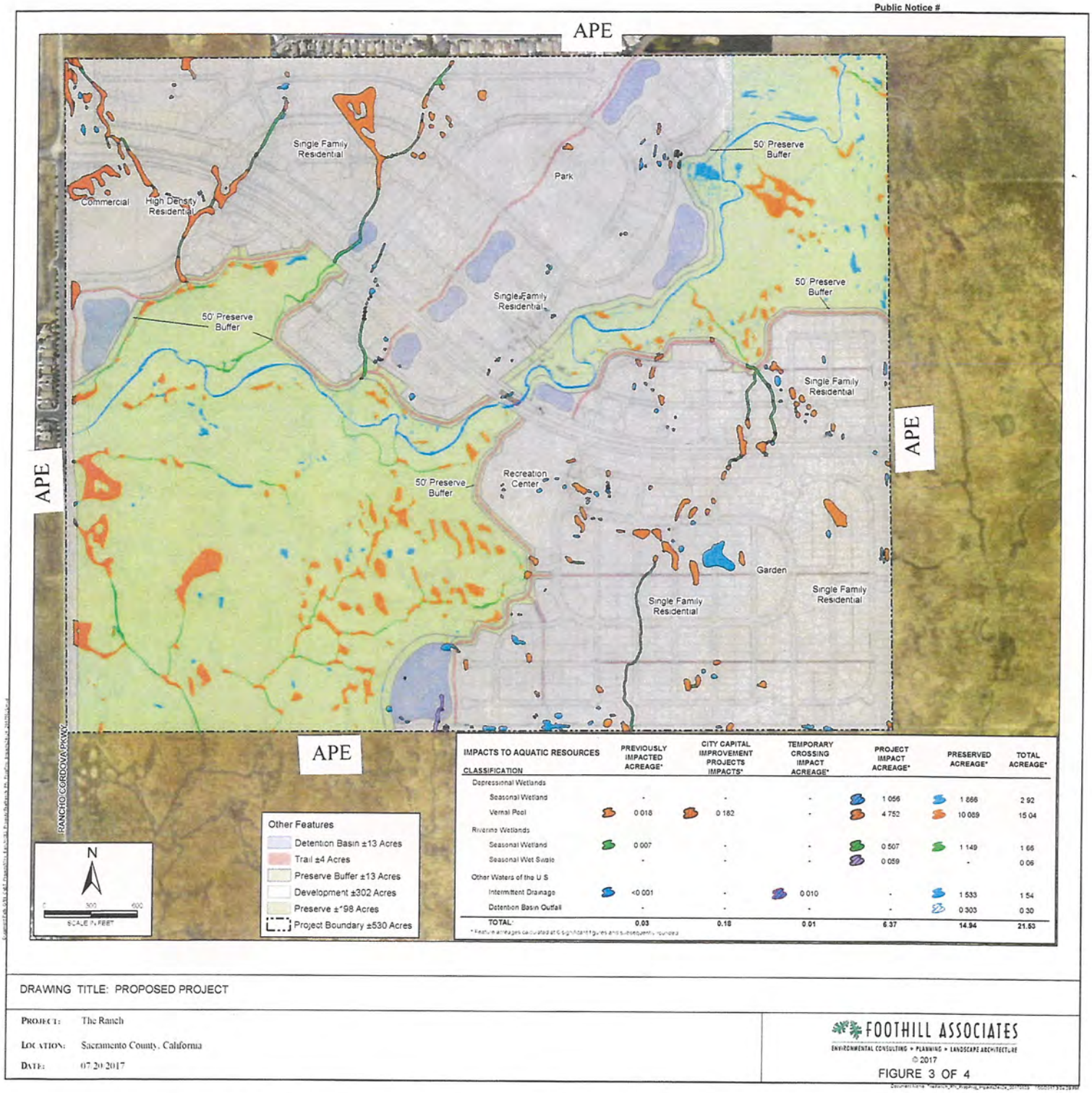
The geographic Area of Potential Effects (APE) for The Ranch is the entire 530 acres (see Figure 2,below).

The viewshed from the APE includes a recent residential subdivision immediately adjacent to the north side of the APE, a partially built-out residential subdivision along the west side of the APE, and agricultural grazing land on the south and east. A Pacific Gas & Electric Company/Sacramento Municipal Utilities District (SMUD) easement crosses the APE northeast to southwest (see Appendix A: Other Figures).

Maximum anticipated depth of excavation is 25 feet for sewer trenching. This maximum depth will be the vertical (depth) APE. Depth of excavation for water lines will be four feet below finished grade. Drainage will be 5-6 feet. The ponds will be 17, 8 and 13 feet in depth. The above ground vertical APE was not available. However, no historic properties whose eligibility for the National Register of Historic Places would be impaired by above-ground construction were identified within the geographic APE.

Literature Review

The literature review included an updated records search by the North Central Information Center, California Historical Resources Information System, review of published and unpublished literature in the Windmiler Consulting, Inc. library as well as on-line Internet research and contact with knowledgeable others..



IMPACTS TO AQUATIC RESOURCES CLASSIFICATION	PREVIOUSLY IMPACTED ACREAGE*	CITY CAPITAL IMPROVEMENT PROJECTS IMPACTS*	TEMPORARY CROSSING IMPACT ACREAGE*	PROJECT IMPACT ACREAGE*	PRESERVED ACREAGE*	TOTAL ACREAGE*
Depressional Wetlands						
Seasonal Wetland	-	-	-	1 056	1 866	2 92
Vernal Pool	0 018	0 182	-	4 752	10 069	15 04
Riverine Wetlands						
Seasonal Wetland	0 007	-	-	0 507	1 149	1 66
Seasonal Wet Swale	-	-	-	0 059	-	0 06
Other Waters of the U S						
Intermittent Drainage	<0 001	-	0 010	-	1 533	1 54
Detention Basin Outfall	-	-	-	-	0 303	0 30
TOTAL*	0.03	0.18	0.01	6.37	14.94	21.53

* Feature acreages calculated at 6 significant figures and subsequently rounded

Figure 2. Area of Potential Effects (APE) with development plan and wetlands overlays.

Environment

The Ranch lies on treeless grassland near the eastern edge of the Sacramento Plains. Elevation of the APE varies between approximately 170 and 210 feet above mean sea level. The flat to hilly terrain is crossed northeast to southwest by a meandering seasonal drainage that joins the Morrison Creek drainage system several miles to the west. The Ranch is underlain with consolidated allluvial deposits of the Tertiary Laguna Formation; water worn gravel and cobbles are exposed in the shallow seasonal stream that crosses The Ranch northeast to southwest (Wagner *et al.* 1981).

The American River lies six miles to the north near Folsom. The Cosumnes River bends towards the Sierra foothills three miles to the southeast. The present climate is Mediterranean: summers are hot and rainless, while winters are cool, often with low (tule) fog and 6-20 inches rainfall (Storer and Usinger 1963:26).

Prehistory of the Sacramento Plains and North Delta Region, 10,000 B.C.-A.D. 1830

Three miles southeast of The Ranch lies the Cosumnes River drainage where archaeologists first began defining the culture sequence of Sacramento Valley human prehistory. The earliest evidence of Man along the Cosumnes drainage may be represented by the basal portion of a fluted obsidian Clovis-like projectile point found by the writer in the early1960s at the Windmiller Mound (CA-SAC-107).

In 1979, Peak and Associates began excavations at two ancient sites in the Calero Basin near Rancho Murieta, approximately nine miles east of The Ranch. Peak and Associates' archaeologist speculated that the Rancho Murieta sites, CA-SAC-370 and CA-SAC-379 date back to the late Pleistocene of 18,000 to 12,000 years before the present. However, it seems more likely that they belong to the later Western Pluvial Lakes Tradition. Both sites are stone quarry/workshop and possibly camp sites where native people fashioned chipped stone tools from the green chert bedrock and from water-worn cobbles of the Mehrten Formation (Peak 1981:70).

The Western Pluvial Lakes Tradition was an adaptation of ancient cultures to lake, marsh and grassland habitats along the eastern side of the Sierra Nevada as early as 11,000 years before the present (Moratto 1984:90-91). The development of the Western Pluvial Lakes Tradition and its regional variants may, as Moratto suggested, correspond to the emergence and initial differentiation of Hokan languages (1984:544).

The suspected antiquity of the Calero Basin sites created a large temporal gap between the earliest use of the Cosumnes drainage and the earliest sedentary occupation dating back to the Middle Archaic–a gap in prehistory of at least 5500 years about which practically nothing is known in this region of northern California.

The gap may be filled in part by finds such as the artifact-bearing layer exposed in the banks of Arcade Creek in North Sacramento. There, erosion exposed an artifact-bearing layer buried under nine feet of alluvium (Curtice 1961:20-25). Another example may be the Crevis Creek finds–chipped stone artifacts occurring in the gravels of Crevis Creek, eight miles east of The Ranch and close to the Calero Basin finds.

The type site for the Middle Archaic culture is located approximately 12 miles south southeast of The Ranch. Named the "Windmiller Mound" after the landowner, the site's antiquity spans approximately 4500-5500 years (*cf.* Heizer 1974:192-193 and Rosenthal *et al.* 2007:150). Like many other prehistoric archaeological sites of the lower Cosumnes bottomlands within the valley proper, the Windmiller Mound is situated on a natural clay knoll above seasonal flood waters.While Archaic period village sites and cemeteries of all ages are most common along the Cosumnes River (approximately six sites per linear mile), they do occur near other

water sources such as springs, seasonal tributaries and sloughs.

The natural drainage system of The Ranch locality transports water in a southwesterly direction ultimately to a series of lakes on the east side of the Sacramento River. The drainage system is known as the Morrison Creek Stream Group Basin. The lakes, Beach Lake and North and South Stone lakes were home to several historic groups of Miwok-speaking people whose villages were perched on natural clay knolls or natural river levees above seasonal flooding. In a four square mile area where Morrison Creek approaches the Sacramento River, archaeologists have identified eight such village mounds, each of which has probably been occupied at various times over a period of several thousand years.

In 1974, archaeologist Jerald J. Johnson conducted an archaeological field survey of the Morrison Creek Stream Group from the lakes along the Sacramento River to Mather Air Force Base, the east boundary of which lies one mile west of The Ranch (Johnson 1974).

By far the majority of Native American archaeological sites documented by Johnson were located around the lakes next to the Sacramento River far to the southwest of The Ranch (Johnson 1974:6 and maps).

Since Johnson's mid-1970s survey, archaeologists continued to survey large tracts of land on the Sacramento Plains between the American and Cosumnes rivers with few discoveries. A 1985 survey of Mather Air Force Base by the Archaeological Study Center, California State University, Sacramento, resulted in no finds (McIvers 1985).

A subsequent survey by EDAW, Inc. of 1041 acres resulted in no prehistoric archaeological finds (EDAW, Inc. 1991:13). In 2008, Sean Jensen conducted a survey at the edge of the Morrison Stream group, but found only six flakes of basalt and one flake of chert (Jensen 2008:10). Also in 2008, Far Western Anthropological Research Group conducted a survey along State Route 16, but found no prehistoric or historic Native American artifacts (Leach-Palm *et al.* 2008).

In 2009, Windmiller conducted a survey of 800 acres immediately north of State Route 16 and found no prehistoric or historic Native American archaeological resources (Windmiller and Osanna 2009:i).

The lack of reported surface finds in the region seems to reinforce the notion that the Sacramento Plains between the Cosumnes and American rivers was not a focus of Native American settlement or that archaeologists have not yet discovered the uses to which such lands were placed in prehistory.

From the larger regional perspective, linguists have long held that in early times, the northern part of the state was largely Hokan territory. Before 2000 B.C., speakers of Hokan languages left traces of their presence in early archaeological sites of the valley-foothills edge such as the stone tool quarry and campsites of the Calero Basin.

By 2500 B.C., however, Penutian-speaking peoples may have entered the lower Sacramento Valley. There is some empirical evidence to link the Middle Archaic Windmiller culture of the Cosumnes District to prehistoric cultures of the Great Basin and Plateau physiographic provinces. In his synthesis of California archaeology, Michael Moratto suggested that people of Penutian stock settled in the Stockton and Cosumnes districts. However, the languages spoken were not necessarily pre-Miwok or Costanoan. Soon after 2000 B.C., Moratto indicated that these Penutian language speakers expanded their sphere of influence westward to the East Bay where they came into contact with the older Hokan-speaking population (Moratto 1984:553).

Moratto suggested that there was a kind of fusion between the two language groups resulting in what is recognized in the archaeological record as the Berkeley Pattern. Moratto built a case for the entry of pre-

Yokutsan speakers into Central California after the proto-Miwok began to spread into the Bay Area. Moratto guessed that pre-Yokutsan people settled the delta and northern San Joaquin Valley between 1500 and 1000 B.C. Moratto further speculated that the pre-Yokutsan culture may have incorporated many traits of the Windmiller Pattern before settling the San Joaquin Valley and, by 500 B.C., the Central Sierra foothills (Moratto 1984:555).

The penetration of Wintuan-speaking people into northern California from Oregon 1100-1000 years ago coincided with the beginning of the Augustine Pattern in the Central Valley and use of the bow and arrow among the indigenous people (Moratto 1984:562-563).

While the Wintuan incursion appears to have caused the retreat of other peoples from the valley both eastward and westward, climate change also affected resident populations. Around A.D. 400 at the beginning of a warm and dry interval, Yokutsan-speaking people may have abandoned marginal areas in the valley and foothills and moved to more reliable water sources at higher elevations or along major streams and sloughs (Moratto 1984:564).

Between A.D. 1430 and 1850, relatively cool and moist conditions may have encouraged population growth in groups associated with the Augustine Pattern. Population shifts during this period resulted in the pattern of native settlements seen by early European explorers.

A recent updated synthesis of Central Valley archaeology notes little new information in areas such as the Cosumnes drainage due to few new investigations and the inadequacy of older collections in meeting the needs of current research objectives. However, researchers have taken the cultural periods, above, and updated the time span of each period based on new radiocarbon determinations adjusted with modern calibration curves (Rosenthal *et al.* 2007:150):

Paleo-Indian (11,550-8550 cal B.C.)
Lower Archaic (8550-5550 cal B.C.)
Middle Archaic (5550-550 cal B.C.)
Upper Archaic (550 cal B.C.-cal A.D. 1100)
Emergent (cal A.D. 1100-Historic)

With a long-standing focus on prehistoric cultures, archaeologists largely ignored Native American settlements of the historic period. The exception was James A. Bennyhoff and his doctoral dissertation, *Ethnogeography of the Plains Miwok*. Using the results of earlier archaeological excavations, historical documents and revisiting the archaeological sites himself, Bennyhoff succeeded in linking historic events to specific Indian village sites and defined the physical territories within which the incipient chiefdoms or "tribelets" of the historic Miwok Indians lived, hunted, fished and gathered (Bennyhoff 1977).

Ethnography/Ethnohistory of the Sacramento Plains-North Cosumnes, 1806-1912

The Ranch lies almost midway between the former homeland of the Maiduan speaking Nisenan along the American River and the *Amuchamne* tribelet of Miwok speakers along the Cosumnes River (Bennyhoff 1977:47, Map 2). The Ranch is probably more within the former range of the northern Cosumnes tribelet than the Nisenan of the American River.

The Plains Miwok were recognized as a distinct language group as early as 1806 when Spanish explorers first entered the region (Bennyhoff 1977:1). The term, "Miwok" is the word for "person" in Northern Miwok as reported by Powers in his 1877 work on California Indians (Powers 1877:347 quoted in Bennyhoff 1977:53).

It is important to understand that according to historical and ethnographic accounts, Miwok-speaking people did not recognize a "Plains Miwok Society." The largest sociopolitical group was the "tribelet."

In his early, definitive ethnographic work on California Indians, anthropologist Alfred Kroeber asserted that most northern California groups did not have true tribes, rather the distinction was between village communities or "tribelets." The term, "village community" implied a tract of land rather than a settlement. Generally, the population of a village community was divided between several settlements, each consisting of a few households. The principal village was maintained on a permanent basis, while subsidiary hamlets were frequently abandoned, re-occupied or newly founded (Kroeber 1925:831).

On a day to day basis, the lineage was the most important political and economic unit. Lineages consisted of men related through the male line of descent, their wives and children. Miwok lineages were associated with a specific place (locality) such as a tribelet's permanent settlements.

Miwok-speaking people were hunter-fisher-gatherers. Large game hunted by the native people included deer, antelope and tule elk. Gathering of wild plant foods varied with the seasons. Greens were gathered in the spring, while seeds were harvested from May through August. The major staple, acorns, were gathered in the fall. While the Miwok were not agriculturalists nor practiced in animal husbandry, they did cultivate tobacco to a limited extent and they kept dogs (Levy 1978:403).

Housing included pole and thatch structures, semisubterranean earth-covered lodges, a sweathouse built over a pit, menstrual hut and acorn granaries.

Each tribelet was named after its principal settlement. The principal settlement usually included an assembly house, often a large, circular semi-subterranean, earth-covered lodge. The assembly house was the location for all important religious ceremonies and major social events (Levy 1978:410).

The *Amuchamne* tribelet was the northernmost tribelet on the Cosumnes River drainage within the boundaries of the Sacramento Valley. Bennyhoff reported that the Sheldon map of 1847 illustrated the tribelet center a short distance south of Sloughhouse at a sharp bend in the river. CA-SAC-126 was tentatively identified by Bennyhoff as the tribelet center. While glass beads found at the site date only to the Mission Period, the existing artifact collection was incomplete and Bennyhoff's test excavations may have missed the historic cemetery that would have confirmed Sutter period use of the site (Bennyhoff 1977:105).

Historical documents indicate that *Amuchamne* was a major Plains Miwok tribelet, second only to *Cosumne.* Bennyhoff suggested that *Amuchamne* may have been the leading group of cooperating tribelets that resisted foreign contacts. Missionization of the *Amuchamne* people began in 1834-1835. However, only seven baptisms were recorded at that time. The population of the *Amuchamne* was depleted by the 1833 epidemic, which may in addition to resistence account for the low number of subsequent baptisms (Bennyhoff 1977:103-104).

By 1847, the *Shalachmushumne* may have moved upstream to the *Amuchamne* village to strengthen resistence to Nisenan intrusion into Miwok territory, which was driven by Sutter's desire for empire and Sheldon's use of Nisenan Indian labor on his ranch.

Amuchamne was the only organized Cosumnes River Miwok village to survive the gold rush. Sheldon's brother-in-law and partner, William Daylor, and Daylor's partner in a store and ferry on the Cosumnes and the road to the Southern Mines, William Grimshaw, traded with the Indians living in *rancherias* on Sheldon's *Rancho Omochumnes*. According to *Grimshaw's Narrative*, after Daylor died of Cholera in October, 1850, the few remaining Indians left their villages and never returned (Kantor 1964:25).

According to Bennyhoff, sometime between 1850 and 1870, the people of *Amuchamne* moved their village to the outskirts of Elk Grove. By 1870, the native people had built a dance house at the Elk Grove village, which became a principal dance center for the Plains Miwok. The *Amuchamne* exchanged dances with Nisenan villages near Sacramento (Bennyhoff 1977: 106). The Elk Grove dance house may have been the large circular dance house floor accidentally discovered at CA-SAC-134 during some agricultural grading 30-40 years ago.

We do not know precisely where the *Amuchamne* village was at Elk Grove. By 1890, *Amuchamne* descendants were apparently leaving the village to take jobs as farm laborers. In1912, avocational archaeologist Elmer Dawson removed six burials from CA-SAC-1, a shallow midden located three miles southeast of Elk Grove. Bennyhoff concluded that the graves dated to "the full American period" and were probably part of a cemetery used by the *Amuchamne* village at Elk Grove (Bennyhoff 1977:106-107).

History of Lee Township Border Area, 1840-1967

The Ranch lies on the Sacramento Plains in Lee Township. Two Mexican land grants took up portions of Lee Township between the Cosumnes River on the southeast and Folsom on the north. Sheldon's grant took up land on the west side of the Cosumnes River. Leidesdorf's grant took up land immediately north of The Ranch and extended to the American River (Reed 1923:121).

Other than early Spanish expeditions, most of which were launched to recruit neophytes for the missions, one of the earliest Europeans to cross the vicinity of The Ranch was William Daylor. History recounts the adventure of Daylor, who, one summer evening in 1840, rode to the top of a hill overlooking the Cosumnes River in search of Sutter's stray cattle. He found the verdant valley densely populated with Indians. Upon this observation, he returned to Sutter's Fort to report this finding to his friend, Jared Sheldon, who was also in Sutter's employ. Realizing the valley's agricultural potential, Sheldon and Daylor formed a partnership and secured a grant of the valley through their friend, E.P. Hartnell, who was Secretary of State and Interpreter for California's Mexican government (Reed 1923:121-122).

Daylor settled on the grant, while Sheldon bartered his labor for cattle from John Marsh of the present day Brentwood area. Daylor with the assistance of local Indians planted wheat. By 1847, Sheldon and Daylor constructed a dam and a grist mill on the Cosumnes. Upon the discovery of gold in 1848, Sheldon, Daylor and McCoon, along with a contingent of local Indians, established a mining camp at Webber Creek in the Placerville vicinity. By June that year, William Grimshaw partnered with Daylor and opened a store and Indian trading post at Daylor's ranch at Cosumne near present day Sloughhouse. The trading post was on the Jackson Road, which in those days was a wagon road from Sutter's Fort to the Southern Mines. Built on this historic route, Jackson Road (State Route 16) today lies 2.5 miles south of The Ranch.

Historian Melinda Peak traced the early ownership of The Ranch to Louis Lepetit, who owned several tracts of land including all of Section 16 (The Ranch) in Township 8 North, Range 7East. In 1880, George F.Jaeger purchased Section 16. The only improvements at that time appear to have been fencing (Peak 2005:10).

Jaeger was a native of Germany, born in 1840. His family immigrated to the United States in 1845. The first record of Jaeger in California is his marriage to Emma Henrietta Reese in 1875 in El Dorado County. The 1880 census listed George Jaeger as a 38 year old miner with his wife Emma, 23 and their one-year old daughter, Etta (Peak 2005:10).

The 1888-1889 County Directory listed Jaeger at Cosumne. The 1892 Register of Voters listed Jaeger at Michigan Bar. But, by 1900, the family was listed on the ranch in Lee Township. By this time, Etta was a 21

year old bookkeeper at a drugstore and she, along with Jaeger's 12-year old twin girls lived with George and his wife, Emma (Peak 2005:10).

The Jaeger family raised hay and livestock, although their operation apparently did not include seasonal driving of livestock to summer pastures in the Sierra Nevada, as was practiced by other ranching families in the region (*viz.*, Wilsons, Joergers, Fornis and Windmillers).

The 1910 Official Map of Sacramento County illustrates Section 16 as the Estate of George F. Jaeger. During his active years as a rancher, Jaeger's home appears to have been in Section 9, immediately north of Section 16. In 1905 or 1906, the family moved to 1523 F Street in Sacramento. George Fredrick Jaeger died in 1907 at the age of 66. A final accounting of his estate showed that Jaeger owned four houses in Sacramento, a 414-acre ranch in Florin, and another 200 acres in addition to his 850-acre main ranch. He had sold his El Dorado County land to Alex Forni, which brought his net worth to over $37,000. Section 16 remained as part of the estate until at least 1923 (Peak 2005:11).

The 1910 Official Map of Sacramento County shows that Jaeger's neighbors in the vicinity of Section 16 included Joseph Joerger, Katherin G. Sweet and W.F. Sperry (County of Sacramento 1910).

Another neighbor during the same period was the Natomas Company of California, which owned a checkerboard of properties in the township. The bank failures, collapse of mining ventures and failure of many new developing industries in the 1870s prompted the Natomas Company to shift to agricultural development. The Natomas Company became a major influence in converting depleted mining areas to industrialized viticulture and horticulture–the precursor along with the large scale California wheat growers to modern agribusiness.

Natomas Consolidated and its successor, Natomas Company of California continued dredging, whether for gold or farmland reclamation until gold mining was stopped by order of the War Production Board at the start of World War II. After the war, the dredging business never fully recovered. The last Natomas dredge ceased operations in 1962 (Castenada *et al.* 1984:7).

Crossing The Ranch project site are two historic 230 kV electrical transmission lines and associated towers in parallel with one another. The historic context of these high voltage electrical transmission lines is rooted in the creation of the Sacramento Municipal Utility District (SMUD). In 1923, citizens voted to create SMUD as a community-owned electrical service. Years of engineering studies and legal wrangling delayed SMUD's purchase of the Pacific Gas and Electric Company's (PG&E's) local electrical system. However, in March, 1946, the California Supreme Court denied PG&E's final petition to halt the sale, and nine months later, SMUD finally began operation, acquiring much of the PG&E system in Sacramento County.

By the mid-1960s, agriculture was no longer the Sacramento Valley's largest business. New companies, such as electronics and defense industries, were moving in, changing Sacramento's profile and economy. The Port of Sacramento began handling ocean-going vessels. A major regional airport took shape in the rice fields west of Sacramento. A peach orchard near the American River was transformed into Sacramento State College. Housing subdivisions and apartment buildings were put up everywhere as the population base of SMUD customers surged to 625,000 by 1964. The Upper American River Project began providing electricity to the valley, as SMUD expanded its distribution system of electrical poles and wires.

By the mid- 1960s, 95 percent of the system had been rebuilt or newly constructed. A modern headquarters building was constructed at 62nd and S Streets in Sacramento in the late 1960s. To meet the increased demand for power in the greater Sacramento area, SMUD approved the construction of Rancho Seco, a nuclear power plant to be built on 2,100 acres in the southeastern corner of the county (Sacramento Municipal Utility District

2018).

The transmission towers of the 1920s were much like the ones installed through the 1940s-1960s, including those built by PG&E and SMUD. The towers were made of steel, riveted together with lattice and bent for support. Transmission lines were attached to the top of the tower along a slightly arched or v-shaped riveted steel lattice brace. In an electrical power grid or transmission system, the electricity first travels to a transformer at the power plant that boosts the voltage. The long thick cables of transmission lines were made of copper or aluminum because the two metals have a low resistance. At the user end of the high voltage line, transformers reduced the very high voltage to lower voltage electricity supplied to businesses and residential neighborhoods.

In 1968, leading industrial designer Henry Dreyfuss worked with engineers in southern California to produce the nation's first aesthetic transmission towers. The new towers were drastically different from those of the 1920s-1960s. The fact that numerous 1920s-1960s era towers remain standing is a testament to the design skills of the early engineers who created the lattice towers and to the contractors who erected the high voltage electrical system. Today, California is laced with thousands of *circa* 1920s-1960s steel electrical transmission towers that support many miles of transmission lines (Pacific Gas &Electric Company 2018).

Records Search Results

The North Central Information Center, California Historical Resources Information System provided a records search of The Ranch dated June 2, 2017 (NCIC File No. SAC-17-67). A search of the information center's files resulted in a finding of no cultural resources located within the project area. The search did, however, identify two previously recorded cultural resources outside of the project area, but within a one-quarter mile radius of the project site. The records search identified six previous cultural resource reports within the project area, which may have included cultural resource inventories immediately adjacent to the project's APE, though only one previous survey encompassed the APE according to the GIS map accompanying the records search. That survey was designated S-5843 by the information center and was conducted by Peak & Associates, Inc. back in 2005 (*Determination of Eligibility and Effect for the Sunbridge Park Project Area*). No cultural resources were identified on the information center's file for report S-5843 (Peak 2005a).

Also in 2005, Melinda Peak completed a report on the same property renamed, *Determination of Eligibility and Effect for the Jaeger 530 Project Area, Sacramento County, California* (Peak 2005b).

Although no cultural resources were recorded within the project APE, the records search identified the Wietsma Dairy (P-34-533) and the George Jaeger (home) ranch (P-34-1065) located within a one-quarter mile radius of the present APE.

The 1916 USGS Buffalo Creek 7.5 minute quadrangle included with the records search did not illustrate any man-made buildings or structures within the APE. However, two buildings were illustrated within a quarter mile north of the APE in the same section (Section 16). Also, a north-south road (Jaeger Road) is illustrated adjacent to the west side of the APE. An east-west road (Douglas Road) is illustrated within one-quarter mile north and east of the APE.

The 1954 USGS Buffalo Creek 7.5 minute quadrangle also does not illustrate any man-made buildings or structures within the APE. However, three small reservoirs are illustrated within one quarter mile north of the APE and Jaeger Road is illustrated adjacent to the west boundary of the APE.

As no previously recorded cultural resources were on file with the information center for the APE, the Office

of Historic Preservation's (OHP's) Archaeological Determinations of Eligibility was not searched for sites with relevant trinomial designations. Also for the same reason, OHP's Directory of Properties in the Historic Property Data File for Sacramento County was not searched by Primary Number.

Information center staff reported nothing listed in local inventories No bridges were located within the APE. Therefore, a search of the Caltrans Bridge Survey was not conducted (see Appendix B: Confidential Records Search).

Native American and Historical Society Coordination

During the last study by Melinda Peak, a search of the Native American Heritage Commission's Sacred Lands File was negative; no Native American cultural resources were identified in the file search. The commission provided Peak with a list of Native American contacts, to whom Peak sent letter. The list of contacts included the following:

- Leland Daniels
- Glenn Villa, Sr., Ione Band of Miwok Indians
- Pamela Baumgarter, Ione Band of Miwok Indians
- Clifford McKean, Miwok Indian Community of the Wilton Rancheria
- Dwight Dutschke, Sierra Native American Council
- Mary Daniels-Tarango, Wilton Rancheria

Peak received no responses from the letters (Peak 2005b:12).

On May 30, 2017, the Native American Heritage Commission responded to a request for an updated Sacred Lands File search and Native American contacts. The file search was negative. No Native American cultural resources were identified by commission staff in the immediate project area. Commission staff recommended contacting other sources for information on known and documented sites (see Appendix C: Native American and Historical Society Coordination).

Staff included a list of Native American contacts with its letter report:

- Mr. Randy Yonemura, Ione Band of Miwok Indians;
- Ms. Rhonda Morningstar Pope, Chairperson, Buena Vista Rancheria, Sacramento;
- Mr. Cosme Valdez, interim Chief Executive Officer, Nashville-Eldorado Miwok;
- Ms. Crystal Martinez, Chairperson, Ione Band of Miwok Indians;
- Mr. Grayson Coney, Cultural Director, Tsi Akim Maidu;
- Mr. Nicholas Fonseca, Chairperson, Shingle Springs Band of Miwok Indians, Shingle Springs;
- Mr. Don Ryberg, Chairperson, Tsi Akim Maidu;
- Mr. Raymond Hitchcock, Chairperson, Wilton Rancheria;
- Mr. Gene Whitehouse, Chairperson, United Auburn Indian Community of the Auburn Rancheria, Auburn.

A letter dated April 26, 2018 along with a location map was mailed to each of the above contacts describing the project and asking for volunteered information on the location of any sacred or other sites of importance to Native American tribal groups. A follow-up telephone call was made to each contact on May 8, 2018.

In a letter dated May 10, 2018 that appeared to be a standard response, Mr. Gene Whitehouse, Chairman, United Auburn Indian Community of the Auburn Rancheria (UAIC) stated that the UAIC is concerned about

development within its aboriginal territory including potential impact on the lifeways, cultural sites, and landscapes that may be of sacred or ceremonial importance. To ascertain if the project could affect cultural resources of importance to the UAIC, the UAIC would like to consult on the project. In addition, the UAIC would like to received copies of any archaeological reports, environmental documents and the opportunity to comment on the identification, assessment and mitigation related to cultural resources. The UAIC also recommends that UAIC tribal representatives observe and participate in all cultural resource surveys. The letter ended with the statement that the UAIC Preservation Committee requests a meeting or site visit and for further contact, address Mr. Marcos Guerrero, Cultural Resource Manager at UAIC. Mr. Whitehouse's letter did not identify any specific sites of Native American importance within or near the APE. No other responses from tribal contacts have been received to date (June 28, 2018).

Earlier, on May 22, 2017, an email was sent to the Sacramento County Historical Society and to the Elk Grove Historical Society. The email described the project, its location and requested information on potential historic sites that may be impacted by the proposed project. There was one response. Mr. Jim Entrican, Elk Grove Historical Society responded on several occasions with a discussion of pioneer families in the region, but did not specify any historic sites located at the project location.

There was no response from the Sacramento Historical Society. A second email was sent to the Sacramento Historical Society on May 8, 2018. However, no response has been received at the time of this writing (June 28, 2018).

Research Methods

In December, 2004, Peak & Associates, Inc. completed a field survey of the APE. The field team consisted of Ann Peak, M.A., assisted by a graduate student in anthropology from California State University Sacramento, and Leland Daniels, archaeological technician. The field survey was described as a complete inspection. Ground visibility was fair to good. No prehistoric or historic period resources were identified (Peak 2005b).

In April, 2018, Ric Windmiller, M.A., conducted a pedestrian reconnaissance of the APE along widely spaced transects as a check on the adequacy of the previous Peak & Associates survey. Ground visibility was fair to good; grass was cropped close to the ground by grazing cattle. One person day was expended on the reconnaissance. Expectations of finding prehistoric or historic archaeological resources were low. None were identified. However, a double row of parallel high voltage electric transmission lines cross the APE northeast to southwest. The towers were recorded on DPR 523 series forms by architectural historian Dana Supernowicz, M.A.

Ric Windmiller has more than 40 years experience directing archaeological field surveys and excavations in California, Arizona, Colorado, Canada and Mexico. Windmiller has a B.A. in anthropology from California State University, Sacramento, M.A. in anthropology from the University of Manitoba, Canada, and all but dissertation for a Ph.D. in the same field, University of Colorado.

Dana Supernowicz, M.A. is a senior historian with more than 30 years of experience conducting historical research in northern California including Sacramento County. Dana Supernowicz is formerly with the California Department of Transportation (Caltrans) and El Dorado National Forest.

Description of Cultural Resources

The only cultural resources identified within the APE, 50 years old and older are two parallel rows of high voltage electrical transmission towers and lines (see Appendix D, Confidential Location of Cultural Resources and Appendix E, Confidential Record Forms).

Prehistoric Resources

No prehistoric resources were identified.

Historic Resources

P-34-5210 (SMUD Electrical Transmission Towers and Lines)

The subject property consists of two parallel rows of 230kV electrical transmission towers with attached transmission lines. The towers are over 100 feet high and made of riveted steel with lattice bracing, owned and operated by Sacramento Municipal Utility District (SMUD). The double row of towers traverse the APE northeast to southwest along a utility easement owned by SMUD. Each tower has three horizontal arms or masts mounted to the upper half of the tower. The rectangular, truncated-shaped lattice transmission towers rest on four concrete piers. A form of "X" bracing with radiating steel lattice braces is used on opposing sides of the towers for support. The three steel arms on each tower, also containing lattice bracing, connect to twisted or elongated insulators attached to high lead cables that transmit electricity from tower to tower. The double line of towers cuts through a large swath of agricultural open-space land, terminating to the west at the West Hedge Substation at Elder Creek. The subject transmission towers were reportedly constructed between 1961 and 1968, which is based on a review of historic topographic maps and aerial photographs.

Assessment of Eligibility

Generally, a historic site, object, building, structure or district is eligible for listing on the National Register of Historic Places if it is 50 years old or older, possesses integrity and meets at least one of the following criteria (National Park Service 1991:4):

A. Association with events that have made significant contributions to the broad patterns of United States history.

B. Association with the lives of people important in United States history.

C. Embodies the distinctive characteristics of a type, period, or method of construction; or represents the work of a master, or possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction;

D. Has yielded or is likely to yield information important in prehistory or history.

National Register eligibility is equally dependent on the condition or integrity of the cultural resource. Integrity, in this sense, is the authenticity of the cultural resource's historic identity, meaning the survival of those physical characteristics that existed during the historic or prehistoric period from which it dates. The integrity of archaeological resources is generally based on the degree to which the remaining cultural deposit,

artifacts or features can provide information important to our understanding of history or prehistory.

Integrity is a composite of seven qualities, some of which are more germane than others, depending on the type of cultural resource under evaluation and the criterion of National Register eligibility for which the evaluation is made. The aspects of integrity are: location, design, setting, materials, workmanship, feeling and association (National Park Service 1991:4).

Prehistoric Resources

No prehistoric resources were identified.

Historic Resources

P-34-5210 (SMUD Electrical Transmission Towers and Lines)

The historic context of the subject property is rooted in the creation of the Sacramento Municipal Utility District (SMUD). In 1923, citizens voted to create SMUD as a community-owned electric service, but years of engineering studies and political wrangling delayed SMUD's purchase of Pacific Gas and Electric Company's (PG&E's) local electrical service. In March, 1946, the California Supreme Court finally denied PG&E's argument against the acquisition. Nine months later, SMUD began operations by acquiring much of PG&E's system in Sacramento County. By 1964, SMUD's customer base swelled to 625,000 due to the re-shaping of the county's economy from primarily agriculture to electronics and defense industries. By this time, Sacramento was also becoming a major transportation hub with the growth in ocean-going shipping and air transport. The Upper American River project began providing electrical service to the valley, as SMUD expanded its distribution system of electrical poles and wires. By the mid-1960s, 95 percent of the system had been rebuilt or newly constructed.

In applying National Register of Historic Places criteria of eligibility, two of the criteria were particularly important in assessing the significance of the subject property. Criterion A was applied due to the property's relationship with electrical power generation and transmission in northern California, particularly Sacramento County, where the two parallel rows of transmission towers are located. The years following World War II were an important period of growth. SMUD met the demands for power with expanded infrastructure including construction of the Rancho Seco nuclear power plant.

National Register Criterion C was also applied to the property, because the steel towers are an engineering feature related to the development of other similar types of properties after the turn of the 19th century, including windmills, fire lookout towers and radio towers. Criterion B and D were not applicable.

Comparing tower types, the lattice bracing and height of a transmission tower often denote its age in regard to high lead electric power transmission. Although the basic principles of transmission tower design changed little from the 1920s through the 1960s, many towers were designed substantially larger and taller through time. Because the subject towers are among a chain or line of similar transmission towers, eligibility must be considered both individually and as part of a linear district comprised of multiple steel transmission towers and electrical line ties to substations and power generating plants. However, as the APE limits assessment of a district beyond the APE, only the towers and lines located within the APE are considered here.

The transmission towers appear to retain good integrity of design, materials, setting, association and feeling having minimal or no apparent alterations. Conversely, hundreds of similar transmission towers were built

throughout California, including those built by PG&E and SMUD in Sacramento County. The two parallel lines of transmission towers within the APE serve south Sacramento County, trending northeast to southwest through agricultural lands with suburban encroachment.

These two power lines were not the first electrical high-lead tie lines built in the state nor in Sacramento County. The post-World War II period of electrical transmission generation and development was spurred by rapid population growth and increasing demand from commercial and residential customers. Most of the existing steel high-lead electrical transmission towers in California date to the period after World War II. While the subject towers are critical to providing electricity to a large swath of south Sacramento, and the towers retain integrity, they were built in the 1960s, a period in which transmission tower design and engineering was quite mature. Furthermore, the transmission towers, while important, do not represent a significant event or events in the history of Sacramento County, as compared to the construction of SMUD's first and only nuclear plant in the late 1960s. Therefore the two lines of transmission towers located within the APE do not appear to be individually eligible for the National Register under either Criterion A or C.

In regards to a linear district, the subject towers are representative of a mid-twentieth century class of riveted steel transmission towers associated with substations that together had an important influence on the economic and physical development of northern California, particularly Sacramento County. However, because the tie line or power grid is not one of the major north-south or east-west power grids in California that collectively provide the bulk of the power to the state, the property's value does not rise to the level of significance for consideration as a historic property eligible for listing on the National Register. Finally, upon evaluating its engineering design, the twin rows of towers do not appear to meet the level of significance that would qualify them collectively as a National Register eligible district with the period of significance as the mid-1960s.

Assessment of Effect

For purposes of the Section 106 consultation, "effect" is defined as "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" [36 CFR Part 800.16(I)].

Adverse effects may include reasonably foreseeable effects caused by an undertaking that may occur later in time or removed by distance or cumulative. Adverse effects are found when an undertaking " . . . may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location design, setting, materials, workmanship, feeling, or association: (36 CFR Part 800.5(a)(1).

Only one cultural resource was identified within the APE: the twin rows of 1960s-era high voltage electrical transmission towers and lines. The two characteristics that would qualify the resource for inclusion in or eligibility for the National Register are the steel lattice towers and the transmission lines. Construction of the proposed development will not alter either of these characteristics. Application of the criteria of eligibility concluded that the towers and lines located within the APE are not individually eligible or collectively eligible as a National Register historic district under any criterion. Therefore, it is the consultant's opinion that no historic properties will be affected.

References Cited

Bennyhoff, J. A.
1977 *Ethnogeography of the Plains Miwok.* Center for Archaeological Research at Davis, Publication 5. Davis.

County of Sacramento.
1910 Official Map of Sacramento County. Phinney, Cate & Marshall, Sacramento.

Castaneda, A., R. Docken, E. Pitti, C. Ide, J. Wells
1984 Natomas Company, 1851-1984. Manuscript on file, Sacramento Archives and Museum Collection Center, Sacramento.

Curtice, C.G.
1961 Cultural and Physical Evidence of Prehistoric Peoples of Sacramento County. Master's thesis. Department of Anthropology, Sacramento State College. Sacramento.

EDAW, Inc.
1991 *A Cultural Resources Survey for the Teichert Aspen VI Rezone and Use Permit and Granite I Rezone and Use Permit, Sacramento County, California.* Submitted to BioSystems Analysis, Inc. Copies available from the North Central Information Center, California State University, Sacramento.

Heizer, R. F.
1974 Studying the Windmiller Culture. In *Archaeological Researches in Retrospect*, edited by Gordon R. Willey, Winthrop Publishers, Inc., Cambridge.

Jensen, S. M.
2008 *Archaeological Inventory Survey, Excelsior Estates Development Project, Sacramento County, California.* Genesis Society. Submitted to Foothill Associates, Inc. Copies available from the North Central Information Center, California State University, Sacramento.

Johnson, J. J.
1974 *Reconnaissance Archaeological Survey of the Morrison Stream Group in Sacramento County, California.* Submitted to U.S. Army Corps of Engineers, Sacramento District. Copies available from the North Central Information Center, California State University, Sacramento.

Kantor, J. R. K. (editor)
1964 *Grimshaw's Narrative: Being the Story of Life and Events in California During Flush Times, Particularly the Years 1848-1850, Including a Biographical Sketch, Written for the Bancorft Library in 1872 by William Robinson Grimshaw.* Sacramento Book Collectors Club, Sacramento.

Kroeber, A. L.
1925 Handbook of the Indians of California. *Bureau of American Ethnology Bulletin* 78. Smithsonian Institution, Washington, D.C.

Leach-Palm, L., P. Mikkelsen, P. Brandy, J. King, L. Hartman and B. Larson
2008 *Cultural Resources Inventory of Caltrans District 3 Rural Conventional Highways in Butte, Colusa, El Dorado, Glenn, Nevada, Placer, Sacramento, Sierra, Sutter, Yolo and Yuba Counties: Summary of Methods and Findings.* Far Western Anthropological Research Group, Inc. Submitted to California Department of Transportation, North Region, District 3. Copies available from the North Central Information Center, California State University, Sacramento.

Levy, R.
1978 Eastern Miwok. In *California,* edited by R. F. Heizer, pp. 398-413. Handbook of North

American Indians, vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington D.C.

McIvers, K. J.
1985 *An Archeological Survey of Mather Air Force Base, Sacramento County, California.* Archaeological Study Center, California State University-Sacramento. Submitted to 323 Civil Engineering Squadron DEV. Copies available from the North Central Information Center, California State University, Sacramento.

Moratto, M. J.
1984 *California Archaeology.* Academic Press, New York.

National Park Service
1991 *How to Apply the National Register Criteria for Evaluations.* National Register Bulletin 15. U.S. Department of the Interior, National Park Service, Interagency Resources Division. Washington, D.C.

Pacific Gas & Electric Company
2018 Our history. www.smud.org/corporate/about-us/company-information/our-history. Accessed April 14, 2018.

Peak, A.S.
1981 Archaeological Investigations of CA-SAC-370 and CA-SAC-379: The Rancho Murieta Early Man Sites in Eastern Sacramento County. Ms. on file, Peak & Associates, Inc., Sacramento.

Peak, M.
2005a *Determination of Eligibility and Effect for the Sunbridge Park Project Area.* Peak & Associates, Inc. Submitted to Foothill Associates, Inc. Copies available from the North Central Information Center, California State University, Sacramento.

2005b *Determination of Eligibility and Effect for the Jaeger 530 Project Area, Sacramento County, California.* Peak & Associates, Inc. Submitted to Foothill Associates, Inc. Copies available from the North Central Information Center, California State University, Sacramento.

Powers, S.
1877 Tribes of California. *Contributions to North American Ethnology,* vol. III. Government Printing Office, Washington.

Reed, J. W. (editor)
1923 *History of Sacramento County, California.* Historic Record Company, Los Angeles.

Rosenthal, J. S., G. G. White and Mark Q. Sutton
2007 The Central Valley: A View from the Catbird's Seat. In *California Prehistory: Colonization, Culture and Complexity*, edited by T L. Jones and K. A. Klar, pp. 147-164. Alta Mira Press, Lanham.

Storer, T. I. and R. L. Usinger
1963 *Sierra Nevada Natural History.* University of California Press, Berkeley.

Wagner, D. L., C.W. Jennings, T. L. Bedrossian and E. J. Borgtugno
1981 Geologic Map of the Sacramento Quadrangle, California 1:250,000. State of California, The Resources Agency, Department of Conservation, Sacramento.

Windmiller, R. and D. Osanna
2009 *Redington: Sacramento Rendering Company Property, Cultural Resources Assessment, Sacramento County, California.* Ric Windmiller, Consulting Archaeologist. Submitted to Law Offices of George Phillips. Copies available from the North Central Information Center, California State University, Sacramento.

Appendix A: Other Figures

Figure 3. Looking east across APE towards Grant Line Road .

Figure 4. Looking west across APE towards Sunrise Boulevard.

Figure 5. Looking north across portion of APE towards Douglas Road.

Figure 6. Looking southeast across APE towards Grant Line and Jackson roads.

Appendix B: Records Search Results

This appendix contains information on the specific locations of archaeological resources. This information is not for publication or release to the general public. It is for planning, management and research purposes only. Information on the locations of prehistoric and historic sites are exempted from the California Freedom of Information Act, as specified in Government Code §6254.10.

Appendix C: Native American and Historical Society Coordination

Table 1. Native American and historical society contacts.

Name/Affiliation	Date(s)	Comments
Native American Heritage Commission	5-30-2017	Sacred lands file search was negative; list of Native American contacts was provided by the commission.
Rhonda Morningstar Pope Chairperson Buena Vista Rancheria of Me-Wuk Indians	4-26-2018 6-28-2018	Letter with attached location map mailed to contact. Emailed second attempt to contact. No response received as of June 28, 2018.
Crystal Martinez, Chairperson Ione Band of Miwok Indians	4-26-2018	Letter with attached location map mailed to contact. Emailed second attempt to contact. No response received as of June 28, 2018.
Randy Yonemura Ione Band of Miwok Indians	4-26-2018	Letter with attached location map mailed to contact. Emailed second attempt to contact. No response received as of June 28, 2018.
Cosme Valdez, Interim CEO Nashville-Eldorado Miwok	4-26-2018	Letter with attached location map mailed to contact. Emailed second attempt to contact. No response received as of June 28, 2018.
Nicholas Fonseca, Chairperson Shingle Springs Band of Miwok Indians	4-26-2018	Letter with attached location map mailed to contact. Emailed second attempt to contact. No response received as of June 28, 2018.
Grayson Coney, Cultural Director, Tsi-Akim Maidu	4-26-2018	Letter with attached location map mailed to contact. Emailed second attempt to contact. No response received as of June 28, 2018.
Don Ryberg, Chairperson, Tsi-Akim Maidu	4-26-2018	Letter with attached location map mailed to contact. Emailed second attempt to contact. No response received as of June 28, 2018.
Gene Whitehouse, Chairperson, United Aubuurn Indian Community of the Auburn Rancheria	4-26-2018 5-10-2018	Letter with attached location map mailed to contact. Mr. Whitehouse responded in a letter copied to Marcos Guerrero. Mr. Whitehouse requested consultation on The Ranch project.
Raymond Hitchkock, Chairperson, Wilton Rancheria	4-26-2018	Letter with attached location map mailed to contact. Emailed second attempt to contact. No response received as of June 28, 2018.
Jim Entrican, Elk Grove Historical Society	5-22-2017 Various dates	Emailed Mr. Entrican, recounting short history of project site and asked for comments on project and historical significance. Mr. Entrican responded by telephone on various dates discussing history, but no comments regarding cultural resources.
Sacramento County Historical Society (website contact)	5-22-2017 6-28-2018	Emailed "contact" option on website and included site map. Emailed second attempt to contact. No response to date (6-28-2018).

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
Fax (916) 373-5471

May 30, 2017

Ric Windmiller
Windmiller Consulting

Sent by Email: windmiller-consulting@sbcglobal.net
Number of Pages: 2

RE: The Ranch Permitting Services, Buffalo Creek, Sacramento County

Dear Mr. Windmiller:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. **Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.**

I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. **By contacting all those on the list, your organization will be better able to respond to claims of failure to consult**. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: Sharaya.souza@nahc.ca.gov.

Sincerely,

Sharaya Souza
Staff Services Analyst

Native American Heritage Commission
Native American Contacts
5/30/2017

Buena Vista Rancheria of Me-Wuk Indians
Rhonda Morningstar Pope, Chairperson
1418 20th Street, Suite 200 Me-Wuk / Miwok
Sacramento , CA 95811
rhonda@buenavistatribe.com
(916) 491-0011 Office

(916) 491-0012 Fax

Ione Band of Miwok Indians
Crystal Martinez, Chairperson
P.O. Box 699 Miwok
Plymouth , CA 95669
Crystal@ionemiwok.org
(209) 245-5800 Office

(209) 245-3112 Fax

Ione Band of Miwok Indians
Randy Yonemura
PO BOX 699 Miwok
Plymouth , CA 95669
randy_yonemura@yahoo.com
(209) 245-5800 Office
(916) 601-4069 Cell

Nashville-Eldorado Miwok
Cosme Valdez, Interim Chief Executive Officer
P.O. Box 580986 Miwok
Elk Grove , CA 95758
valdezcome@comcast.net
(916) 429-8047 Voice/Fax

Shingle Springs Band of Miwok Indians
Nicholas Fonseca, Chairperson
P.O. Box 1340 Miwok
Shingle Springs , CA 95682 Maidu
nfonseca@ssband.org
(530) 387-1400
(530) 387-8067 Fax

Tsi Akim Maidu
Grayson Coney, Cultural Director
P.O. Box 510 Maidu
Browns Valley , CA 95918
tsi-akim-maidu@att.net
530-274-7497

Tsi Akim Maidu
Don Ryberg, Chairperson
P.O. Box 510 Maidu
Browns Valley , CA 95918
tsi-akim-maidu@att.net
Office 530-274-7479
cell 530-559-8595

United Auburn Indian Community of the Auburn Rancheria
Gene Whitehouse, Chairperson
10720 Indian Hill Road Maidu
Auburn , CA 95603 Miwok
(530) 883-2390 Office

(530) 883-2380 Fax

Wilton Rancheria
Raymond Hitchcock, Chairperson
9728 Kent Street Miwok
Elk Grove , CA 95624
rhitchcock@wiltonrancheria-nsn.gov
(916) 683-6000 Office

(916) 683-6015 Fax

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources assessments for the updated contact list for The Ranch Permitting Services, Buffalo Creek, Sacramento County.

Windmiller Consulting, Inc.

ARCHAEOLOGY, PALEONTOLOGY, ARCHITECTURAL HISTORY

2280 GRASS VALLEY HIGHWAY #205
AUBURN, CALIFORNIA 95603

530/878-0979
FAX 530/878-0915

April 26, 2018

Mr. Gene Whitehouse
Chairperson
United Auburn Indian Community of the Auburn Rancheria
10720 Indian Hill Road
Auburn, CA 95603

Re: "The Ranch" residential development, Rancho Cordova, Sacramento County

Dear Mr. Whitehouse:

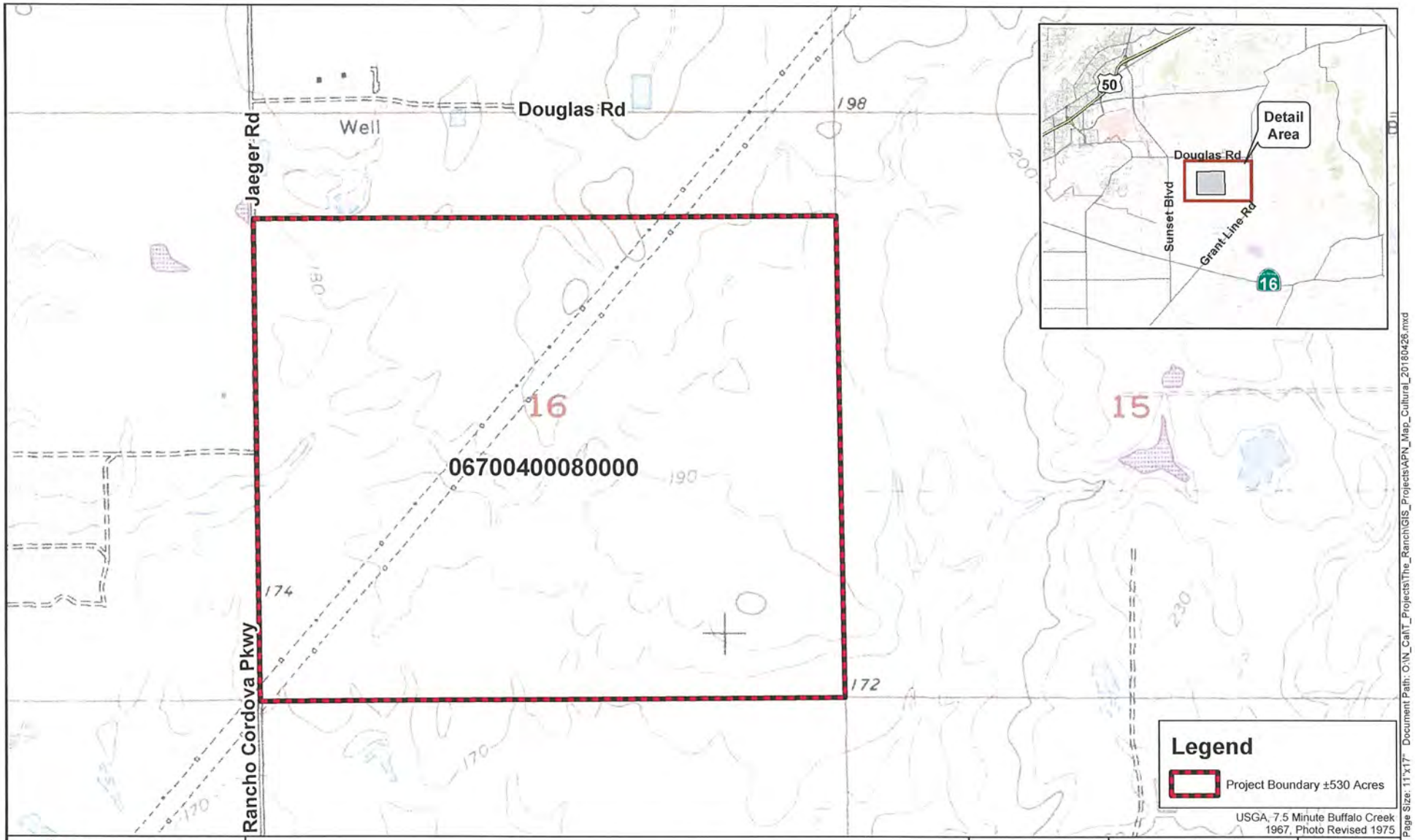
The Ranch is a 530 acre undeveloped property located south of Douglas Road and east of Jaeger Road in the south portion of Rancho Cordova. The project is a planned residential development that will connect with existing modern residential developments on the west and north. As a Clean Water Act, Section 404 permit is anticipated, we (Windmiller Consulting, Inc.), are assisting the Corps of Engineers by updating a previous cultural resources study of the same property (see attached map).

The Native American Heritage Commission completed an updated Sacred Lands File search with negative results. In addition, commission staff provided us with a list of recommended contacts with your name included who may have additional information on the location of sacred and other sites of Native American importance. Any such information will be added to our technical report. If you wish to volunteer information at this time regarding sites that may be of importance to Native Americans, please contact Cathryn Chatterton at the above address. You may also respond by telephone (530-878-0979), fax (530-878-0915) or email: windmiller-consult@sbcglobal.net. We would appreciate a response at your earliest convenience if you wish to comment at this time.

Yours sincerely,

Ric Windmiller
Archaeologist

Enclosure



FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE
© 2018

THE RANCH (JAEGER 530) - APN MAP

Drawn By: MUB
QA/QC: AMP
Date: 01/18/2018

N
0 400 800
Feet
1 : 9,600

FIGURE 1

Document Name: APN_Map_Cultural_20180426.mxd : : 4/26/2018 2:53:26 PM

MIWOK United Auburn Indian Community
MAIDU of the Auburn Rancheria

Gene Whitehouse, Chairman | John L. Williams, Vice Chairman | Calvin Moman, Secretary | Jason Camp, Treasurer | Gabe Cayton, Council Member

May 10, 2018

Ric Windmiller
Windmiller Consulting, Inc.
2280 Grass Valley Highway #205
Auburn CA 95603

Subject: The Ranch Residential Development, Rancho Cordova, Sacramento County

Dear Ric Windmiller,

Thank you for requesting information regarding the above referenced project. The United Auburn Indian Community (UAIC) of the Auburn Rancheria is comprised of Miwok and Southern Maidu (Nisenan) people whose tribal lands are within Placer County and whose service area includes El Dorado, Nevada, Placer, Sacramento, Sutter, and Yuba counties. The UAIC is concerned about development within its aboriginal territory that has potential to impact the lifeways, cultural sites, and landscapes that may be of sacred or ceremonial significance. We appreciate the opportunity to comment on this and other projects. The UAIC would like to consult on this project.

In order to ascertain whether the project could affect cultural resources that may be of importance to the UAIC, we would like to receive copies of any archaeological reports that are completed for the project. We also request copies of environmental documents for the proposed project so that we have the opportunity to comment on appropriate identification, assessment and mitigation related to cultural resources. Finally, we request and recommend that UAIC tribal representatives observe and participate in all cultural resource surveys. To assist in locating and identifying cultural resources, UAIC's Preservation Department offers a mapping, records and literature search services program. This program has been shown to assist project proponents in complying with applicable environmental protection laws and choosing the appropriate mitigation measures or form of environmental documentation during the planning process. If you are interested in the program, please let us know.

The UAIC's Preservation Committee would like to set up a meeting or site visit, and begin consulting on the proposed project. Based on the Preservation Committee's identification of cultural resources in and around your project area, the UAIC recommends that a tribal monitor be present during any ground disturbing activities. Thank you again for taking these matters into consideration, and for involving the UAIC early in the planning process. We look forward to reviewing the documents requested above and consulting on your project. Please contact Marcos Guerrero, Cultural Resources Manager, at (530) 883-2364 or by email at mguerrero@auburnrancheria.com if you have any questions.

Sincerely,

Gene Whitehouse,
Chairman

CC: Marcos Guerrero, CRM

Ric Windmiller <windmiller-consult@sbcglobal.net>
To Jim Entrican 5-22-2017 at 11:34 AM
Hi Jim,
We're continuing to do technical studies for projects in Sacramento and surrounding counties. "The Ranch" is a 530-acre property in Section 16 just south of Douglas Road between Grant Line and Sunrise. We are assisting the U.S. Army Corps of Engineers in meeting its responsibility to identify any important historic (and prehistoric) sites on The Ranch property. We solicit information from Native Americans as well as historical societies on sites that may be impacted as a result of issuing discretionary permits.

Apparently, the property was originally owned by Louis Lepetit, which seems to ring a bell with me in connection with Elk Grove's history. Around 1880, Lepetit sold the land to George Jaeger who held it to his death in 1907. Apparently, Jaeger did not live on the property in Section 16, but had a place in Section 9 and later moved to Sacramento. At some point, Jaeger sold his El Dorado County land (480 acres) to Alex Forni, another familiar name. Jaeger's name shows up on lists for Cosumne, Sloughhouse and Michigan Bar.

Any comments? See attached map for location of "The Ranch."

Ric

Windmiller Consulting, Inc.
2280 Grass Valley Hwy. #205
Auburn, CA 95603
(530) 878-0979 (office)
(530) 878-0915 (fax)
(916) 716-4561 (mobile)
email: windmiller-consult@sbcglobal.net

To: Sacramento County Historical Society (blind addressee)
Email date: 5-22-2017

Text of message (no map attachment)

"The Ranch" is a 530-acre property in Section 16 just south of Douglas Road between Grant Line and Sunrise. We are assisting the U.S. Army Corps of Engineers in meeting its responsibility to identify any important historic (and prehistoric) sites on The Ranch property. We solicit information from Native Americans as well as historical societies on sites that may be impacted as a result of issuing discretionary permits.

Apparently, the property was originally owned by Louis Lepetit, which seems to ring a bell with me in connection with Elk Grove's history. Around 1880, Lepetit sold the land to George Jaeger who held it to his death in 1907. Apparently, Jaeger did not live on the property in Section 16, but had a place in Section 9 and later moved to Sacramento. At some point, Jaeger sold his El Dorado County land (480 acres) to Alex Forni, another familiar name. Jaeger's name shows up on lists for Cosumne, Sloughhouse and Michigan Bar.

The Ranch property appears to have been ranch/farm land. Do you know of any historic sites located on the property? I can provide you with a map showing the property's location. I would appreciate any comments you may have at this time.

Thanks, Ric

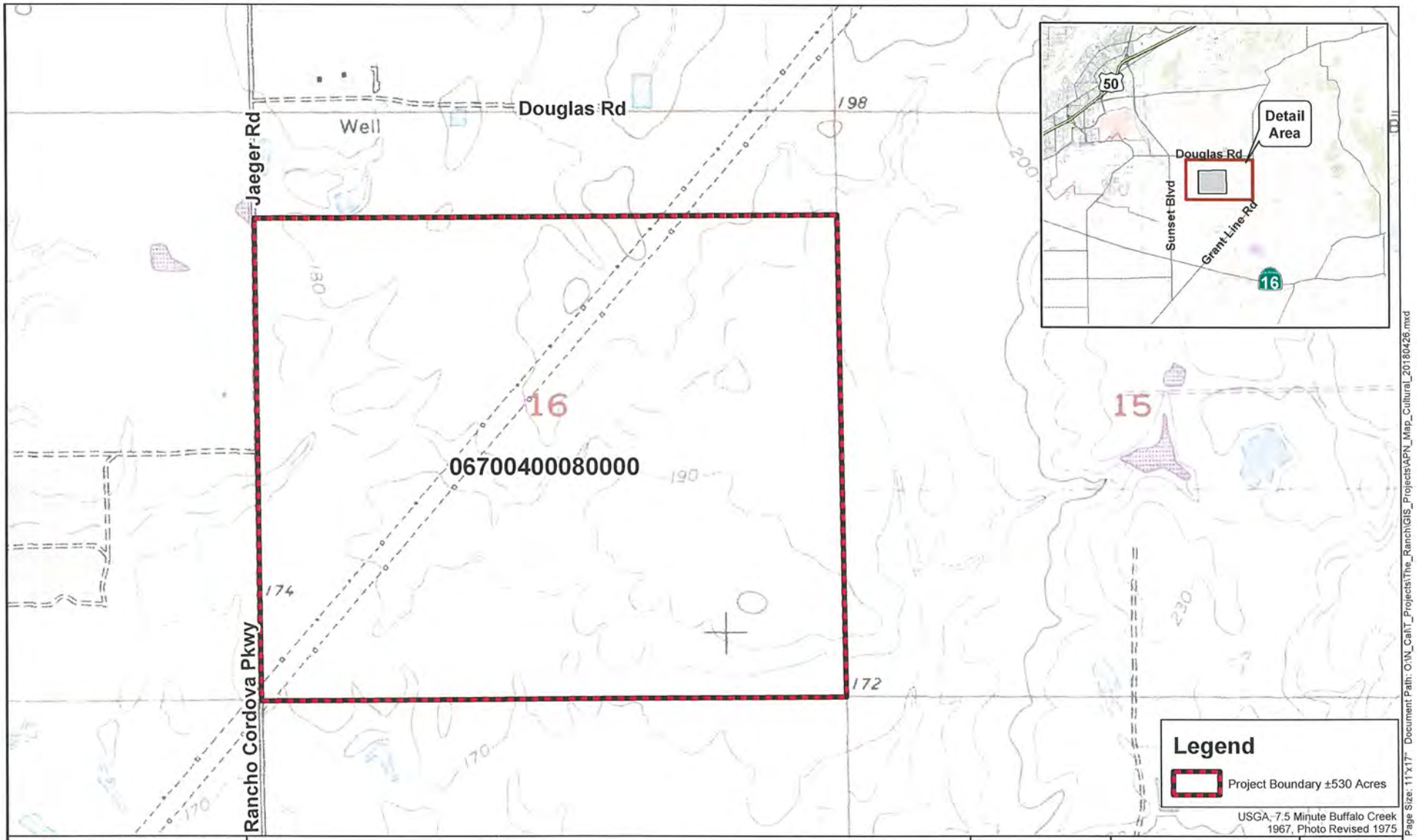
Ric Windmiller <windmiller-consult@sbcglobal.net>
To rhonda@buenavistatribe.com crystal@ionemiwok.org Randy Yonemura Cosme Valdez nfonseca@ssband.org and 2 more... 6-28-2018 at 9:52 AM
All,
The Ranch is a proposed 530-acre mixed use community in the south portion of the City of Rancho Cordova, Sacramento County, California. The Ranch lies on the east side of Jaeger Road, south of Douglas Road, one mile east of Sunrise Boulevard and one mile west of Grant Line Road (see attached map).

The Native American Heritage Commission reported that its Sacred Lands File search was negative. Archaeological field surveys also did not identify any Native American archaeological resources.

We recognize that sacred or ceremonial sites may not be recognized on the ground by non-Native American archaeologists. We attempted to contact you back in April to see if you have any knowledge of such sacred sites located within the project's APE. United Auburn Indian Community responded earlier to our request. If you wish to volunteer any information, please contact us as soon as possible if you wish to respond at this time.

Ric Windmiller

Windmiller Consulting, Inc.
2280 Grass Valley Hwy. #205
Auburn, CA 95603
(530) 878-0979 (office)
(530) 878-0915 (fax)
(916) 716-4561 (mobile)
email: windmiller-consult@sbcglobal.net



FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE
© 2018

THE RANCH (JAEGER 530) - APN MAP

Drawn By: MUB
QA/QC: AMP
Date: 01/18/2018

N
0 400 800
Feet
1 : 9,600

FIGURE 1

Page Size: 11"x17" Document Path: O:\N_Cal\T_Projects\The_Ranch\GIS_Projects\APN_Map_Cultural_20180426.mxd

Document Name: APN_Map_Cultural_20180426.mxd : : 4/26/2018 2:53:26 PM

Appendix D: Confidential Location of Cultural Resources

This appendix may contain information on the specific locations of archaeological resources. This information is not for publication or release to the general public. It is for planning, management and research purposes only. Information on the locations of prehistoric and historic sites are exempted from the California Freedom of Information Act, as specified in Government Code §6254.10.

Appendix E: Confidential Record Forms

This appendix contains information on the specific locations of archaeological resources. This information is not for publication or release to the general public. It is for planning, management and research purposes only. Information on the locations of prehistoric and historic sites are exempted from the California Freedom of Information Act, as specified in Government Code §6254.10.

APPENDIX E

Preliminary Geotechnical Engineering Report

Preliminary Geotechnical Engineering Report

JAEGER RANCH PROPERTY

WKA No. 11103.02

September 26, 2016

Prepared For:

The True Life Companies

12647 Alcosta Boulevard, Suite 470

San Ramon, California 94583

Preliminary Geotechnical Engineering Report

JAEGER RANCH PROPERTY

WKA No. 11103.02

TABLE OF CONTENTS

INTRODUCTION 1
- Scope of Services 1
- Figures and Attachments 2
- Proposed Development 2

FINDINGS 2
- Site Description 2
- Site History 3
- General Site Geology 3
- Soil and Rock Conditions 4
- Groundwater 5

PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS 5
- Seismic Hazards 5
- Seismic Design Parameters (2013 CBC/ASCE 7-10) 6
- Liquefaction Potential 7
- Naturally Occurring Asbestos (NOA) 7
- Soil Expansion Potential 7
- Soil Corrosion Potential 8
- Building Support 9
- Excavation Conditions 9
- Material Suitability for Engineered Fill Construction 10
- Groundwater and Seasonal Moisture 10
- Site Clearing and Grading Considerations 11
- Building Foundations 12
- Preliminary Pavement Design 12
- Future Geotechnical Engineering Study 13

LIMITATIONS 14

REFERENCES 15

TABLE OF CONTENTS (continued)

FIGURES
Vicinity Map ..... Figure 1
Site Plan ..... Figure 2
Logs of Test Pits ..... Figures 3 through 12
Unified Soil Classification System ..... Figure 13

APPENDIX A – Field and Laboratory Test Results
Atterberg Limit Test Results ..... Figures A1
Gradation Test Results ..... Figures A2
Triaxial Compression Test Results ..... Figures A3
Resistance Value Test Results ..... Figures A4
Corrosion Test Results ..... Figures A5 and Figure A6

Wallace Kuhl & Associates

Corporate Office
3050 Industrial Boulevard
West Sacramento, CA 95691
916.372.1434 phone
916.372.2565 fax

Stockton Office
3422 West Hammer Lane, Suite D
Stockton, CA 95219
209.234.7722 phone
209.234.7727 fax

Preliminary Geotechnical Engineering Report
JAEGER RANCH PROPERTY
Rancho Cordova Parkway near Pericles Drive
Rancho Cordova, California
WKA No. 11103.02
September 26, 2016

INTRODUCTION

We have completed a preliminary evaluation of the subsurface soil and groundwater conditions at the Jaeger Ranch property located easterly of the intersection of Rancho Cordova Parkway and Pericles Drive in Rancho Cordova, California (see Figure 1). The purpose of our study has been to gather information on the nature and general engineering properties of the soil and groundwater conditions at the site, and to provide findings and conclusions regarding the feasibility of developing the site with a residential subdivision.

It is emphasized that the findings and conclusions contained in this report are preliminary in nature and are not intended for use in specific design of structural improvements. This study is limited to a general overview of soil and groundwater conditions to assist in planning and budgeting for the project.

Scope of Services

The scope of services for the project included the following:

1. site reconnaissance;
2. review of available reports, historical aerial photographs, topographic maps, groundwater information, geologic maps, and of the United States Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey;
3. subsurface exploration, including the excavation and sampling of 10 test pits across the site to a maximum depth of 10½ feet below existing grades;
4. laboratory testing of select soil samples;
5. engineering analysis; and,
6. preparation of this preliminary geotechnical report.

Supplemental information reviewed during the preparation of this report included the review of our *Draft Phase I Environmental Site Assessment* (WKA No. 11103.01, dated September 22, 2016), prepared for the subject property.

Figures and Attachments

A Vicinity Map is presented as Figure 1 and a Site Plan showing the locations of our test pits is presented as Figure 2. Logs of Test Pits are presented as Figures 3 through 12, and an explanation of the symbols and classification system used on the logs appears on Figure 13. Appendix A contains general information regarding this investigation; and, a description of the field exploration and laboratory testing.

Proposed Development

The subject property is rectangular in shape and encompasses a total area of approximately 529 acres of vacant, undeveloped, agricultural land. The property consists of one parcel identified as Sacramento County Assessor Parcel Number 067-0040-008-0000.

We understand the major components of the property will consist of about 200 acres of residential (including high-density residential), about 6 acres of commercial developments, a recreation center, and about 245 acres of designated nature preserves. Residential structures are currently planned to consist of one- and two-story structures, with the high-density, residential structures potentially being as much as three stories in height. We anticipate these residential structures will be wood-framed with interior concrete slab-on-grade lower floors. We understand that the commercial and recreation center structures are likewise currently planned to be one- or two-story structures. Structural loads are anticipated to be relatively light and consistent with this type of construction. Associated development will include underground utilities, exterior flatwork, retaining walls, new streets and typical residential landscaping.

FINDINGS

Site Description

The project site is comprised of approximately 529 acres, located easterly of the intersection of Pericles Drive and Rancho Cordova Parkway in Rancho Cordova, California (Figure 1). The property is bounded to the north and east by existing residential subdivisions and grazing/ranch land; and to the south and west by grazing land containing a few minor ranch structures and houses. Blodgett Reservoir lies about one-mile south of the site and an unnamed minor reservoir lies about a half mile to the east of the site near some existing housing and ranch structures. Topography across the site generally consists of modest rolling hills. Review of topographic maps of the area indicates the site elevations[1] vary from a high point of just over +200 feet relative to mean seal level (msl) to a low point of just under +180 feet msl (North American Vertical Datum of 1988).

[1] All elevations reported are provided with respect to the North American Vertical Datum of 1988 (NAVD88). Reported elevations in this report are approximate, and are generally based on available topographic data from the United States Geological Society.

At the time of our field exploration activities in August and September of 2016, the major portion of the property consists of vacant, grazing land, with vernal ponds and streams draining in from the northeast corner towards the southwest corner of the site. The property is covered with a moderate growth of volunteer weeds and grass up to 3 feet in height. High-voltrage transmission power lines cross through the site extending from the substation located immediately north of the northeast corner of the site and extending to the south west through the site. A fenced yard containing a transformer and monitoring well (EX-22) were observed about 1100 feet south of where Big Meadow Way intersects the northern boundary of the site. One other well (EX-27) is located near the northeast corner of the site along the northern boundary.

Minor amounts of domestic refuse were observed along then northern and western site boundaries. In addition, three livestock watering troughs were observed along the northern site boundary, and a metal water storage tank was observed north of the existing groundwater extraction well. Additional details regarding these wells and associated structures can be found in our *Phase I Environmental Site Assessment* (WKA No. 11103.01, dated September 22, 2016).

Site History

Review of available historic maps and aerial photographs indicates the site has historically remained essentially vacant since the early 1800's. Dry farming and livestock grazing appear to have been the historic land uses. In addition, there has been some minor development of the site including installation of monitoring wells and groundwater extraction wells (associated with the former McDonald Douglas/Rancho Cordova Test Site located north of the site), high-voltage transmission power lines, and a small transformer associated with the power lines.

General Site Geology

The site is located within the northeastern portion of the Great Valley geomorphic province of California. The Great Valley of California is generally considered to be an elongated sedimentary trough, approximately 450 miles long and 50 miles wide, which has been filled by a thick sequence of Jurassic to Holocene continental and marine sediments. The sediments have been folded into an asymmetric syncline, the axis of which lies immediately east of the interior of the Coast Ranges. The geology in the Great Valley is characterized by thick sequences of alluvial and flood plain deposits consisting of sedimentary material derived from the Coast Ranges to the west and the Sierra Nevada mountain range to the east.

The local geology, as characterized by the Geologic Map of the Sacramento Quadrangle, California (1981), consists primarily of Laguna Formation deposits (Tl) which are consolidated Tertiary age alluvial deposits. Surface soil deposits were mapped by the NRCS as consisting of the following units:

- Fiddyment Fine Sandy Loam, 1 to 8 percent slopes (0.4% of area of interest - AOI[2]);
- Hicksville gravelly loam, 0 o 2 percent slopes, occasionally flooded (2.4% of AOI);
- Red Bluff-Redding complex, 0 to 5 percent slopes (16.2% of AOI);
- Redding loam, 2 to 8 percent slopes (10.7% of AOI); and,
- Redding gravelly loam, 0 to 8 percent slopes (70.4% of AOI).

The NRCS also maps the site use with the following characteristics:

- Somewhat limited for small commercial buildings, and dwellings without basements, due in part to the presence of expansive soils.
- Somewhat limited for excavations, due in part to the stability of excavation walls.
- Somewhat limited for local roads and streets, due in part to presence of expansive soils.
- Low to Moderate corrosion potential to concrete.

The soils encountered in the test pits excavated on site were generally consistent with these mapped soil units based on laboratory testing and field and laboratory classification of soils.

Soil and Rock Conditions

The site is generally composed of loose to medium dense, alluvial deposits consisting of silty and clayey sand, lean clay, gravels, and clayey gravel. Surface soils in the upper two to three feet generally consist of silty or clayey sand or sandy, silty clay with some gravel and occasional cobbles. These soils generally have a low plasticity index (PI) of 6 or less and dry unit weights ranging from 109 to 119 pounds per cubic foot (pcf), with some potential for corrosion (pH = 5.22). Soils beneath the silty sand to a depth of approximately 4 to 8 feet consist of clay and silty or clayey sand with some gravel and cobbles. These soils generally have a higher plasticity index (PI = 16 to 20) and dry unit weights ranging from 89 to 112 pcf. Beneath these soils are sand, silty sand, gravel, and clayey gravel with some cobbles extending to the maximum depth explored of 10½ feet below existing grades. Cobbles of up to 6 inches were observed in many locations increasing in concentration with depth.

Detailed soil descriptions and soil lithology at a specific test pit location are provided in logs of the test pits presented in Figures 3 through 12. At the conclusion of the field explorations, the test pits were backfilled with excavation spoils compacted with a sheepsfoot wheel attachment.

[2] Coverages of area of interest are approximate.

Groundwater

The site is located within the California department of Water Resources defined Sacramento Valley Groundwater Basin/South American Sub-Basin of the Sacramento River Hydrologic Region.

Groundwater was not encountered in the test pits excavated at the site in August of 2016. Based on groundwater depth observations taken from 2008 to 2012 in nearby wells (e.g. Wells EX-20, EX-21, EX-22, and EX-27 from Central Valley Regional Water Quality Control Board Case Number SL205493018) permanent groundwater is anticipated to vary between 150 and 240 feet below existing surface grades.

However, perched seasonal groundwater is anticipated to occur at this site. Surface water features observed during site exploration activities included vernal ponds and ephemeral streams/washes. Based on these surface features, and the underlying geology, we anticipate the perched groundwater conditions are likely to occur at the site with potential for significant surface water flows. Perched groundwater conditions should be expected after heavy rainfall or during the wetter seasons of the year.

PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

Seismic Hazards

The Alquist-Priolo (AP) Earthquake Fault Zoning Act regulates activities near active faults within what is known as an earthquake fault zone. Active faults are defined as a fault that has ruptured in the last 11,000 years. Review of the AP Maps of California, prepared by the California Geological Survey (CGS), shows that there are no regulated earthquake fault zones near the site.

We note, however, that low to moderate amounts of earthquake induced ground shaking can occur at the site. The average peak ground acceleration (PGA_M) at the site for the maximum considered earthquake (MCE) event (per ASCE 7-10) is 0.244 g.

Faults likely contributing significantly to this hazard include the Hunting Creek – Berryessa Fault and the Great Valley fault system among other sources. The closest fault zone to the site is the Foothills Fault System, located about 20 miles north east of the site. The Foothills Fault System has been historically active, with magnitude 5 to 6 events occurring in 1975 near Oroville, CA and microseismicity recorded in the vicinity of the Penryn and Rocklin plutons (Cramer et al., 1978).

No known active faults cross through the site and fault displacement hazard is considered to be negligible at the site.

Seismic Design Parameters (2013 CBC/ASCE 7-10)

Code based seismic design parameters were developed for the site consistent with section 1613 of the 2013 edition of the California Building Code (2013 CBC), which references the American Society of Civil Engineers Standard 7-10 (ASCE 7-10). For the purposes of preliminary evaluations, we assumed a site class of D for the site.

Seismic design parameters were obtained for Site Class D using the online USGS U.S. Seismic Design Maps application. Using this tool, values were obtained for a point near the center of the site located at latitude 38.5423˚ and longitude -121.2091˚, and are provided in Table 1. These seismic design parameters may be used for preliminary evaluations. Applicability to the site should be confirmed prior to use in final design.

TABLE 1
2013 CBC/ASCE 7-10 SEISMIC DESIGN PARAMETERS

Latitude: 38.5423° N Longitude: 121.2091° W	ASCE 7-10 Table/Figure	2013 CBC Table/Figure	Factor/Coefficient	Value
Mapped MCE_R S_a, 0.2 sec	Figure 22-1	Figure 1613.3.1(1)	S_S	0.515 g
Mapped MCE_R S_a, 1.0 sec	Figure 22-2	Figure 1613.3.1(2)	S_1	0.252 g
Soil Class	Table 20.3-1	Section 1613.3.2	Site Class	D
Site Coefficient	Table 11.4-1	Table 1613.3.3(1)	F_a	1.388
Site Coefficient	Table 11.4-2	Table 1613.3.3(2)	F_v	1.896
Transition Period	Figure 22-12	-	T_L	12 sec
Adjusted MCE_R S_a Parameters	Equation 11.4-1	Equation 16-37	S_{MS}	0.715 g
	Equation 11.4-2	Equation 16-38	S_{M1}	0.478 g
Design Level S_a Parameters	Equation 11.4-3	Equation 16-39	S_{DS}	0.477 g
	Equation 11.4-4	Equation 16-40	S_{D1}	0.319 g
Seismic Design Category	Table 11.6-1 and Table 11.6-2	Table 1613.3.5(1) & Table 1613.3.5(2)	-	D

NOTES:
MCE_R = Risk-Targeted Maximum Considered Earthquake
S_a = Five percent damped spectral response acceleration (for a given period)
g = gravity
sec = seconds

Liquefaction Potential

Earthquake induced soil hazards to buildings associated with seismicity include liquefaction and seismically induced bearing capacity failure, lateral spreading, and total/differential settlement of soils below foundations. These effects, when significant, can contribute to structural damage or collapse of structures, and damage to utilities and other engineered structures. Typically, the risk of these types of hazards occurring is considered low in the Central Valley due to the low potential for nearby large magnitude seismic events.

Groundwater at the site is greater than 50 feet below grades, and saturated soils were not encountered during site exploration activities. Soils will likely remain unsaturated during the majority of the year, and are thus not considered susceptible to liquefaction. The silty sands, and sands are susceptible to seismic compression.

Based on this, it is our opinion that liquefaction potential at the site is considered very low. However, the low to moderate ground shaking expected at the site may be capable of causing some limited settlement in the sands. The expected total and differential settlements of the soils should be evaluated in more detail in a final geotechnical engineering report.

Naturally Occurring Asbestos (NOA)

Review of *Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California* (Higgins and Clinkenbeard, 2006) indicates the site is not likely to be underlain by ultramafic rocks likely to contain naturally occurring asbestos. In addition, we did not observe or encounter ultramafic rocks likely to contain naturally occurring asbestos. Therefore, naturally occurring asbestos is not considered likely to exist at the site.

Soil Expansion Potential

According to section 1803.5.3 of the *California Building Code*, soils with a PI greater than 15, more than 10 percent fines, and having more than 10 percent of particles less than 5 micrometers in size; and/or soils having an expansion index (EI) of more than 20 shall be considered expansive.

Laboratory test results performed on samples collected in the upper 2 to 3 feet indicate that these soils typically have a PI of less than 15 and can be considered to have a low expansion potential. The soils beneath about two feet typically have a PI of greater than 15, and should be considered to have a low to moderate expansion potential. Additional testing of the clay and silty/clay should be conducted to confirm the expansive potential of this soil layer prior to final design. These soils were typically encountered in the northwestern area of the property, with the presence of these soils less prominent to the south and east.

Based on the presence of the low to moderately expansive clay at the site, recommendations to mitigate the effects of the expansive clay would be provided for the design-level geotechnical report. Mitigation measures will likely be required if final site grades will expose the clayey subgrade or of the clayey soils are within the upper 12 to 18 inches of the final building pads, exterior flatwork, or pavement subgrades. Typical mitigation includes deepened conventional foundations and/or use of post-tensioned slabs.

Soil Corrosion Potential

One sample of near-surface soil from TP5 was submitted to Sunland Analytical Lab for testing to determine pH, chloride and sulfate concentrations, and minimum resistivity to help evaluate the soils corrosion potential. The results of the corrosivity testing are summarized in Table 2 and copies of the analytical test reports are presented in Figures A6 through A7.

TABLE 2
SOIL CORROSIVITY TESTING

Analyte	Test Method	TP3 (0'-3')
pH	CA DOT 643 Modified*	5.22
Minimum Resistivity	CA DOT 643 Modified*	7,500 Ω-cm
Chloride	CA DOT 417	6.5 ppm
Sulfate	CA DOT 422	1.9 ppm
	ASTM D516	2.04 ppm

NOTES: * = Small cell method, Ω-cm = Ohm-centimeters, ppm = Parts per million

The California Department of Transportation Corrosion and Structural Concrete Field Investigation Branch, 2012 Corrosion Guidelines, considers a site to be corrosive to foundation elements if one or more of the following conditions exists for the representative soil and/or water samples taken: has a chloride concentration greater than or equal to 500 ppm, sulfate concentration greater than or equal to 2000 ppm, or a pH of 5.5 or less (Caltrans, 2012).

Based on this criterion, soils tested with a lower pH and may be considered corrosive to steel reinforcement properly embedded within Portland cement concrete (PCC).

Table 19.3.1.1 – Exposure Categories and Classes, of American Concrete Institute (ACI) 318-14, Section 19.3 – Concrete Design and Durability Requirements, as referenced in Section 1904.1 of the 2013 CBC, indicates the severity of sulfate exposure for the sample tested is Exposure Class S0 (water-soluble sulfate concentration in contact with concrete is low and injurious sulfate attack is not a concern). However, additional requirements for concrete strength and design may be required for soils with low pH. Consideration to the potential corrosive nature of soil should be considered in development of the project. Concrete design will ultimately need to be developed by a structural engineer, who should evaluate the requirements of ACI 318-14 and determine their applicability to the site.

Wallace-Kuhl & Associates are not corrosion engineers. Therefore, if it is desired to further define the soil corrosion potential at the site a corrosion engineer should be consulted.

Building Support

An important aspect of site development will be the adequate clearing of surface and subsurface items associated with the existing vegetation and depressions revealed during site grading. Proper abandonment of irrigation and domestic wells, if any, must be performed in accordance with the Sacramento County Environmental Management Department requirements. Wells not designated for abandonment should be appropriately protected against damage.

It is our opinion that undisturbed native soils and/or recompacted native soils will be capable of supporting the proposed structures and pavements provided the further preliminary recommendations regarding preparation and soil compaction are followed. Our work also indicates that engineered fill, properly placed and compacted in accordance with the recommendations of this report, will be capable of supporting the proposed improvements.

Buildings where expansive clayey soils are encountered within the upper 12 to 18 inches of the foundations or final building pad subgrade will require specific recommendations to mitigate the effects of the expansive soils. Mitigation measures may include deepening foundations, post-tension (PT) construction, and/or removal of the expansive clays and replacement with non-expansive engineered fill.

Excavation Conditions

Soil test pits were excavated to depths ranging from 7 to 10½ feet with a Case 580 Super M backhoe. Excavation refusal was generally reached at depths of 7 feet or more. Based on this information, and our local experience, we anticipate the soils at the site will be readily excavatable to depths of approximately five feet across most of the site with conventional earthmoving and trenching equipment. Gravely soils and cobbles will be encountered in most locations at the site. Excavations deeper than five feet are likely to encounter greater concentrations of gravel and cobbles and may require additional effort or larger equipment to excavate.

Near surface soils generally consist of silty sands and generally classify as OSHA Type B/C soils requiring excavation slopes of not more than 1H:1V to 1½H:1V (horizontal to vertical) for shallow excavations. Sloped excavations, bracing, and/or shoring may be required to control sloughing and caving of excavations within the near-surface soils at the site. Excavations should be sloped or braced in accordance with current California Occupational Safety and Health Administration (Cal/OSHA) regulations.

The contractor must provide a safely sloped excavation or an adequately constructed and braced shoring system in accordance with federal, state, and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground. If material is stored or heavy equipment is operated near an excavation, stronger shoring must be used to resist the extra pressure due to the superimposed loads.

Material Suitability for Engineered Fill Construction

In our opinion, the on-site surface and near-surface soils are considered suitable for use as engineered fill materials provided they are appropriately processed such that they are free of debris, do not contain significant concentrations of clay or gravel, are at or near optimum moisture content (e.g. moisture at which adequate compaction can be achieved), and contain organics less than two percent by weight.

Surface soils may require stripping of organics prior to work at the site. Strippings and other organically laden soil stripped from the surface of the site may not be used in fill construction or anywhere within five feet of a structure, pavement, or exterior flatwork.

We anticipate that soils in the upper 2 to 3 feet will require only minimal on site processing after stripping has been completed to meet the requirements for engineered fill. Deeper soils may require more extensive processing including mixing with other soil and breaking down of larger particles to be considered suitable. Additionally, expansive soils if present in the upper 12 to 18 inches beneath the bottom of the foundations may require alternative foundation systems (e.g. post-tensioned slab systems).

Groundwater and Seasonal Moisture

Based on the soil and groundwater conditions encountered at the site, it is our opinion that the static groundwater table should not adversely affect design, construction, or performance of the proposed residential improvements. Although the static groundwater table should not impact future development, perched water may be encountered above and within the soils at the site. The potential for encountering perched water is greater during and shortly after the rainy season; however, perched water could be encountered throughout the year in some areas. Seepage in utility excavations (if encountered) can likely be removed by sump pumps without major dewatering efforts.

We note that an important aspect of this project will be to develop an overall water management plan. The potential for perched groundwater, seeps, and surface ponding at the site is high, especially in the wetter seasons of the year. Management of groundwater using subdrains or similar methods should be incorporated into the overall project plan. Subdrains, if used, should be designed to adequately carry water collected in the system, and should have a designated drainage outlet at an appropriate location.

The near-surface soils will be in a near-saturated condition during and for a considerable period following the rainy season. Grading operations attempted following the onset of winter rains and prior to prolonged drying periods will be hampered by high soil moisture contents. Such soils, intended for use as engineered fill, will require considerable aeration to reach a moisture content that will permit the recommended compaction to be achieved.

Site Clearing and Grading Considerations

Future geotechnical engineering investigations should be performed to develop site-specific clearing and grading recommendations.

Site clearing would include removal of abandoned water wells, and deleterious debris. Excavations and depressions resulting from the removal of these items must be backfilled with engineered fill.

Removal of surface organics would depend on the condition and quantity of the organics at the time grading is to begin. Discing of the organics may be suitable for construction, if the organic concentrations are not too heavy at the time of grading. Stripping of the organics likely would be required if organic concentrations are very thick, with strippings being completely removed from the site or used only in landscape areas.

Loose, soft, organically contaminated, or saturated soils encountered during site preparation, are not considered suitable for support of future improvements. Removal of these materials to expose firm, undisturbed native soils, and backfilling with engineered fill will be required.

Drainage swales to be backfilled should be drained of water, and cleaned of organics and saturated or unstable soils to expose firm, native soil. The excavated soils from the features are anticipated to be at elevated moisture contents and may contain high concentrations of organics; therefore, the materials may need to be disposed of off-site and not reused as fill materials within structural areas. Subsurface drainage should be provided in areas with drainage swales.

Areas designated to receive fill and at-grade areas are typically ripped to a depth of about 12 inches, thoroughly moisture conditioned, and uniformly compacted. Standard fill construction and compaction procedures, including uniform moisture conditioning, placement of fill in six-inch lifts and compaction to at least 90 percent of the maximum dry density, would be suitable for support of the planned structures. Engineered fills placed on sloping ground would need to be properly keyed and benched into existing hillsides.

Typically, only native soils (in lieu of select sand backfill) are recommended for use as backfill in the upper portion of utility trenches located within building footprints and extend at least five feet beyond the perimeter foundation to minimize water transmission beneath the homes. Utility

trench backfill is generally thoroughly moisture conditioned to at least the optimum moisture content and mechanically compacted.

Due to the potential expansion characteristics of the native clay soils, the upper 12 to 18 inches of the final subgrade below the building footprints and at-grade structures, including exterior flatwork, should consist of imported non-expansive engineered fill or on site soils that have been determined to be non-expansive. Consideration may also be given to chemically amending the native clayey soils.

Building Foundations

In general, we anticipate the proposed residential structures at the site could be supported upon conventional continuous and/or isolated spread foundations. Minimum foundation widths of 12 inches for continuous foundation and 18 inches wide for isolated spread foundations would be applicable.

However, areas where clayey soils are exposed or are within 12 to 18 inches of the final building pad may require alternative foundations or designs, such as post-tensioned slabs. Post-tension slabs are typically 10-inches thick with deepened edges.

We anticipate a bearing capacity on the order of 2000 pounds per square foot (psf) for dead plus live load would be applicable for residential foundations bearing in re-compacted native materials, engineered fill, or a combination of these materials.

Interior concrete slab-on-grade floors used in conjunction with conventional foundations would be suitable for this site, provided slabs are properly designed and constructed with regard to reinforcement and moisture vapor penetration resistance. Typical slab reinforcement used in conjunction with deepened conventional foundations would consist of at least No. 3 rebar at 18-inch center-to-center spacing, and include appropriate slab ties typically spaced at 54-inch centers. Proper reinforcement of slab-on-grade and moisture conditioning (i.e. pre-saturation) of upper 12 inches of subgrade soils prior to concrete placement will be particularly crucial due to the on-site expansive soils.

Final foundation design will depend on the final site grades relative to the expansive clay soils and should be determined in a design level report once additional information regarding the proposed development becomes available.

Preliminary Pavement Design

The surface and near-surface soils at the test pit locations exhibited moderate to good subgrade qualities for support of asphalt concrete pavements. Laboratory testing of two samples of near-surface soils indicate that these materials possess Resistance ("R") values of

30 and 51; as presented on Figures A4 and A5. We have conservatively used an R-value of 25 for preliminary design purposes for the calculation of alternative pavement sections.

The following preliminary pavement sections provided in Table have been calculated based on the R-value test results and a design life of 20 years. Traffic indices (TI) were selected consistent with the minimum requirements of Sacramento County.

TABLE 3
PRELIMINARY PAVEMENT DESIGN ALTERNATIVES

Traffic Index (TI)	Street Class Right-of-Way Width	R-value = 25	
		Type B Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
5.0	Residential Streets <54' Right-of-Way	2½	8
		3*	7
6.0	Residential Collector Street ≥54' Right-of-Way (no bus traffic)	2½	11
		3½*	9
6.5	Two lane commercial street with all bus routes	3	12
		4*	10
8.0	Arterial (84' Right-of-Way)	4	14
		5*	12

Note: *Asphalt thickness includes Caltrans Factor of Safety.

We emphasize that the performance of a pavement is critically dependent upon uniform compaction of the subgrade soils, as well as all engineered fill and utility trench backfill within the limits of the pavements.

Efficient drainage of all surface water to avoid infiltration and saturation of the supporting aggregate base and subgrade soils is important to the performance of pavements. Where drop inlets or other surface drainage features are to be constructed, weep holes could be provided at the base/subgrade level to allow free drainage of collected water, and reduce the potential of saturating the subgrade soils.

Future Geotechnical Engineering Study

Prior to final design and the start of construction, a design-level geotechnical engineering report must be prepared for this property that includes additional subsurface explorations and soil sampling, laboratory testing, and engineering evaluation. The final report should present geotechnical engineering conclusions and specific recommendations for site preparation, foundation design, floor support, retaining wall design, site drainage, and pavement design. When the project reaches this stage of development, we would be pleased to provide a proposal for these services.

LIMITATIONS

The findings and conclusions contained in this preliminary report are intended as a general overview of available geologic information combined with limited fieldwork and office analysis. We have used engineering judgment based upon the information provided and the data generated from the site reconnaissance, field exploration, and review of files for adjacent projects. We emphasize that this report is general in nature and intended for use in planning and budgeting for the project, and is applicable only to the investigated site.

This report has been prepared in substantial compliance with generally accepted geotechnical engineering practices that exist in the area of the project at the time the report was prepared. No warranty, either express or implied, is provided.

Wallace-Kuhl & Associates

REGISTERED PROFESSIONAL ENGINEER
MICHAEL M. WATARI
NO. 2675
Exp. 12-31-17
GEOTECHNICAL
STATE OF CALIFORNIA

9/26/16

Alexander D. Wright
Staff Engineer

Michael M. Watari
Senior Engineer

ADW:MMW:/adw

REFERENCES

American Society of Civil Engineers (ASCE), 2010, Minimum Design Loads for Buildings and Other Structures.

California Building Standards Commission, 2013, California Code of Regulations, Title 24, Chapter 16A, "California Building Code," California amendments to the 2012 edition of the International Building Code.

California Division of Mines and Geology, 1981, *Geologic Map of the Sacramento Quadrangle, California, 1:250,000*. Compiled by: Wagner, D. L., Jennings, C. W., Bedrossain, T. L., and Bortugno, E.J.

California Department of Transportation (Caltrans), 2012, Corrosion Guidelines, v2.0: Sacramento, CA, November, 44 p.

California Department of Transportation (CALTRANS), 2016, Highway Design Manual, 6th edition, July.

Cramer, C.H., Toppozada, T.R., and Parke, D.L., 1978, Seismicity of the Foothills Fault System between Fulsom and Oroville, California. California. Bulletin of the Seismological Society of America, v. 68, no. 1, pp 245-249.

Higgens, C.T., and Clinkenbeard, J.P, 2006, *Relative Likelihood for the Presence of Naturally Occuring Asbestos in Eastern Sacramento County, California.* California Geological Survey Special Report 192.

Sacramento County, 2009, Improvement Standards (New Development). November, 127p.

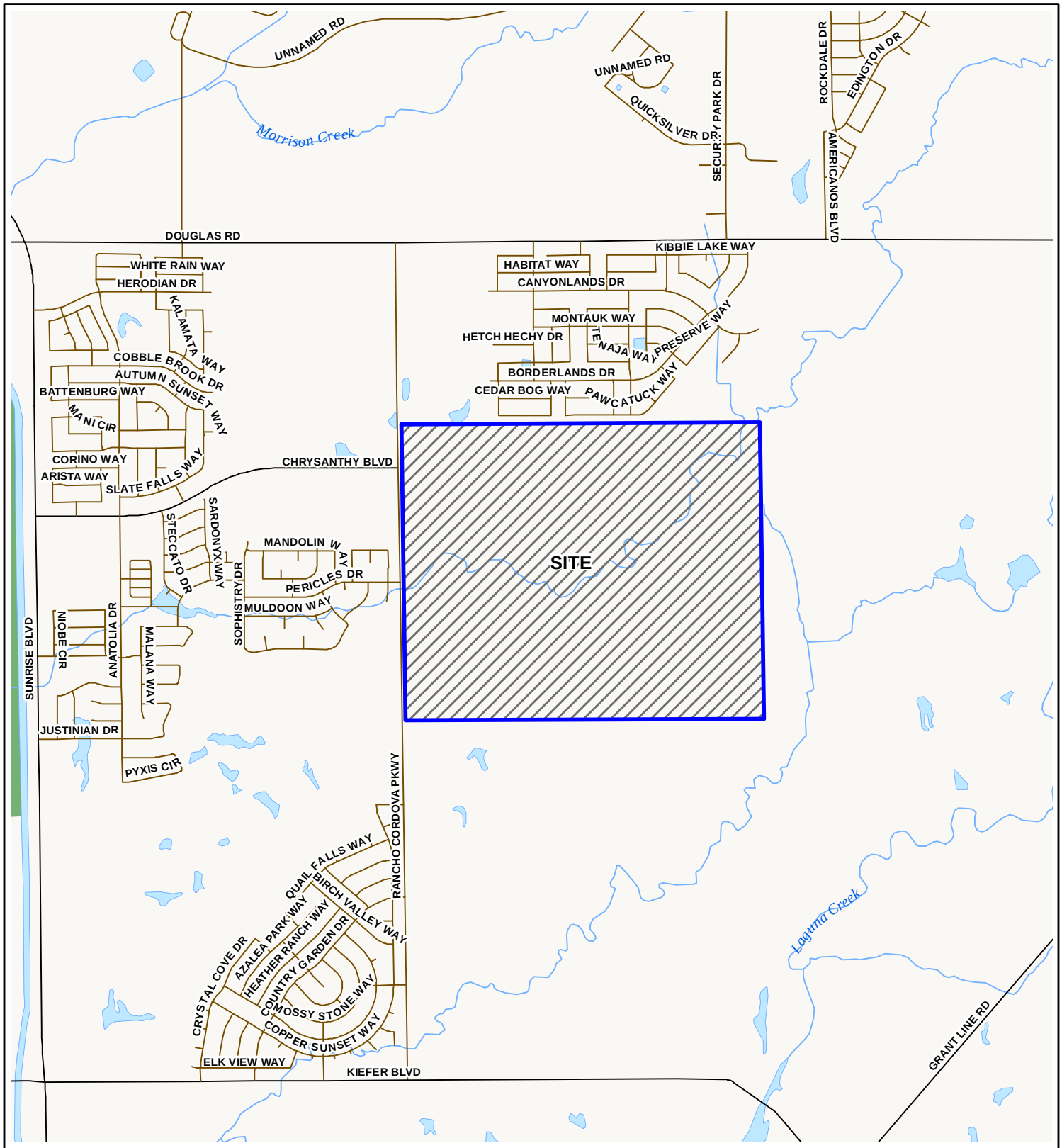
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. *Web Soil Survey*. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed September 13, 2016.

State Water Resources Control Board, California Water Boards. GeoTracker GAMA. *Central Valley Regional Water Quality Control Board Case Number SL205493018*. Available online at http://geotracker.waterboards.ca.gov/. Accessed September 13, 2016.

Wallace-Kuhl & Associates, 2016, *DRAFT Phase I Environmental Site Assessment Jaeger Ranch Property*. Prepared for the True Life Companies of San Ramon California. September, 65p.

United States Geological Society. *U.S. Seismic Design Maps*. Available online at http://earthquake.usgs.gov/designmaps/us/application.php. Accessed September 13, 2016.

FIGURES



Street data courtesy of Sacramento County.
Hydrography courtesy of the U.S. Geological Survey
acquired from the GIS Data Depot, December, 2007.
Projection: NAD 83, California State Plane, Zone II

0 1,000 2,000
Feet

WallaceKuhl & ASSOCIATES

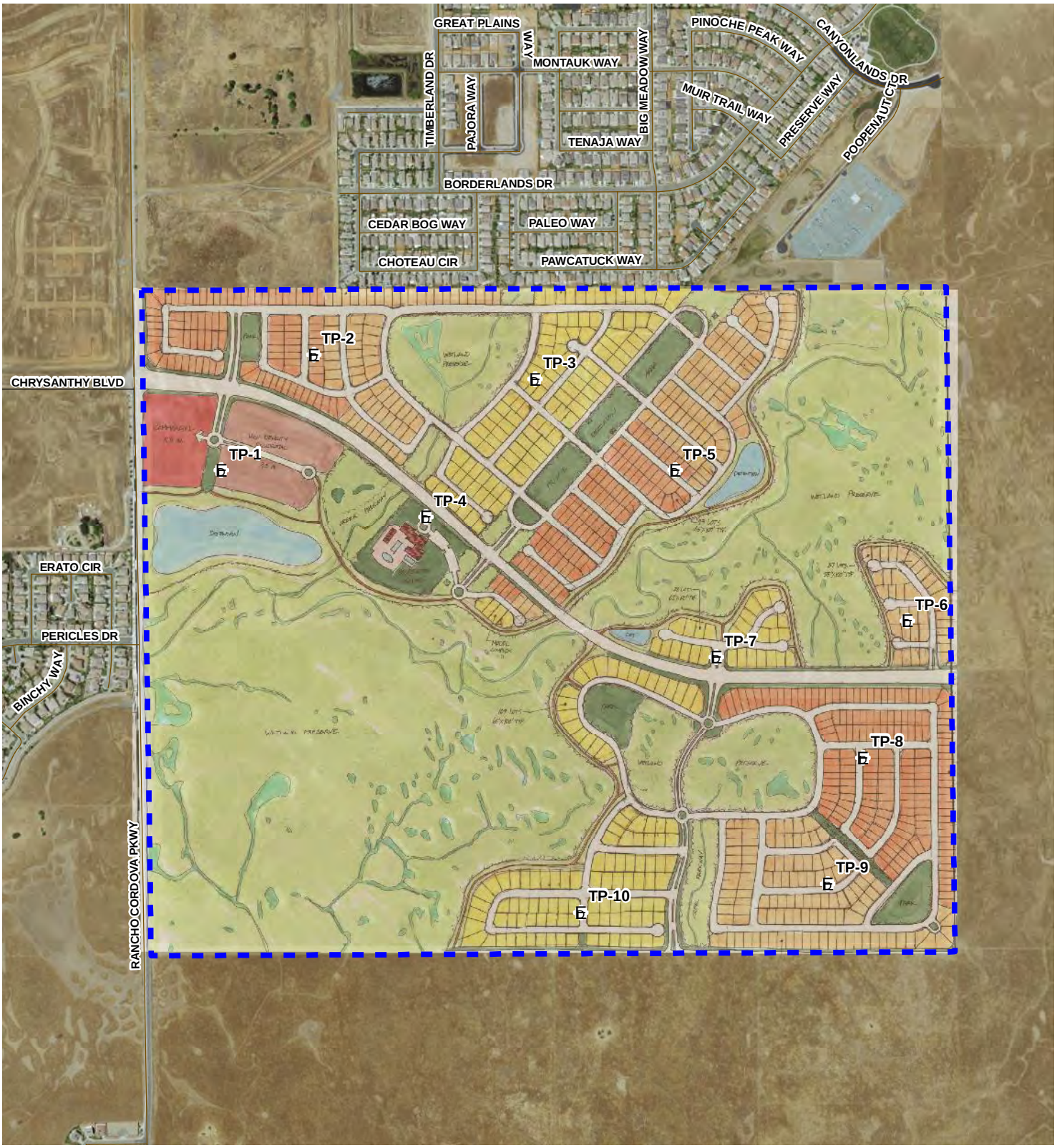
VICINITY MAP

JAEGER RANCH PROPERTY

Sacramento, California

FIGURE	1
DRAWN BY	RWO
CHECKED BY	ADW
PROJECT MGR	MMW
DATE	09/16

WKA NO. 11103.02



Aerial provided by ESRI.
Site Plan adapted from drawing provided by Wood Rodgers, dated May 11, 2016.
Projection: NAD 83, California State Plane, Zone II

Legend

Site Boundary

Approximate Test Pit Location

0 450 900
Feet

WallaceKuhl & ASSOCIATES

SITE PLAN

JAEGER RANCH PROPERTY

Sacramento, California

FIGURE	2
DRAWN BY	RWO
CHECKED BY	ADW
PROJECT MGR	MMW
DATE	09/16

WKA NO. 11103.02

Project: Jaeger Ranch Property
Project Location: Rancho Cordova, California
WKA Number: 11103.02

LOG OF SOIL BORING TP1

Sheet 1 of 1

Date(s) Drilled	**8/16/16**	Logged By	**ADW**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tillford**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**580 Case Super M**	Diameter(s) of Hole, inches	**24" Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet		Sampling Method(s)	**Bulk, Hand Sampler**	Drill Hole Backfill	**Soil cuttings**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, silty fine to coarse SAND [SM]		TP1-1				RV
			Light brown, moist, lean clayey / silty fine SAND [SC/SM]		TP1-2I		11.6	89	
			Brown, moist, poorly graded fine to coarse GRAVEL with fine to coase sand and cobbles [GP]						
	5		Brown, moist, lean clayey fine to coarse rounded GRAVEL with fine to coarse sand [GC]						
			Brown, moist, silty fine to coarse GRAVEL with fine to coarse sand and cobbles [GM]						
	10		Bottom of test pit at 10 feet. Groundwater not encountered.						

BORING LOG 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/26/16 10:43 AM

Wallace Kuhl & ASSOCIATES

FIGURE 3

Project: Jaeger Ranch Property **Project Location: Rancho Cordova, California** **WKA Number: 11103.02**	**LOG OF SOIL BORING TP2** Sheet 1 of 1

Date(s) Drilled	**8/16/16**	Logged By	**ADW**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tillford**	Total Depth of Drill Hole	**7.5 feet**
Drill Rig Type	**580 Case Super M**	Diameter(s) of Hole, inches	**24" Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet		Sampling Method(s)	**Bulk, Hand Sampler**	Drill Hole Backfill	**Soil cuttings**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, silty fine to coarse SAND [SM] with trace fine to medium gravel		TP2-1				
			Red, moist, fine sandy lean CLAY [CL] with trace fine to medium gravel	■	TP2-2I		16.0	95	GD, AT
	5		Red, moist, lean clayey GRAVEL with fine sand [GC] with trace cobbles	■	TP2-3I				
			Practical refusal encountered at 7.5 feet. Groundwater not encountered.						

BORING LOG 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/26/16 10:43 AM

Wallace Kuhl & ASSOCIATES

FIGURE 4

Project: Jaeger Ranch Property
Project Location: Rancho Cordova, California
WKA Number: 11103.02

LOG OF SOIL BORING TP3

Sheet 1 of 1

Date(s) Drilled	**8/16/16**	Logged By	**ADW**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tillford**	Total Depth of Drill Hole	**9.5 feet**
Drill Rig Type	**580 Case Super M**	Diameter(s) of Hole, inches	**24" Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet		Sampling Method(s)	**Bulk, Hand Sampler**	Drill Hole Backfill	**Soil cuttings**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, dry, variably cemented, fine sandy silty lean CLAY [CL-ML] with trace fine gravel		TP3-1				GD
					TP3-2I		4.8	109	AT
			Brown, dry to moist, variably cemented, fine to coarse SAND with silt [SP]						
	5		Reddish brown, moist, poorly graded fine to coarse GRAVEL with fine to coarse sand [GP]						
			Reddish bronw, moist, poorly graded fine to coarse GRAVEL with fine to coarse sand and cobbles [GP]						
			Bottom of test pit at 9.5 feet. Groundwater not encountered.						

BORING LOG 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/26/16 10:43 AM

Wallace Kuhl & ASSOCIATES

FIGURE 5

Project: Jaeger Ranch Property **Project Location: Rancho Cordova, California** **WKA Number: 11103.02**	**LOG OF SOIL BORING TP4** Sheet 1 of 1

Date(s) Drilled	**8/16/16**	Logged By	**ADW**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tillford**	Total Depth of Drill Hole	**9.3 feet**
Drill Rig Type	**580 Case Super M**	Diameter(s) of Hole, inches	**24" Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet		Sampling Method(s)	**Bulk**	Drill Hole Backfill	**Soil cuttings**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Reddish brown, dry, variably cemented, lean clayey fine to medium SAND [SC] with trace fine to medium gravel						
			Red, dry to moist, lean clayey fine to coarse SAND with gravel [SC] with trace fine to coarse gravel	X	TP4-1				
	5		Reddosh brown, moist, lean clayey fine to coarse GRAVEL with fine to coarse sand [GC]						
			Reddish brown, moist, well graded fine to coarse GRAVEL withfine to coarse sand [GP]						
			Practical refusal encountered at 9.25 feet. Groundwater not encountered.						

BORING LOG 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/26/16 10:43 AM

Wallace Kuhl & ASSOCIATES

FIGURE 6

Project: Jaeger Ranch Property
Project Location: Rancho Cordova, California
WKA Number: 11103.02

LOG OF SOIL BORING TP5

Sheet 1 of 1

Date(s) Drilled	**8/16/16**	Logged By	**ADW**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tillford**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**580 Case Super M**	Diameter(s) of Hole, inches	**24" Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet		Sampling Method(s)	**Bulk, Hand Sampler**	Drill Hole Backfill	**Soil cuttings**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Red, dry, silty fine to medium SAND [SM] with trace fine gravel		TP5-1				CR
					TP5-2I		5.6	119	TR
			Red, moist, lean clayey fine SAND [SC]						
	5								
			Reddish brown, moist, variably cemented, well graded fine to coarse SAND with lean clay [SW]						
			Reddish brown, moist, well graded fine to coarse GRAVEL with fine to coarse sand and cobbles [GW]						
	10		Bottom of test pit at 10.0 feet. Groundwater not encountered.						

BORING LOG 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/26/16 10:43 AM

Wallace Kuhl & ASSOCIATES

FIGURE 7

Project: Jaeger Ranch Property
Project Location: Rancho Cordova, California
WKA Number: 11103.02

LOG OF SOIL BORING TP6

Sheet 1 of 1

Date(s) Drilled	**8/16/16**	Logged By	**ADW**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tillford**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**580 Case Super M**	Diameter(s) of Hole, inches	**24" Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet		Sampling Method(s)	**Bulk**	Drill Hole Backfill	**Soil cuttings**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark reddish brown, dry, silty fine SAND [SM]		TP6-1				
			becomes variably cemented at 2 feet						
	5								
			Brown, moist, well graded fine to coarse GRAVEL with fine to coarse sand and cobbles [GW]						
					TP6-2		7.2		
			Brown, moist, clayey fine to coarse GRAVEL with fine to coarse sand and cobbles [GC]						
	10		Practical refusal encountered at 10 feet. Groundwater not encountered.						

BORING LOG 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/26/16 10:43 AM

Wallace Kuhl & ASSOCIATES

FIGURE 8

Project: Jaeger Ranch Property **Project Location: Rancho Cordova, California** **WKA Number: 11103.02**	**LOG OF SOIL BORING TP7** Sheet 1 of 1

Date(s) Drilled	**8/16/16**	Logged By	**ADW**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tillford**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**580 Case Super M**	Diameter(s) of Hole, inches	**24" Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet		Sampling Method(s)	**Bulk**	Drill Hole Backfill	**Soil cuttings**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark brown, dry, variably cemented, silty fine to medium SAND [SM] with trace fine gravel		TP7-1				
			Dark brown, moist, variably cemented, well graded fine to coarse SAND [SW]						
	5		Dark brown, moist, well graded fine to coarse GRAVEL with fine to coarse sand [GW] and trace cobbles						
	10		Bottom of test pit at 10 feet. Groundwater not encountered.						

BORING LOG 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/26/16 10:43 AM

Wallace Kuhl & ASSOCIATES

FIGURE 9

Project: Jaeger Ranch Property
Project Location: Rancho Cordova, California
WKA Number: 11103.02

LOG OF SOIL BORING TP8

Sheet 1 of 1

Date(s) Drilled	**8/16/16**	Logged By	**ADW**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tillford**	Total Depth of Drill Hole	**10.5 feet**
Drill Rig Type	**580 Case Super M**	Diameter(s) of Hole, inches	**24" Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet		Sampling Method(s)	**Bulk, Hand Sampler**	Drill Hole Backfill	**Soil cuttings**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark reddish brown, dry, variably cemented, silty fine to medium SAND [SM]		TP8-1				
					TP8-2I		9.5	107	
					TP8-3I				
			Dark reddish brown to brown, moist, variably cemented, lean clayey fine SAND [SC]		TP8-4I		10.8	112	GD, AT
					TP8-5I				GD
	5								
			Brown, moist, silty fine to medium SAND [SM]						
	10								
			Bottom of test pit at 10.5 feet. Groundwater not encountered.						

BORING LOG 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/26/16 10:43 AM

Wallace Kuhl & ASSOCIATES

FIGURE 10

Project: Jaeger Ranch Property
Project Location: Rancho Cordova, California
WKA Number: 11103.02

LOG OF SOIL BORING TP9

Sheet 1 of 1

Date(s) Drilled	**8/16/16**	Logged By	**ADW**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tillford**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**580 Case Super M**	Diameter(s) of Hole, inches	**24" Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet		Sampling Method(s)	**Bulk**	Drill Hole Backfill	**Soil cuttings**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark reddish brown, dry, variably cemented, silty clayey fine to medium SAND [SC-SM]		TP9-1				RV
			Dark reddish brown, moist, variably cemented, lean clayey fine to medium SAND [SC]						
			Brown, moist, variably cemented, poorly graded fine to medium SAND with lean clay [SP]						
	5				TP9-2				
			Reddish brown, moist, well graded fine to coarse GRAVEL with fine to coarse sand [GW]						
	10		Bottom of test pit at 10 feet. Groundwater not encountered.						

BORING LOG 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/26/16 10:43 AM

Wallace Kuhl & ASSOCIATES

FIGURE 11

Project: Jaeger Ranch Property **Project Location: Rancho Cordova, California** **WKA Number: 11103.02**	**LOG OF SOIL BORING TP10** Sheet 1 of 1

Date(s) Drilled	**8/16/16**	Logged By	**ADW**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tillford**	Total Depth of Drill Hole	**7.0 feet**
Drill Rig Type	**580 Case Super M**	Diameter(s) of Hole, inches	**24" Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet		Sampling Method(s)	**Bulk**	Drill Hole Backfill	**Soil cuttings**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark reddish brown, dry, variably cemented, silty fine to medium SAND [SM]		TP10-1				
					TP10-2		11.1		
			Brown, dry to moist, variably cemented, poorly graded fine to medium SAND with silt [SP]						
	5				TP10-3				
			Practical refusal encountered at 7 feet. Groundwater not encountered.						

BORING LOG 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/26/16 10:43 AM

Wallace Kuhl & ASSOCIATES

FIGURE 12

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well graded gravels or gravel - sand mixtures, little or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, little or no fines
		GM		Silty gravels, gravel - sand - silt mixtures
		GC		Clayey gravels, gravel - sand - clay mixtures
	SANDS (50% or more of coarse fraction < no. 4 sieve size)	SW		Well graded sands or gravelly sands, little or no fines
		SP		Poorly graded sands or gravelly sands, little or no fines
		SM		Silty sands, sand - silt mixtures
		SC		Clayey sands, sand - clay mixtures
FINE GRAINED SOILS (50% or more of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL ≥ 50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils
ROCK		RX		Rocks, weathered to fresh
FILL		FILL		Artificially placed fill material

OTHER SYMBOLS

= Drive Sample: 2-1/2" O.D. Modified California sampler

= Drive Sampler: no recovery

= SPT Sampler

= Initial Water Level

= Final Water Level

= Estimated or gradational material change line

= Observed material change line

Laboratory Tests

AT = Atterberg Limits Test
EI = Expansion Index
CR = Corrosion Test
TR = Triaxial Compression Test
GD = Gradational Analysis (Sieve)
RV = R-Value

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL coarse (c) fine (f)	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND coarse (c) medium (m) fine (f)	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

WallaceKuhl & ASSOCIATES

UNIFIED SOIL CLASSIFICATION SYSTEM

JAEGER RANCH PROPERTY

Sacramento, California

FIGURE	13
DRAWN BY	RWO
CHECKED BY	ADW
PROJECT MGR	MMW
DATE	09/16
WKA NO.	11103.02

APPENDIX A
Field and Laboratory Test Results

APPENDIX A

A. GENERAL INFORMATION

The performance of a preliminary geotechnical engineering study for the *Jaeger Ranch Property* located easterly of the intersection of Pericles Drive and Rancho Cordova Parkway in Rancho Cordova, California was authorized by Ms. Leah Dreger of The True Life Companies on August 9, 2016. Authorization was for a preliminary geotechnical study as described in our proposal letter dated August 2, 2016, sent to our client, The True Life Companies, whose mailing address is 12647 Alcosta Boulevard, Suite 470 in San Ramon, California 94583; telephone (925) 380-1699.

To assist in the preparation of this preliminary report, we have reviewed the Conceptual Site Plan, dated May 11, 2016, prepared by Wood Rodgers, Inc. of Sacramento, California.

B. FIELD EXPLORATION

We observed the site conditions and performed subsurface explorations at the site on August 16 and September 12, 2016. Field explorations consisted of excavating and sampling 10 test pits to depths of approximately 7 to 10½ feet below the existing surface grades. Soils exposed in the trenches were classified as required by the 2013 CBC in accordance with ASTM D2487 (USCS symbol shown on logs). Soil names and descriptions are reported using a modified system.

Test pits were completed by using a Case 580 Super M excavator and a 24-inch-wide bucket provided by Ron Tilford Backhoe of Orangevale, California. Relatively undisturbed soil samples were obtained at various intervals in selected test pits using a hand driven core sampler and California Sampler liners (1.875-inch-inside diameter). In addition, bulk samples were obtained from the test pits at various depths. \At the completion of exploration activities, the test pits were backfilled with excavation spoils, and compacted using a sheepsfoot compaction wheel.

The approximate locations of the test pits are provided in Figure 2. Descriptions of the soils encountered in the test pits are presented in Figures 3 to 12. An explanation of the Unified Soil Classification System symbols used in the soil descriptions is presented on Figure 13.

C. LABORATORY TESTING

Selected soil samples were tested to determine dry unit weight (ASTM D2937) and natural moisture content (ASTM D4643). The results of these tests are included on the boring logs at the depth each sample was obtained.

Selected representative samples of soils at the site were also tested to determine Atterberg limits (ASTM D4318) and grain-size distribution (gradation) (ASTM C136); the results are contained in Figures A1 and A2, respectively.

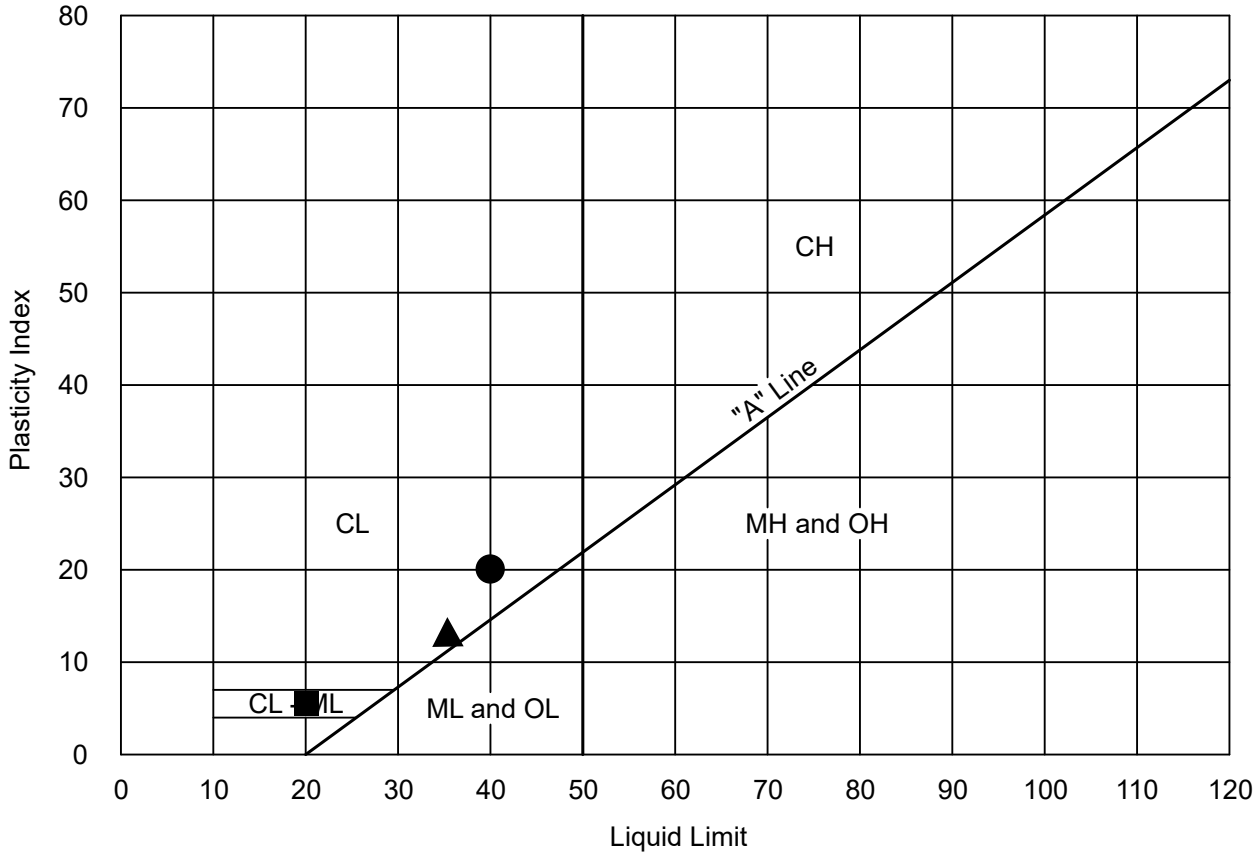
A sample of the near-surface soil was tested to evaluate shear strengths using a consolidated undrained with pore pressures triaxial test, commonly known as a CUPP triaxial test (ASTM D4767) with results presented in Figure A3.

Two representative samples of near-surface soil were subjected to Resistance “R” value testing (CT 301). The test results were used for pavement design purposes and are presented in Figure A4.

A sample of the near-surface soil was submitted to Sunland Analytical of Rancho Cordova, California, to determine the soil pH and minimum resistivity (California Test 643), Sulfate concentration (California Test 417, ASTM D516) and Chloride concentration (California Test 422). The results of these tests are presented in Figures A5 and A6.

ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	TP2-2I	2.0'-2.5'	16.0	40	20	64.5	CL
■	TP3-2I	1.5'-2.0'	4.8	20	6	59.8*	CL-ML
▲	TP8-4	3.0'-3.5'	10.8	36	13	28.8	SC

Wallace Kuhl & ASSOCIATES

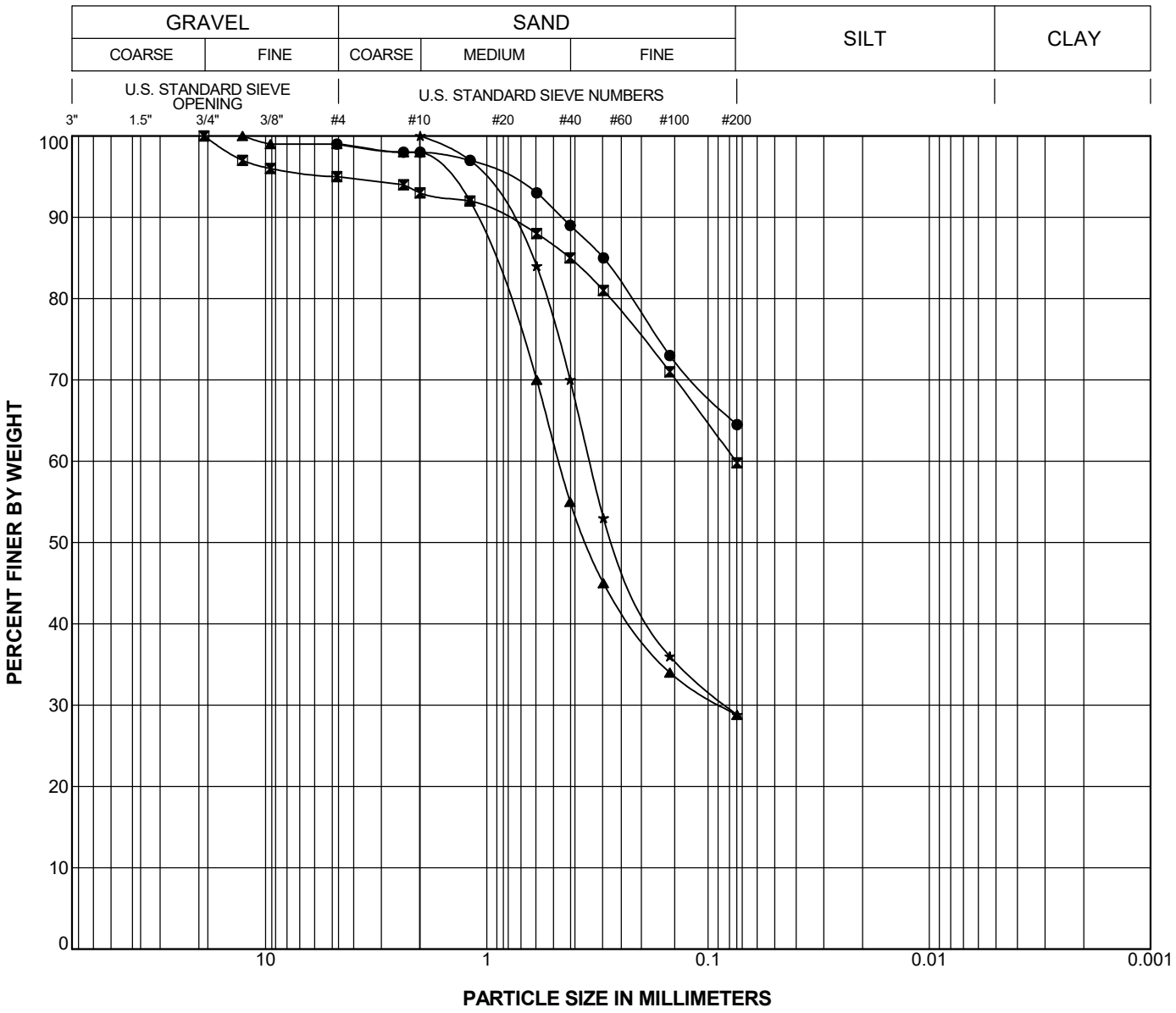
ATTERBERG LIMITS

JAEGER RANCH PROPERTY

Sacramento, California

FIGURE	A1
DRAWN BY	RWO
CHECKED BY	ADW
PROJECT MGR	MMW
DATE	09/16

WKA NO. 11103.02



Boring Number	Sample Number	USCS	Depth (feet)	Symbol	LL	PI	Classification
TP2	2I	CL	2.0	●	40	20	Red fine sandy lean CLAY [CL]
TP3	1	CL-ML	0.0	⊠			Fine sandy silty lean CLAY [CL-ML]
TP8	4	SC	3.0	▲	36	23	Lean clayey fine SAND [SC]
TP8	5	SC	4.0	★			Lean clayey fine SAND [SC]

PARTICLE SIZE DISTRIBUTION

Project: Jaeger Ranch Property
WKA No. 11103.02

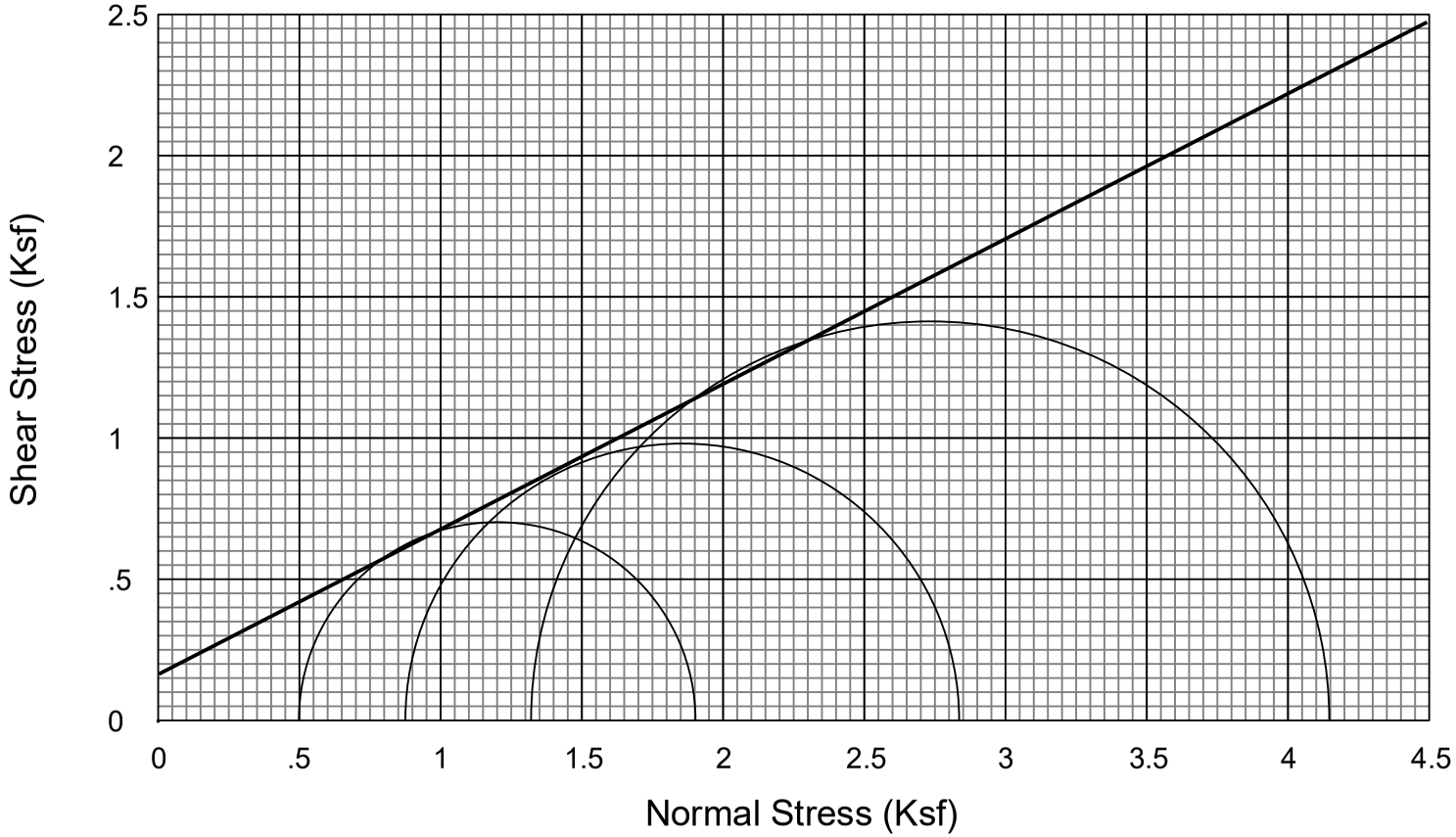
FIGURE A-2

Wallace Kuhl & ASSOCIATES

GRAIN SIZE 11103.02 - JAEGER RANCH PROPERTY.GPJ WKA.GDT 9/23/16 8:27 AM

TRIAXIAL COMPRESSION TEST

ASTM D4767



SAMPLE NO. : TP5-2 (1.0' - 1.5')

SAMPLE DESCRIPTION : Red silty fine SAND [SM]

DRY DENSITY (PCF) : 118.8
INITIAL MOISTURE (%) : 5.6
FINAL MOISTURE (%) : 15.5

ANGLE OF INTERNAL FRICTION (ø) : 27.2°
COHESION (PSF) : 167

WallaceKuhl & ASSOCIATES

TRIAXIAL COMPRESSION TEST RESULTS

JAEGER RANCH PROPERTY

Sacramento, California

FIGURE	A3
DRAWN BY	RWO
CHECKED BY	ADW
PROJECT MGR	MMW
DATE	09/16
WKA NO.	11103.02

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Brown silty fine to coarse SAND [SM]

LOCATION: TP1-1 (0' - 2')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	123	11.8	247	0	0	20
2	124	11.2	466	9	39	44
3	123	11.4	348	0	0	38

R-Value at 300 psi exudation pressure = 30

MATERIAL DESCRIPTION: Dark reddish brown silty clayey fine to medium SAND [SC-SM]

LOCATION: TP9-1 (0' - 2')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	125	13.1	108	0	0	6
2	127	12.2	229	2	9	43
3	126	11.4	670	27	117	80

R-Value at 300 psi exudation pressure = 51

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 09/16/2016
Date Submitted 09/13/2016

To: Alexander Wright
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following:
Location : 11103.02 JAEGER RNCH Site ID : TP 5-1.
Thank you for your business.

* For future reference to this analysis please use SUN # 72816-152019.

Extractable Sulfate in Water

TYPE OF TEST	RESULTS	UNITS
Sulfate-SO4	2.04	mg/kg

ASTM D-516 from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES	**CORROSION TEST RESULTS** JAEGER RANCH PROPERTY Sacramento, California	FIGURE A5 DRAWN BY RWO CHECKED BY ADW PROJECT MGR MMW DATE 09/16 WKA NO. 11103.02

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 09/16/2016
Date Submitted 09/13/2016

To: Alexander Wright
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 11103.02 JAEGER RNCH Site ID : TP 5-1.
Thank you for your business.

* For future reference to this analysis please use SUN # 72816-152020.

EVALUATION FOR SOIL CORROSION

Soil pH	5.22	
Minimum Resistivity	7.50 ohm-cm (x1000)	
Chloride	6.5 ppm	00.00065 %
Sulfate	1.9 ppm	00.00019 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

JAEGER RANCH PROPERTY

Sacramento, California

FIGURE	A6
DRAWN BY	RWO
CHECKED BY	ADW
PROJECT MGR	MMW
DATE	09/16
WKA NO.	11103.02

APPENDIX F

Phase I Environmental Site Assessment

Phase I Environmental Site Assessment

JAEGER RANCH PROPERTY

Southeast of the Intersection of
Douglas Road and Jaeger Road
Rancho Cordova, California
WKA No. 11103.01
September 22, 2016

DRAFT

Prepared for:

Ms. Leah Dreger
The True Life Companies
12647 Alcosta Boulevard, Suite 470
San Ramon, California 94583

Wallace Kuhl & Associates

Corporate Office
3050 Industrial Boulevard
West Sacramento, CA 95691
916.372.1434 phone
916.372.2565 fax

Stockton Office
3422 West Hammer Lane, Suite D
Stockton, CA 95219
209.234.7722 phone
209.234.7727 fax

Phase I Environmental Site Assessment
JAEGER RANCH PROPERTY
Southeast of the Intersection of
Douglas Road and Jaeger Road
Rancho Cordova, California
WKA No. 11103.01
September 22, 2016

Wallace-Kuhl & Associates (WKA), on behalf of the CLIENT, prepared this Phase I Environmental Site Assessment for the Jaeger Ranch Property located southeast of the intersection of Douglas Road and Jaeger Road, Rancho Cordova, California. We declare that, to the best of our professional knowledge and belief, both the report preparer and reviewer meets the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312 and has the "specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312." Resumes of the key staff who prepared this report are included in Appendix A.

DRAFT

WALLACE▪KUHL & ASSOCIATES

Bryan C. Yates
Project Manager

Kurt Balasek, P.G., C.HG.
Environmental Services Manager

Phase I Environmental Site Assessment

JAEGER RANCH PROPERTY

TABLE OF CONTENTS

EXECUTIVE SUMMARY i

1.0 INTRODUCTION 1
- 1.1 Purpose 1
- 1.2 Scope of Services 1
- 1.3 Special Terms and Conditions 2
- 1.4 User Provided Information 2

2.0 SITE DESCRIPTION 4
- 2.1 Site and Vicinity General Characteristics 4
- 2.2 Site Reconnaissance 4
  - 2.2.1 Municipal Infrastructure and Utilities 4
- 2.3 Adjoining Properties 4

3.0 INTERVIEWS 5
- 3.1 Owner or Key Site Manager 5
- 3.2 Occupants (Multi-family or Major) 5
- 3.3 Past and Present Owners, Operators, and/or Occupants 5
- 3.4 State and/or Local Government Officials 5
- 3.5 Abandoned Properties 6

4.0 RECORDS REVIEW 7
- 4.1 Physical Setting Source(s) 7
  - 4.1.1 Regional and Local Geology 7
  - 4.1.2 Soil Survey 7
  - 4.1.3 Regional and Local Groundwater 8
- 4.2 Historical Use Information 8
  - 4.2.1 Sanborn® Maps 8
  - 4.2.2 Topographic Maps 9
  - 4.2.3 Oil and Gas Well Maps 10
  - 4.2.4 Aerial Photographs 10
  - 4.2.5 Ownership Records 11
  - 4.2.6 Building Department Records 11
  - 4.2.7 Local Street Directories 11
  - 4.2.8 Zoning and Land Use Records 12
  - 4.2.9 Other Historical Sources 12
  - 4.2.10 Prior Assessments 12
- 4.3 Environmental Record Sources 12
  - 4.3.1 Regulatory Agency Databases 12
  - 4.3.2 Preliminary Screen For Vapor Encroachment Conditions 14

DRAFT

TABLE OF CONTENTS (continued)

4.3.3 Environmental Lien Search 14

5.0 CONCLUSIONS AND RECOMMENDATIONS 15
5.1 Data Gaps 15
5.2 Conclusions 15
5.3 Recommendations 16
5.4 Exceptions and/or Deletions 16
5.5 Additional Services 16

6.0 LIMITATIONS 17

7.0 REFERENCES 18

FIGURES

1 Vicinity Map
2 Topographic Map
3 Parcel Map
4 Aerial Site Map
5a Color Photographs
5b Color Photographs
6 Hydrograph

DRAFT

APPENDICES

A Resumes
B ASTM E 1527-13 User Questionnaire and Helpful Documents Checklist
C EDR® Radius Map Report Executive Summary
D Preliminary Screen for Vapor Encroachment Conditions Matrix

Attached CD contains: EDR® Reports: (Radius Map Report, Aerial Photographic Decade Package, Historical Topographic Maps, Sanborn Map Search), Lien Search Report and Phase I ESA, Jaeger Ranch (WKA No. 11103.01 dated September 22, 2016).

EXECUTIVE SUMMARY

The purpose of this Phase I Environmental Site Assessment (ESA) was to assess the Jaeger Ranch Property (herein referred to as site) for evidence of Recognized Environmental Conditions (RECs) resulting from current and/or former site activities. The Site is located approximately ½-mile southeast of the intersection of Douglas Road and Jaeger Road in Rancho Cordova, California (Figures 1, 2, 3, and 4) and is comprised of approximately 529 acres of undeveloped land having Sacramento County Assessor's Parcel Number (APN) 06-0040-008-0000 (Figure 3). The following presents a list of observations and findings identified during the preparation of this report:

The historical land use research dating back to the late 1800s revealed that the Site has remained largely undeveloped. Dry farming and livestock grazing appear to have been the historic land uses.

According to information provided by the User and JSR Vetting Services, LLC, no environmental liens are associated with the Site.

Based on the completion of the vapor encroachment condition (VEC) screening matrix, WKA concludes a VEC can be ruled out because a VEC does not or is not likely to exist.

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 for the Jaeger Ranch Property. Any exceptions to, or deletions from, this practice are described in Section 5.4 of this report. This assessment has revealed evidence of one RECs in connection with the Site.

The presence of perchlorate and TCE in groundwater under the Site constitutes a REC. The responsible party has been identified and ongoing groundwater treatment and monitoring is taking place with regulatory oversight provided by the CVRWQCB. Given the depth to water and soil conditions, it is unlikely that the TCE and perchlorate plume as currently understood will prohibit the proposed development. Periodic changes to the groundwater monitoring and remedial program may be required necessitating Site access for the purposes of monitoring well destruction and/or installation.

DRAFT

1.0 INTRODUCTION

1.1 Purpose

The purpose of this Phase I Environmental Site Assessment (ESA) was to evaluate the Jaeger Ranch Property (herein referred to as site) for evidence of potential Recognized Environmental Conditions (RECs) resulting from current and/or former site activities as defined by the American Society of Testing and Materials (ASTM) Standard E 1527-13 (ASTM, 2013).

According to the ASTM, "this practice is intended to permit a *user* to satisfy one of the requirements to qualify for the *innocent landowner*, *contiguous property owner*, or *bona fide prospective purchaser* limitations on CERCLA [Comprehensive Environmental Response, Compensation and Liability Act] liability (hereinafter, the "*landowner liability protections*," or "*LLPs*"): that is, the practice that constitutes "*all appropriate inquiry* into the previous ownership and uses of the *property* consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B)."

DRAFT

This ESA has been performed in general conformance with the ASTM Standard E 1527-13 and the scope and limitations defined in Wallace-Kuhl & Associates (WKA) proposal, 3PR16185, dated August 2, 2016.

1.2 Scope of Services

WKA has completed this ESA for the Site shown on Figures 1 through 3. Ms. Leah Dreger with The True Life Companies authorized WKA to proceed with this assessment on August 9, 2016 through a signed WKA Environmental Services Agreement.

The scope of this assessment included the following:

- Conduct a site reconnaissance for visual evidence of surface contamination and potential sources of subsurface contamination;
- Conduct a visual inspection of the adjoining properties for evidence of RECs
- Conduct interviews with the following, as available:
  - Key site manager,
  - Major occupants,
  - Past and present owners, operators,
  - Government and/or agency personnel, and,

  - Inquiries conducted at abandoned sites may include interviews with owners or occupants of neighboring or nearby properties;
- Conduct a records review, which included the following:
  - Physical setting documents to determine regional geology, general soil information, and local and regional groundwater conditions,
  - Historical information, including but not limited to, Sanborn maps, topographic maps, aerial photographs, ownership records, building department records, local street directories, zoning and land use records, and prior assessments, as available,
  - Environmental records, including federal, state, tribal, and county regulatory agency lists that will help identify RECs on the site and the adjoining properties, and,
  - Based on the outcome of the database search, review of specific regulatory agency files for identified contaminated facilities in order to evaluate whether the listed facilities are hazardous materials threats to the site;
- Conduct a preliminary screen for vapor encroachment conditions on the site per ASTM E2600-10;
- Review of the completed *ASTM E 1527-13 User Questionnaire* (*Questionnaire*) regarding Recorded Environmental Liens, activity and use limitations (AULs), relationship of the purchase price to the fair market value of the site, and any specialized knowledge of the site;
- Review of environmental liens and AULs reports, as provided; and
- Prepare a final report of the results of the ESA.

DRAFT

1.3 Special Terms and Conditions

No special terms or conditions to the WKA Professional Services Agreement or the WKA scope of services were requested or performed during the preparation of this report. The True Life Companies authorized WKA to perform a search for recorded environmental liens and Activity and Use Limitations (AULs) for the site. Discussion regarding the search is included in Section 4.3.5 of this report.

1.4 User Provided Information

WKA provided The True Life Companies a copy of the User Questionnaire and the Helpful Documents checklist. The True Life Companies returned the documents after they were completed by Ms. Leah Dreger, Director of Entitlements of The True Life Companies. Discussion regarding his responses is provided in the following section. A copy of the completed questionnaire is included in Appendix B.

In summary, Ms. Dreger was not aware of any records of environmental liens or AULs currently recorded against the Site. Ms. Dreger stated she does not possess specialized knowledge or experience related to the Site. Ms. Dreger stated that she is not aware of any obvious indicators that point to the presence or likely presence of contamination at the Site. Ms. Dreger was not aware of existing "Helpful Documents" as defined in Section 10.8.1 of the ASTM Standard as noted on the "Helpful Documents Checklist" included in Appendix B.

In addition, the User provided correspondence from First American Title Company stating that no environmental liens were recorded for the Site.

DRAFT

2.0 SITE DESCRIPTION

2.1 Site and Vicinity General Characteristics

The Site is located approximately ½-mile southeast of the intersection of Douglas Road and Jaeger Road in Rancho Cordova, California (Figures 1, 2, 3, and 4) and is comprised of approximately 529 acres of undeveloped land having Sacramento County Assessor's Parcel Number (APN) 06-0040-008-0000 (Figure 3).

2.2 Site Reconnaissance

A visual site reconnaissance was conducted by WKA on August 22, 2016. Figure 5 provides color photographs of the site taken during the site reconnaissance.

On the day of field reconnaissance the Site was generally undeveloped and covered by dry seasonal grasses. A dirt/gravel road extended south into the Site and terminated near a cluster of monitoring wells and a groundwater extraction feature (further described in Section 4.3 of this report). One soil stockpile was observed along the eastern portion of the northern Site boundary. No debris, stained soil, or distressed vegetation was observed in connection with this stockpile. The origin of this stockpile is discussed further in Section 3.1 of this report.

DRAFT

Small amounts of refuse were observed along then northern and western Site boundaries. Three modified tractor tires set up as livestock watering troughs were observed along the northern Site boundary. Each of these watering troughs, had water lines plumed utilizing PVC piping and valves. A metal water storage tank (approximately 1,5000 gallon capacity) was observed north of the groundwater extraction well located within the Site. At the time of our reconnaissance, the tank was determined to be empty by tapping on the sides. The welded placard on the side of the tank stated that it was originally built to be utilized as an underground storage tank. No abnormally distressed vegetation or soil staining was observed in the vicinity of the tank.

2.2.1 Municipal Infrastructure and Utilities

Two sets of high-voltage, tower-mounted electrical transmission lines cross the Site from northeast to southwest. Two sets of pole-mounted power lines also cross the Site in a parallel alignment. One concrete pad-mounted transformer was visible within the fenced enclosure containing the groundwater extraction well. Jaeger Road (portions closed) is located along the western Site boundary.

2.3 Adjoining Properties

The Site is bounded to the south and east by undeveloped land and to the north and west by residential subdivisions in various forms of completion.

3.0 INTERVIEWS

Interviews with various persons familiar with the site vicinity, including representatives of public agencies, were conducted for the purpose of identifying past and present uses, which may have contributed to RECs on the site. Results of those interviews are discussed in the following sections.

3.1 Owner or Key Site Manager

WKA interviewed Mr. Doug Dieter with K Hovnanian Homes regarding his knowledge of current and past Site activities. Mr. Dieter confirmed that K Hovnanian Homes owns the Site but stated that other than cattle grazing, he had no knowledge of the current or past Site use. Mr. Dieter stated that the soil stockpile along the northern Site boundary near the northeast corner was derived from the construction of the stormwater detention basin immediately north of the northeastern portion of the Site.

WKA provided The True Life Companies a copy of the User Questionnaire and the Helpful Documents checklist. The True Life Companies returned the documents after they were completed by Ms. Leah Dreger, Director of Entitlements of The True Life Companies. In summary, Ms. Dreger was not aware of any records of environmental liens or AULs currently recorded against the Site. Ms. Dreger stated she does not possess specialized knowledge or experience related to the Site. Ms. Dreger stated that she is not aware of any obvious indicators that point to the presence or likely presence of contamination at the Site. Ms. Dreger was not aware of existing "Helpful Documents" as defined in Section 10.8.1 of the ASTM Standard. Copies of the User Questionnaire and "Helpful Documents Checklist" are included in Appendix B.

DRAFT

3.2 Occupants (Multi-family or Major)

There are no occupants currently within the Site.

3.3 Past and Present Owners, Operators, and/or Occupants

No information regarding past owners was received by WKA during completion of this report.

3.4 State and/or Local Government Officials

WKA contacted, Sacramento County Environmental Management Department (SCEMD), regarding any regulatory files available for the site and surrounding facilities. According to SCEMD staff, the on-line document search option for their files will no longer be available. WKA submitted a public records request to review SCEMD files associated with the Site. At the time of completion of this report, our request had not been returned.

3.5 Abandoned Properties

As referenced in 40 CFR Part 312, in the case of inquiries conducted at "abandoned properties," as defined in §312.23(d), "where there is evidence of potential unauthorized uses of the site or evidence of uncontrolled access to the site, the environmental professional's inquiry must include interviewing one or more (as necessary) owners or occupants of neighboring or nearby properties from which it appears possible to have observed uses of, or releases at, such abandoned properties…" No evidence of potential unauthorized uses, or evidence of uncontrolled access to the site was observed. The site is not considered an abandoned property and therefore, WKA did not interview owners or occupants of neighboring properties.

DRAFT

4.0 RECORDS REVIEW

The purpose of the records review is to obtain and review information concerning the current and historical use of the site and adjoining properties that would help identify the presence of RECs in connection with the site. The records review included review and discussion of the following, as available:

- Physical Setting Source(s);
- Historical Use Information; and,
- Environmental Record Sources.

4.1 Physical Setting Source(s)

The Site is depicted on the 2012 United States Geological Survey (USGS) 7.5 Minute topographic map of the *Buffalo Creek, California Quadrangle* as undeveloped land. The Site is located within Section 16, Township 8 North, Range 7 East, Mount Diablo Base and Meridian, at an elevation of approximately +185 feet relative to mean sea level (msl).

4.1.1 Regional and Local Geology

The Site is located on the Great Valley geomorphic province of California, a large, elongate, northwest-trending structural trough, generally constrained to the west by the Coast Ranges and to the east by the foothills of the Sierra Nevada Range (Norris and Webb, 1990). The Great Valley consists of two valleys lying end-to-end, with the Sacramento Valley to the north and the San Joaquin Valley to the south.

DRAFT

The Sacramento and San Joaquin Valleys have been filled to their present elevations with thick sequences of sediment derived from both marine and continental sources. The sedimentary deposits range in thickness from relatively thin deposits along the eastern valley edge to more than 25,000 feet in the south central portion of the Great Valley (Norris and Webb, 1990). The sedimentary geologic formations of the Great Valley province vary in age from Jurassic to Quaternary, with the older deposits being primarily marine in origin. Younger sediments are continentally derived and were typically deposited in lacustrine, fluvial, and alluvial environments with their main source being the Sierra Nevada Range.

The 1965 USGS *Geologic Map of the Sacramento Quadrangle, California*, shows the Site to be underlain by the Plio-Pleistocene non-marine material.

4.1.2 Soil Survey

The United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) has created a web-based service for accessing soil information. According to the NRCS Web Soil Survey (WSS) the majority of the near-surface soils on the Site consist of

Fiddyment fine sandy loam (0.5% of Site), Hicksville gravelly loam (2.4% of Site), Red Bluff-Redding complex (16.2% of Site), Redding loam (10.9% of Site), and Redding gravelly loam (70% of Site) (USDA, 2016). A copy of the soil report is included on the attached CD.

4.1.3 Regional and Local Groundwater

The Site is located within the California Department of Water Resources (DWR) defined Sacramento Valley Groundwater Basin/South American Sub-Basin of the Sacramento River Hydrologic Region. WKA searched data on the DWR website and found a DWR monitored groundwater wells approximately 1/8-mile northwest of the Site (Well No. 385571N12150W001). The most recent depth to groundwater measurement listed was 145 feet bgs on October 17, 2003 (DWR, 2016).

WKA also searched the State Water Resources Control Board's (SWRCB) GeoTracker website for quarterly groundwater monitoring reports completed for facilities in the immediate vicinity of the Site. A summary of the data associated with these facilities can be found in Section 4.3.1 of this report.

4.2 Historical Use Information

DRAFT

WKA reviewed historical information to develop a history of the previous uses of the site and surrounding area, in order to evaluate the site and adjoining properties for evidence of RECs. Standard historical sources reviewed during the preparation of this report included the following, as available:

- Sanborn® Maps;
- Topographic Maps;
- Oil and Gas Well Maps;
- Aerial Photographs;
- Ownership Records;
- Building Department Records;
- Local Street Directories;
- Zoning and Land Use Records;
- Other Historical Sources; and,
- Prior Assessments.

Discussion of these historical sources is provided in the following sections.

4.2.1 Sanborn® Maps

Sanborn® Maps with coverage of the site were obtained through Environmental Data Resources, Inc. (EDR®). EDR® is a national commercial provider of environmental database information. Sanborn® Maps are detailed drawings of site development, and were typically used

by fire insurance companies to determine site fire insurability. According to EDR®, Sanborn® Map coverage of the Site is not available (EDR®, 2016a).

4.2.2 Topographic Maps

Historical USGS topographic maps with coverage of the site and outlying land areas were reviewed. Topographic maps with coverage of the site dated 1891, 1892, 1893, 1908, 1916, 1941, 1944, 1954, 1967, 1975, 1980, and 2012 were available for review (EDR®, 2016b). Copies of the topographic maps compiled by EDR® with coverage of the site are included on the CD attached to the back cover of this report. Table 1 notes the changes in the vicinity of the site.

Table 1

Year	Scale	Observations
1891	1:125,000	The Site and surrounding parcels are vacant. Roads are mapped near the northern and western Site boundaries. A seasonal drainage is mapped crossing the western area of the Site flowing generally north to south
1892	1:125,000	No significant changes are mapped within the Site and surrounding parcels.
1893	1:125,000	No significant changes are mapped within the Site and surrounding parcels.
1908	1:31,680	With the exception of four small structures mapped within surrounding parcels, no significant changes are mapped within the Site and surrounding parcels.
1916	1:31,680	Several additional small structures are now mapped in the vicinity of the Site. No other significant changes are mapped within the Site and surrounding parcels.
1941	1:62,500	No significant changes are mapped within the Site and surrounding parcels.
1944	1:62,500	No significant changes are mapped within the Site and surrounding parcels.
1954	1:24,000	One well, a small reservoir and three small structures are mapped less than 1/8-mile north of the Site. No other significant changes are mapped within the Site and surrounding parcels.
1967	1:24,000	Two sets of tower-mounted electrical transmission lines are mapped crossing the Site from northeast to southwest. A cluster of medium and large structures are mapped approximately ½-mile north/northeast of the Site in the approximate present-day location of the Security Park industrial complex. A series of roads and structures are also visible approximately ½-mile north of the Site in the reported historic location of the McDonald Douglas testing facility.
1975	1:24,000	No significant changes are mapped within the Site and surrounding parcels.

DRAFT

Table 1		
Year	**Scale**	**Observations**
1980	1:24,000	No significant changes are mapped within the Site and surrounding parcels.
2012	1:24,000	Individual structures in the vicinity of the Site are no longer mapped. A large number of roadways are now mapped immediately north and west of the Site. These features are generally consistent with the present-day residential subdivisions located in the same areas.

4.2.3 Oil and Gas Well Maps

Review of California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) website showed that the site is not located in a designated natural gas field. No DOGGR wells are located on or within at least one-mile of the site (DOGGR, 2016).

4.2.4 Aerial Photographs

Historical aerial photographs of the site and general vicinity were compiled by EDR®. Photographs covering the years 1937, 1952, 1957, 1964, 1966, 1972, 1984, 1993, 1998, 2005, 2006, 2009, 2010, and 2012 were available for review (EDR®, 2016c). Table 2 notes the changes on the property and in the vicinity.

DRAFT

Table 2		
Year	**Scale**	**Observations**
1937	1” = 1,000’	No Structures or improvements are visible within the Site. An apparent dirt road is visible along the western Site boundary.
1952	1” = 1,000’	Ground markings within the Site appear consistent with harvest patterns associated with dry land agricultural practices. Several small structures are visible within the immediate vicinity of the Site.
1957	1” = 1,000’	No significant changes are visible within the Site and surrounding parcels.
1964	1” = 1,000’	No significant changes are visible within the Site and surrounding parcels.
1966	1” = 1,000’	No significant changes are visible within the Site and surrounding parcels.
1972	1” = 1,000’	No significant changes are visible within the Site and surrounding parcels.
1984	1” = 1,000’	No significant changes are visible within the Site and surrounding parcels.
1993	1” = 1,000’	No significant changes are visible within the Site and surrounding parcels.
1998	1” = 500’	No significant changes are visible within the Site and surrounding parcels.

Table 2		
Year	**Scale**	**Observations**
2005	1" = 500'	Partially completed subdivisions are visible immediately north and west of the Site. No other significant changes are visible with the Site and surrounding parcels.
2006	1" = 500'	No significant changes are visible within the Site and surrounding parcels.
2009	1" = 500'	A winding dirt road is visible extending from the northern Site boundary into the northeastern portion of the Site. This dirt road is consistent with the access road terminating at the present-day groundwater extraction well located within the Site.
2010	1" = 500'	No significant changes are visible within the Site and surrounding parcels.
2012	1" = 500'	No significant changes are visible within the Site and surrounding parcels.

4.2.5 Ownership Records

According to a Preliminary Title Report for the site, the ownership entity is K. Hovnanian at Jaeger Ranch, LLC (First American Title Company, 2016).

Ownership information was obtained through ParcelQuest®, an on-line distributor of "Assessor-Direct property information throughout the State of California." The ownership entity for the site was listed as "K Hovnanian at Jaeger Ranch LLC" (ParcelQuest®, 2016).

DRAFT

4.2.6 Building Department Records

WKA contacted the City of Rancho Cordova, Community Development Department, Building & Safety Division and the County of Sacramento, Building Permits and Inspections Office regarding any permits recorded for the building. At the time of completion of this report, our request for records had not been returned.

4.2.7 Local Street Directories

Local street directories with coverage of the site and adjoining properties were obtained from EDR® (EDR®, 2016d). These documents contain business listings based on street number identifiers. The Site was not identified within the report. The surrounding parcels were identified as individuals. A copy of the EDR® City Directory (EDR®, 2016d) is provided on the CD attached to the back cover of this report.

4.2.8 Zoning and Land Use Records

WKA reviewed the Rancho Cordova Zoning and Future Land map dated December 2014. The Site is identified with the map as The Ranch at Sunridge (Proposed).

The Site is located within Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map Number 06067C0240H dated August 16, 2012. A review of the map found that the Site is not located within a 100-year regulatory floodplain, as designated by FEMA.

4.2.9 Other Historical Sources

Review of additional historical sources was not warranted in order for the Environmental Professional to make a determination as to evidence of potential RECs on the site.

4.2.10 Prior Assessments

WKA was provided with no prior assessments associated within the Site.

4.3 Environmental Record Sources

4.3.1 Regulatory Agency Databases

EDR® was contacted to provide a summary of facilities listed on regulatory agency databases (EDR®, 2016e). Table 3 summarizes the researched ASTM required *Standard Environmental Record Sources*, as well as several *Additional Environmental Record Sources*, as defined in Sections 8.2.1 and 8.2.2 of the ASTM Standard. For additional reference, the Executive Summary of the EDR® report is included in Appendix C. A copy of the entire EDR® report is included on the CD attached to the back cover of this report.

DRAFT

Table 3

	EDR Listed Database	*ASTM E 1527-13 Search Distance*	No. of Facilities Listed (within Search Radius)
Federal			
Federal NPL Site List	*NPL*	1-mile	0
Federal Delisted NPL Site List	*Delisted NPL*	1/2-mile	0
Federal CERCLIS List	*CERCLIS*	1/2-mile	0
Federal CERCLIS NFRAP Site List	*CERCLIS NFRAP*	1/2-mile	0
Federal RCRA CORRACTS Facilities List	*CORRACTS*	1-mile	1
Federal RCRA Generators List:			
Small Quantity and Large Quantity Generators	*RCRA SQG*	site & adjoining	0
	RCRA LQG		0

Table 3			
	EDR Listed Database	*ASTM E 1527-13 Search Distance*	No. of Facilities Listed (within Search Radius)
Landfills and Solid Waste Management Units	*RCRA TSDF*	1/2-mile	1
Federal Institutional Control / Engineering Control Registries	*US ENG Controls*	site only	0
	US INST Controls		0
Federal ERNS List	*ERNS*	site only	0
State			
State-equivalent NPL (Hist. Cal-Sites)	*Hist. Cal-Sites*	1-mile	0
State-equivalent CERCLIS	*RESPONSE*	1/2-mile	0
State Landfill and/or Solid Waste Disposal Site	*SWF/LF (SWIS)*	1/2-mile	0
	WMUDS/SWAT		0
State Leaking Underground Storage Tanks	*LUST- Reg 5 Geotracker*	1/2-mile	0
Tribal Leaking Underground Storage Tanks	*Indian LUST*	1/2-mile	0
State Registered Underground Storage Tanks	*UST*	site & adjoining	0
Tribal Registered Underground Storage Tanks	*Indian UST*	site & adjoining	0
State Registered Aboveground Storage Tanks	*AST*	site & adjoining	0
State Institutional Control Registries	*DEED*	site only	0
State Voluntary Cleanup Sites	*VCP*	1/2-mile	0
Additional Environmental Record Sources			
Hazardous Waste & Substances Sites List	*CORTESE*	1/2-mile	0
DTSC EnviroStor (includes Cal-Sites)	*EnviroStor*	1-mile	0
SLIC	*SLIC - Reg 5*	1/2-mile	0
Cleaner Facilities	*Drycleaners*	1/4-mile	0
HAZNET	*HAZNET*	1/4-mile	0
Local - County			
Sacramento County Contaminated Sites	*Sac Co CS*	1/2-mile	0
Sacramento County Master List	*Sac Co ML*	1/2-mile	0

DRAFT

Review of the EDR® report indicates the Site is not listed on any of the EDR® databases. Only one facility is detailed in the EDR® report and we summarize the facility information below.

The General Electric Medical Systems facility is located approximately ½-mile north/northeast of the Site with a street address of 3920 Security Park Drive. The facility has gone by multiple names including McDonnell Douglas and Security Park. The facility has been monitored and investigated for materials/waste management, handling, and disposal practices. No ongoing regulatory involvement is noted.

Multiple wells were observed within the northeastern area of the Site. A review of the State Water Resources Control Board's (SWRCB) GeoTracker website for quarterly groundwater monitoring reports completed for facilities in the immediate vicinity of the Site found that the

wells are a combination of monitoring wells and groundwater extraction wells associated with the Inactive Rancho Cordova Test Site (Former McDonnell Douglas Test Site) located less than 1-mile north of the Site. The constituents of concern include perchlorate and Trichloroethylene (TCE). Groundwater is being extracted and pumped to a treatment plan approximately 1-mile north/northwest of the Site. The monitoring wells were installed to verify the edge of the plume and monitor concentrations of the constituents of concern. The minimum depth to water in these wells is reported to have been 149 feet bgs.

WKA interviewed Mr. Alex McDonald of the Central Valley Regional Water Quality Control Board regarding sources of groundwater contamination within the former McDonnell Douglas facility. Mr. McDonald described two groundwater plumes originating from the former McDonnell Douglas facility approximately one-mile north of the Site. Mr. McDonald reports that both plumes are within a deeper aquifer and that a layer of clean water separates the contaminants from the ground surface. Mr. McDonald stated the clean water layer forms a barrier to vapor migration; hence, there are no vapor intrusions concerns related to the two plumes.

4.3.2 Preliminary Screen for Vapor Encroachment Conditions

DRAFT

WKA conducted a preliminary screening for vapor encroachment conditions (VEC) beneath the site using the Tier 1 vapor encroachment screening evaluation[1]. The Tier I screening included performing a *Search Distance Test* to identify if there are any known or suspect contaminated properties surrounding or upgradient of the site within specific search radii, and a *Chemicals of Concern (COC) Test* (for those known or suspect contaminated properties identified within the *Search Distance Test*) to evaluate whether or not COC are likely to be present. The Vapor Encroachment Screening Matrix is included in Appendix D.

Based on the completion of the VEC-screening matrix, a VEC can be ruled out because a VEC does not or is not likely to exist.

EDR® was contacted to provide a Vapor Encroachment Screen for the site (EDR®, 2016f). No areas of concern were identified.

4.3.3 Environmental Lien Search

According to an August 25, 2016 Environmental Lien Search Report prepared by JSR Vetting Services, LLC, no environmental liens or activity or use limitations (AULs) were recorded for the site. A copy of the Environmental Lien Search Report is included on the CD attached to the back cover of this report.

---

[1] The Preliminary Screen for Vapor Encroachment Conditions was based on the guidelines presented in the ASTM *E 2600-10 Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Data Gaps

WKA identified the following data gaps during the completion of this report:

- The time intervals between the Standard Historical Sources (i.e., topographic maps, aerial photographs, other historical sources) exceeded the ASTM minimum five-year period. However, the use of the site appears unchanged within the time gaps, and therefore, research of the site use during the time gaps is not required by the ASTM Standard (Refer to *Section 8.3.2.1 – Intervals* of the ASTM E 1527-13 standard).

- SCEMD staff, the on-line document search option for their files will no longer be available. WKA submitted a public records request to review SCEMD files associated with the Site. At the time of completion of this report, our request had not been returned.

- WKA contacted the City of Rancho Cordova, Community Development Department, Building & Safety Division and the County of Sacramento, Building Permits and Inspections Office regarding any permits recorded for the building. At the time of completion of this report, our request for records had not been returned.

DRAFT

It is the opinion of WKA that no significant data gaps were identified during the preparation of this report that affects the ability of the Environmental Professional to identify RECs on the site.

5.2 Conclusions

The historical land use research dating back to the late 1800s revealed that the Site has remained largely undeveloped. Dry farming and livestock grazing appear to have been the historic land uses.

According to information provided by the User and JSR Vetting Services, LLC, no environmental liens are associated with the Site.

Based on the completion of the vapor encroachment condition (VEC) screening matrix, WKA concludes a VEC can be ruled out because a VEC does not or is not likely to exist.

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 for the Jaeger Ranch Property. Any exceptions to, or deletions from, this practice are described in Section 5.4 of this report. This assessment has revealed evidence of one RECs in connection with the Site.

The presence of perchlorate and TCE in groundwater under the Site constitutes a REC. The responsible party has been identified and ongoing groundwater treatment and monitoring is taking place with regulatory oversight provided by the CVRWQCB. Given the depth to water and soil conditions, it is unlikely that the TCE and perchlorate plume as currently understood will prohibit the proposed development. Periodic changes to the groundwater monitoring and remedial program may be required necessitating the abandonment and installation of wells may be required.

A full copy of this ESA report, in a .pdf format, is included on the attached CD.

5.3 Recommendations

Based on the conclusions presented and the documentation contained herein, WKA recommends that the Site owner maintain contact with the CVRWQB on a semi-annual basis so as to understand the current remedial and monitoring status of the perchlorate and TCE plume under the Site and to properly plan for proposed modifications to the monitoring and treatment program.

5.4 Exceptions and/or Deletions

With the exception of the data gaps identified in Section 5.1 of this report, no exceptions or deletions from the ASTM E 1527-13 standard were made during the performance of this ESA.

DRAFT

5.5 Additional Services

Non-scope considerations, such as assessment for naturally occurring asbestos (NOA), wetlands evaluation, indoor air quality, laboratory testing of the soils and groundwater beneath the site for environmental contaminants (such as agricultural-related pesticides, termiticides, polychlorinated biphenyls [PCBs], or arsenic and lead), and assessments for asbestos containing materials and lead-based paint were not included or requested as part of this ESA. Additionally, this ESA included conducting a Tier 1 vapor encroachment screening in accordance with the ASTM *E 2600-10 Vapor Encroachment Screening on Property Involved in Real Estate Transactions.*

6.0 LIMITATIONS

The statements and conclusions in this report are based upon the scope of work described above and on observations made only on the date of the field reconnaissance, August 22, 2016. Work was performed using a degree of skill consistent with that of competent environmental consulting firms performing similar work in the area. Information regarding the site that is *publicly available* and *practically reviewable,* as described in the ASTM standard, was obtained. Additional research or receipt of information regarding the site that was not disclosed or available to WKA during this assessment may result in revision of the conclusions. The conclusions in this report should be reevaluated if site conditions change. No recommendation is made as to the suitability of the site for any purpose. The results of this assessment do not preclude the possibility that materials currently or in the future defined as hazardous are present on the site, nor do the results of this work guarantee the potability of groundwater beneath the site. This report is applicable only to the investigated site and should not be used for any other property. No warranty is expressed or implied.

This report is viable for one year from the publication date of the report provided the following components are updated within 180 days of the date of purchase or (for transactions not involving an acquisition) the date of the intended transaction:

- Interviews with current owners/occupants and/or in order to identify changes in site conditions or uses since the publication date of this report
- Searches for recorded environmental cleanup liens
- Visual inspection of the site and of adjoining properties with emphasis on changes in conditions or uses since the publication date of this report
- A current review of federal, state, tribal and county databases
- The declaration by the environmental professional responsible for the assessment.

Environmental Site Assessments completed more than one year prior to the date of purchase must be reviewed and updated in order for the *Environmental Site Assessment* to be considered valid per Section 4.6 (*Continued Viability of Environmental Site Assessment*), and Sections 4.7 and 8.4 (*Prior Assessment Usage*) of the ASTM E 1527-13 Standard.

BCY:KMB:kg
H:/dept3/11103.01 - Phase I ESA Jaeger Ranch Property

DRAFT

7.0 REFERENCES

ASTM International. 2013. American Society for Testing and Materials, ASTM Standard E 1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania (November 2013).

ASTM International. 2010. American Society for Testing and Materials, ASTM Standard E 2600-10, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania (June 2010).

Environmental Data Resources, Inc. (EDR®):

-2016a. *Certified Sanborn Map Report, Jaeger Ranch Property, Rancho Cordova, California, Inquiry Number 4700133.3*, Milford, Connecticut, (August 15, 2016).

-2016b. *The EDR Historical Topographic Map Report, Jaeger Ranch Property, Rancho Cordova, California, Inquiry Number 4700133.4*, Milford, Connecticut, (August 15, 2016).

-2016c. *The EDR Aerial Photo Decade Package Report, Jaeger Ranch Property, Rancho Cordova, California, Inquiry Number 4700133.9*, Milford, Connecticut, (August 17, 2016).

-2016d. *The EDR City Directory Abstract, Jaeger Ranch Property, Rancho Cordova, California, Inquiry Number 4700133.5*, Milford, Connecticut, (August 17, 2016).

-2016e. *The EDR Radius Map Report with GeoCheck, Jaeger Ranch Property, Rancho Cordova, California, Inquiry Number 4700133.2s*, Milford, Connecticut, (August 15, 2016).

-2016f. *The EDR Vapor Encroachment Screen, Jaeger Ranch Property, Rancho Cordova, California, Inquiry Number 4700133.6s*, Milford, Connecticut, (August 15, 2016).

JSR Vetting Services, LLC (JSR) 2016. *Environmental Lien Search Report*, File Number: 108340 (August 2016).

Norris, R. M., Webb, R. W., 1990, *Geology of California* Second Edition, John Wiley and Sons, Inc. New York.

ParcelQuest, 2016, Detail Report Property Address: 111 Woodmere Road, CA, Retrieved [August 2016] from the World Wide Web: <http://www.parcelquest.com/>.

State of California, Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), 2001, Map 6W-1 *[Well Locations Map]* [map], scale unknown.

State of California, Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), *DOGGR On-line Mapping System (DOMS), District 6, Northern California* < http://maps.conservation.ca.gov/doms/index.html> (August 2016).

United States Department of Agriculture, Natural Resources Conservation Service, *Web Soil Survey,* http://soils.usda.gov/technical/classification/osd/index.html (August 2016).

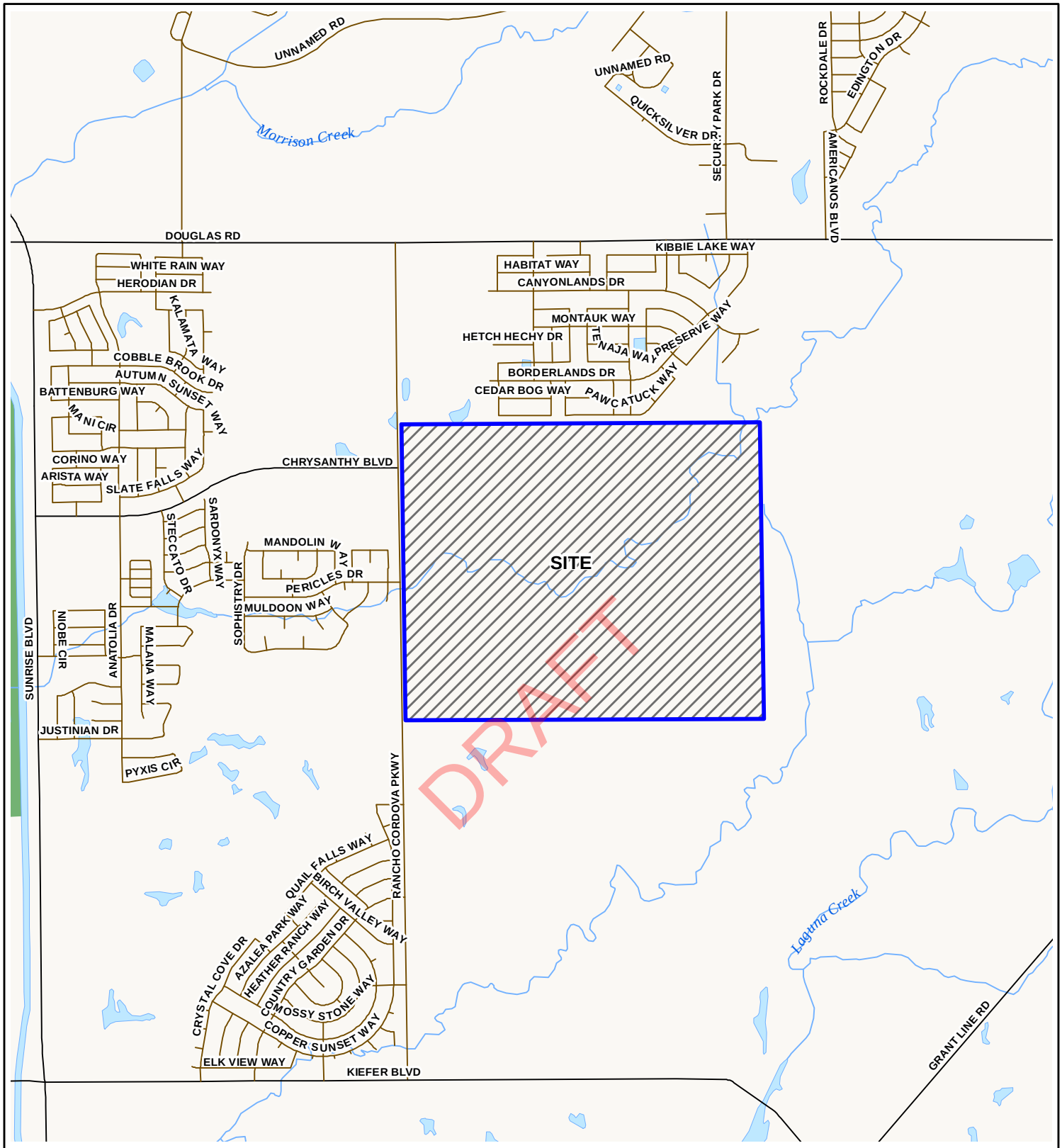
DRAFT

Wagner, D.L., et al, State of California Department of Mines and Geology, 1981, *Geologic Map of the Sacramento Valley and Sierra Foothills, California* [map]. 1:250,000, Regional Geologic Map Series, Map No. 1A (Geology). Capitol Heights, MD: William Heintz Map Corporation.

DRAFT

FIGURES

DRAFT



Street data courtesy of Sacramento County.
Hydrography courtesy of the U.S. Geological Survey
acquired from the GIS Data Depot, December, 2007.
Projection: NAD 83, California State Plane, Zone II

N

0 1,000 2,000
Feet

WallaceKuhl & ASSOCIATES

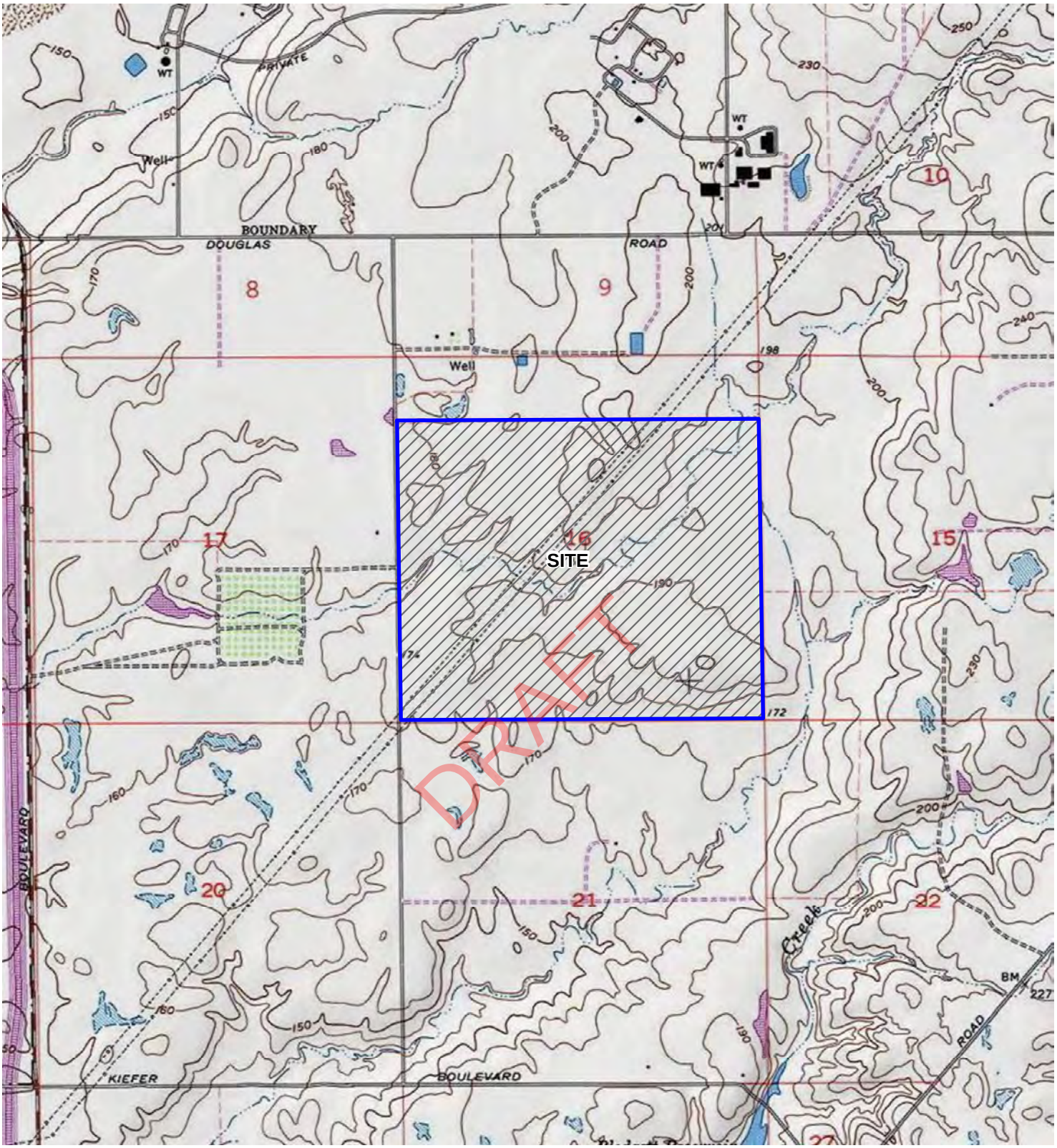
VICINITY MAP

JAEGER RANCH PROPERTY

Sacramento, California

FIGURE	1
DRAWN BY	RWO
CHECKED BY	DBN
PROJECT MGR	BCY
DATE	08/16

WKA NO. 11103.01



Adapted from U.S. Geological Survey 7.5 minute topographic map of the Carmichael and Buffalo Creek quadrangles, California, 1980 acquired from the California Geospatial Information Library, 2007
Projection: California State Plane, Zone II

N

0 1,000 2,000
Feet

WallaceKuhl & ASSOCIATES

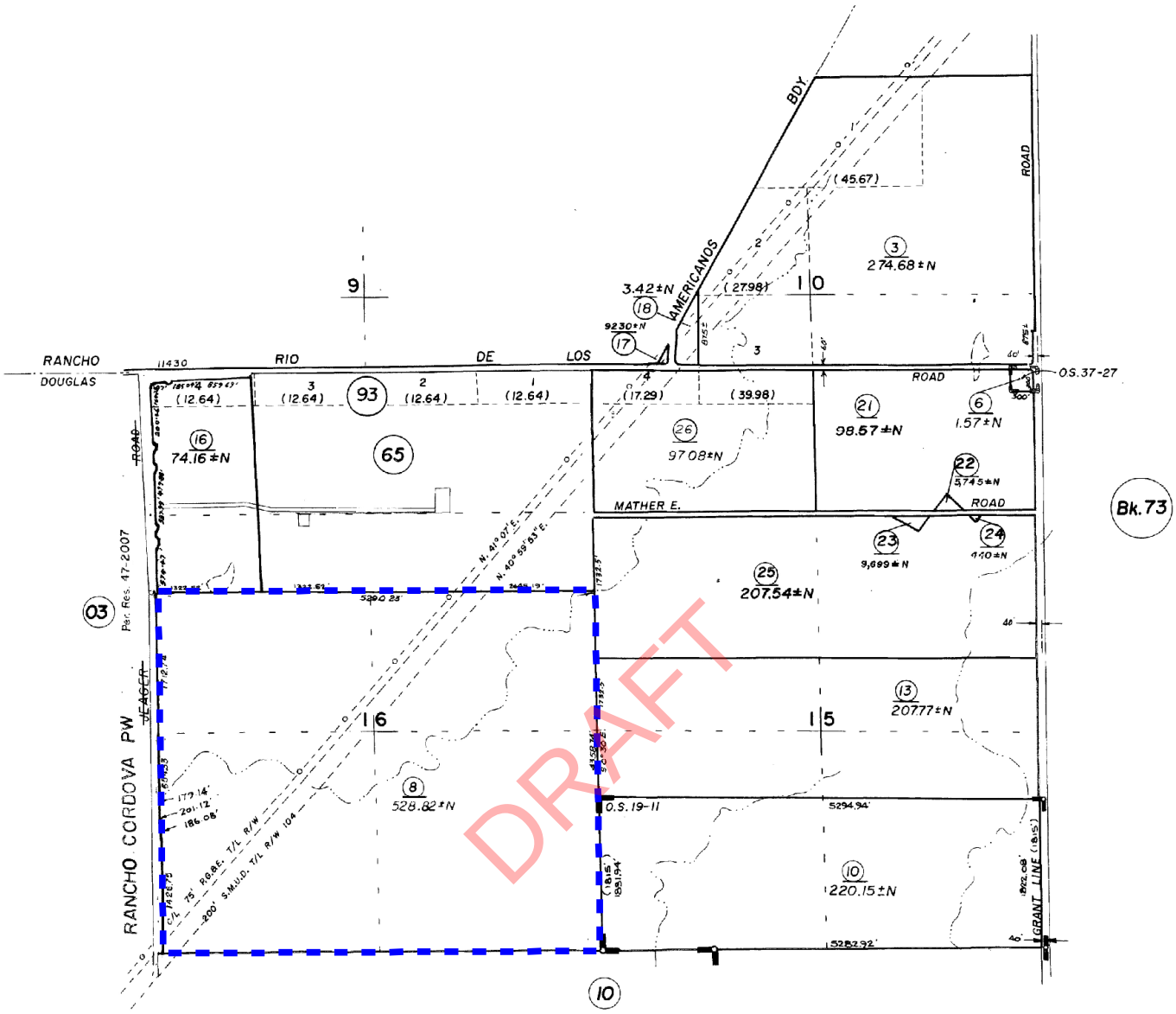
TOPOGRAPHIC MAP

JAEGER RANCH PROPERTY

Sacramento, California

FIGURE	2
DRAWN BY	RWO
CHECKED BY	DBN
PROJECT MGR	BCY
DATE	08/16

WKA NO. 11103.01



Parcel Map provided by the County of Sacramento Assessor's Book 67, Page 04.
Projection: NAD 83, California State Plane, Zone II

Legend

Site Boundary

N

0 1,000 2,000
Feet

WallaceKuhl & ASSOCIATES

PARCEL MAP

JAEGER RANCH PROPERTY

Sacramento, California

FIGURE	3
DRAWN BY	RWO
CHECKED BY	DBN
PROJECT MGR	BCY
DATE	08/16

WKA NO. 11103.01

Aerial provided by ESRI.
Site Plan adapted from drawing provided by
Wood Rodgers, dated May 11, 2016.
Projection: NAD 83, California State Plane, Zone II

Legend

Site Boundary

N

0 450 900
Feet

WallaceKuhl & ASSOCIATES

AERIAL SITE MAP

JAEGER RANCH PROPERTY

Sacramento, California

FIGURE	4
DRAWN BY	RWO
CHECKED BY	DBN
PROJECT MGR	BCY
DATE	08/16

WKA NO. 11103.01

APPENDIX A

RESUMES

DRAFT

BRYAN C. YATES

ENVIRONMENTAL SPECIALIST

Bryan C. Yates has managed projects dealing with multiple aspects of private and public development including master-planned communities, residential subdivisions, schools, churches, commercial properties, and light industrial facilities since 1998.

At Wallace Kuhl & Associates, Mr. Yates provides consulting services for multiple disciplines including:

- Stormwater Pollution Prevention Plans
- Municipal Stormwater Management Planning/Permitting
- Environmental Site Assessments
- Geotechnical Feasibility Studies
- Construction Management
- Land Development Consultation
- Land Development Constraints Analysis
- Political Consulting/Public Agency Interaction

SELECTED PROJECT EXPERIENCE

Castle Farms, Merced, CA: Mr. Yates prepared a Phase I Environmental Site Assessment, assisted in the geotechnical feasibility study, planned and coordinated a ground water assessment, which included an aquifer pumping test. His work also included quarterly surface water and air monitoring that continued for three years. Castle Farms consists of approximately 2,500 acres of agriculture production land formerly used for growing almond and wine grapes crops. The property is surrounded by a chicken ranch, a former military installation a Class III Disposal Landfill and a dairy farm.

Leona Quarry, Oakland, CA: Mr. Yates coordinated the efforts of multiple members of the development and construction team with local and regional agencies. He assisted in the preparation of the Stormwater Management Plan and SWPPP for this reclaimed quarry located in the Oakland Hills. Re-use planning revolved around approximately 400 condominium and single-family residential lots within the former quarry. Leona Quarry was an aggregate mine in Alameda County, California that was undergoing closure/re-use Studies.

.

North Spring Street Bridge Widening Project, Los Angeles, CA: Mr. Yates completed, an Initial Site Assessment in general conformance with Caltrans Standard Environmental Reference. The proposed project would widen the existing 50-foot-wide viaduct by approximately 20 feet on each side, resulting in a 90-foot-wide by 700-foot-long viaduct the California Department of Transportation and the City of Los Angeles had voiced concerns over the hazardous materials impacts by the proposed project during the NEPA/CEQA environmental documentation process.

Sacramento Stucco Property, West Sacramento, CA: Mr. Yates completed a Phase I Environmental Site Assessment for the three-acre property located northwest of the intersection of Riske Lane and South River Road and assisted in getting the Property through the enrollment process for the VCA program with the DTSC.. The property was occupied by the active Sacramento Stucco Company operation. Development plans for the property include a 30- to 50-story building occupied by commercial space, a parking structure, and approximately 300 condominiums. This Brownfield property currently lies within the redevelopment zone identified by the City of West Sacramento. The property was historically occupied by a lead acid battery recycling operation,

Transcan/Hillcrest Area Specific Plan, Antioch, CA, Mr. Yates completed a modified Environmental Site Assessment in support of the initial planning land acquisition activities for this proposed 375-acre transit oriented development. Mr. Yates also assisted the project proponent in completing an opportunities and constraints analysis for the project. The project is planned for a multi-facetted transit oriented development with a town center, 2,500 high density residential units, and no single family residences. Initial planning was complicated by a mix of historic agriculture and industrial uses that will be mitigated throughout the development process.

Folsom Boulevard Streetscape, Rancho Cordova, CA, Mr. Yates completed multiple Phase I Environmental Site Assessments in support of the efforts by the City of Rancho Cordova to upgrade and revitalize the five-mile Folsom Boulevard Corridor. These assessments were completed as part of the technical studies for project NEPA/CEQA documentation and compliance. The

DRAFT

Folsom Boulevard corridor is the heart of the City of Rancho Cordova Redevelopment Zone. Special features within the corridor include 4 Sacramento Regional Transit Light Rail Stations, and 3 Park & Ride Lots. Two US EPA Superfund sites are located within one mile of the Project boundary.

Northeast Fairfield Specific Plan, Fairfield, CA, Mr. Yates completed a hazardous materials assessment study for this large master planned community. This project included the development of previously undeveloped land, the redevelopment of the Cement Hill industrial area, a transit village with Capitol Corridor service, a railroad grade separation, and redevelopment of former railroad facilities. The planned uses included more than 6,000 single family residences, an employment center, retail, warehouse, and commercial.

Livingston's Concrete Services, Multiple Locations, CA, Mr. Yates has provided stormwater consulting services for Livingston's Concrete Services facilities in Lincoln, Rancho Cordova, North Highlands, Marysville, and Ophir (proposed).

Sunset, Roseville, CA, The Sunset project consists of approximately 1,000 acres of cattle grazing land. Mr. Yates completed a Phase I Environmental Site Assessment for this project. He also facilitated domestic water services discussions between Placer County Water Agency, the City of Roseville, and the project proponent.

Church Street Subdivision, Half Moon Bay, CA, Mr. Yates completed several technical studies in support of the environmental planning and permitting of this residential infill project located within Half Moon Bay, California. Bryan completed a modified Phase I Environmental Site Assessment that included soils sampling and analysis, preliminary drainage study. The environmental sampling was completed as a screening tool to assess the potential for pesticides residues to be present in near surface soil of the site. The preliminary drainage study was complicated by dense riparian vegetation along the banks of Pilarcitos Creek, floodplain issues, and the potential need to realign the stream channel to accommodate for the potential of an upstream earthen dam failure.

Solano County Fairgrounds Redevelopment, Vallejo, CA, Mr. Yates completed a modified Phase I Environmental Site Assessment in support of the initial planning phase of the proposed redevelopment of this 180 acre existing county fairgrounds site. Large areas of undocumented fill, underground fuel storage tanks, animal disposal pits, lead/asbestos, PCBs, and animal waste in shallow groundwater were all issues identified in the initial phases of the assessment.

Stockton Waterfront Project, Stockton, CA, Mr. Yates was Project Manager for the approximately 70-acre designated Brownfield project. This site was the location of the Colberg Boat Works that had historically been used to build and repair mine sweeping ships during World War II and more recently had been utilized for a variety of industrial activities. Bryan completed the Phase I Environmental Site Assessment for this complex waterfront project. The project will encompass 69 single-family, waterfront residences with internal streets, underground utilities, landscaping, and clubhouse.

DRAFT

HIGHER EDUCATION:

California State University, Sacramento
Bachelors of Science-2000

University of California, Davis
Certificate in Land Use & Environmental Planning-2008

PROFESSIONAL REGISTRATIONS:

American Institute of Certified Planners (AICP) #188463

Registered Environmental Assessor, CA #08011-Program Suspended

Caltrans Certified Erosion Control Specialist 2003

24 Hour Hazardous Waste Training Course, 2003 (Updated Annually)

Certified Environmental Manager, Nevada #1926

Certified Professional in Erosion and Sediment Control (CPESC) #3824

Qualified SWPPP Developer & Practitioner (QSD/QSP), California # 21052

LEED Green Associate, GBCI #10747592

KURT M. BALASEK

SENIOR HYDROGEOLOGIST/DIRECTOR OF ENVIRONMENTAL SERVICES

Mr. Balasek has provided a leadership role in hydrogeologic and environmental consulting in the Western US. since 1989. His experience includes, residential and commercial land development, litigation support, permitting, regulatory compliance and technical team building. Mr. Balasek and his team have conducted a wide range of impacted soil and groundwater investigations, mine location and reclamation activities, water resource evaluations and conjunctive use studies. Mr. Balasek has supported municipal efforts to redevelop blighted neighborhoods using private and federal funding and has prepared successful grant applications for EPA Brownfield funding. Mr. Balasek has facilitated public stakeholder processes, organized public comments and used the information gathered from these efforts to prioritize neighborhood and regional site investigations and remedial activities.

Mr. Balasek specializes in unique approaches to problem solving and leverages nearly 30 years of regulatory relationships to assist clients facing enforcement actions. Mr. Balasek has saved his clients hundreds of thousands of dollars in reduced fines, monitoring requirements or realized project efficiencies.

SELECTED PROJECT EXPERIENCE

Stockton Worknet, Stockton, CA: Project was conducted for the City of Stockton Redevelopment Agency and involved delineation, removal and disposal for hydrocarbon and lead-contaminated soil discovered during a construction project. The project also involved a component of public outreach because a children's museum was located immediately adjacent to the site.

Hayden Hill Mine, Lassen, CA: Project consisted of third party review of mine closure plan for Lassen County. Provided technical assistance to Lassen County Planning Commission to facilitate permanent closure of large open pit mine.

Willow Creek, Folsom, CA: Project involved site investigation and subsequent removal of petroleum hydrocarbon-contaminated soil to facilitate private development of commercial property. Under my direction, I facilitated the investigation, excavation and coordination of closure petitions.

City of West Sacramento, West Sacramento, CA: Multiple Projects. These projects involved initial site evaluation of several hundred individual sites for the redevelopment of West Sacramento. Subsequent work involved site investigation and remediation of several sites under U.S. EPA Grants. Provided technical assistance to City staff and collaborated with them to best utilize the public funds and coordinate public outreach.

Rominger Property, Winters, CA (on-going): This project involves detailed site investigation, hydrogeologic analysis and evaluation, and the selection of appropriate remediation technologies for a large plume of (MTBE) contamination on an Ag-industrial site. Project involvement included client and regulatory interaction.

DRAFT

HIGHER EDUCATION:

University of California, Santa Barbara
BA, Geological Sciences (1986)
California State University, Chico
MS, Hydrogeology/Hydrology (1990)

PROFESSIONAL REGISTRATIONS:

Professional Geologist No. 6162, CA
Certified Hydrogeologist No. 299, CA
Qualified Storm Water Developer
California Engineering Contractor A-Haz, C-57,

APPENDIX B

ASTM E 1527-13 User Questionnaire
and Helpful Documents Checklist

DRAFT

E 1527-13 USER QUESTIONNAIRE
JAEGER RANCH PROPERTY

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "*Brownfields Amendments*"), the *user*[2] must provide the following information (if available) to the *environmental professional*. Failure to provide this information could result in a determination that "*all appropriate inquiry*" is not complete.

(1.) Have you performed a search for environmental cleanup liens and AULs, as described under *User Obligations* in the attached proposal, for the *property*? No

(2.) Are you aware of any environmental cleanup liens against the *property* that are filed or recorded under federal, tribal, state or local law? No

(3.) Are you aware of any AULs, such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? No

(4.) As the *user* of the report, do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

No

DRAFT

(5.) Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property*? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present on the *property*? The price reasonably reflects the fair market value No known information regarding contamination affects price.

(6.) Are you aware of commonly known or reasonably ascertainable information about the *property* that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user,

(a.) Do you know the past uses of the *property*? If so, what were they?
No, but likely cattle grazing.

(b.) What, if any, specific chemicals are present or once were present at the *property*?

Unknown

---

[2] User, as defined in the ASTM Standard is "the party seeking to use Practice E 1527 to complete an environmental site assessment of the property. A user may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, or a property manager. The user has specific obligations for completing a successful application of this practice as outline in Section 6 [of the ASTM Standard]."

E 1527-13 USER QUESTIONNAIRE (cont.)
JAEGER RANCH PROPERTY

Questions 6 continued:

(c.) What, if any, spills or other chemical releases have taken place at the *property*?

Unknown

(d.) What, if any, environmental cleanups have taken place at the *property*?

Unknown

(7.) As the *user* of this ESA, based on your knowledge and experience related to the *property* are there any obvious indicators that point to the presence or likely presence of contamination at the *property*?

Unknown

COMPLETION:

I have completed this User Questionnaire to the best of my knowledge and provided all information to the environmental professional as of the following date:

DRAFT

Completed by: Leah Dreger

Date: 8/9/16

Title: Director of Entitlements

Signature: Leah Dreger

Phone Number: 925-380-1699

Relationship to the Site (i.e., owner, lender, property manager): Representative of Optimee

HELPFUL DOCUMENTS
JAEGER RANCH PROPERTY

Are you aware of any of the below-listed reports, as they relate specifically to the property?

_____ Yes X No (if yes, please check all that apply):

- ☐ Environmental Site Assessment reports (Phase I ESA, Asbestos sampling reports, etc.)
- ☐ Environmental Compliance Audit reports
- ☐ Geotechnical Reports
- ☐ Environmental permits (for example, solid waste disposal permits, hazardous waste disposal permits, wastewater permits, NPDES permits, underground injection permits)
- ☐ Registrations for underground or above ground storage tanks
- ☐ Registrations for underground injection systems
- ☐ Material Safety Data Sheets
- ☐ Community Right-to-Know plan
- ☐ Safety Plan
- ☐ Reports regarding Hydrogeologic conditions on the property or surrounding area
- ☐ Notices or other correspondence from any government agency relating to past or current violations of environmental laws with respect to the property or relating to environmental liens encumbering the property
- ☐ Hazardous waste generator notices, or reports
- ☐ Environmental Impact Reports (draft and/or final)
- ☐ Risk assessments
- ☐ Recorded AULs

DRAFT

If any of the above listed documents are available, will copies be provided to WKA for review?

X Yes ____ No

Completed by Leah Dreger

Date: 8/9/16

Title: Director of Entitlements

Signature: Leah Dreger

APPENDIX C

EDR® Radius Map Report Executive Summary

DRAFT

Jaeger Ranch Property
Jaeger Road
Rancho Cordova, CA 95742

Inquiry Number: 4700133.2s
August 15, 2016

DRAFT

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	17
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-9
Physical Setting Source Map Findings	A-11
Physical Setting Source Records Searched	PSGR-1

DRAFT

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

JAEGER ROAD
RANCHO CORDOVA, CA 95742

COORDINATES

Latitude (North):	38.5459470 - 38˚ 32' 45.40''
Longitude (West):	121.2149940 - 121˚ 12' 53.97''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	655559.4
UTM Y (Meters):	4267695.0
Elevation:	185 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5619686 BUFFALO CREEK, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140621
Source:	USDA

DRAFT

MAPPED SITES SUMMARY

Target Property Address:
JAEGER ROAD
RANCHO CORDOVA, CA 95742

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	GENERAL ELECTRIC MED	3920 SECURITY PARK	HWP	Higher	3297, 0.624, NNE
A2	GENERAL ELECTRIC MED	3920 SECURITY PARK D	SEMS-ARCHIVE, CORRACTS, RCRA-TSDF, RCRA-SQG,...	Higher	3297, 0.624, NNE

DRAFT

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ..... Federal Facility Site Information listing
SEMS ..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ..... Superfund Enterprise Management System Archive

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ..... Land Use Control Information System
US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls

Federal ERNS list

ERNS ..... Emergency Response Notification System

DRAFT

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR..... EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
SLIC..... Statewide SLIC Cases
Sacramento Co. CS..... Toxic Site Clean-Up List

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Program Properties
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfieds Sites Listing

DRAFT

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL..... Delisted National Clandestine Laboratory Register

HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
US CDL	National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CA FID UST	Facility Inventory Database

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations

DRAFT

FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
HIST CORTESE	Hazardous Waste & Substance Site List
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
Sacramento Co. ML	Master Hazardous Materials Facility List
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
ECHO	Enforcement & Compliance History Information
FUELS PROGRAM	EPA Fuels Program Registered Listing

DRAFT

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto	EDR Exclusive Historic Gas Stations
EDR Hist Cleaner	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	Recovered Government Archive Solid Waste Facilities List
RGA LUST	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA CORRACTS facilities list

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 12/09/2015 has revealed that there is 1 CORRACTS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GENERAL ELECTRIC MED	***3920 SECURITY PARK D***	***NNE 1/2 - 1 (0.624 mi.)***	***A2***	***9***

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

HWP: Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

A review of the HWP list, as provided by EDR, and dated 05/23/2016 has revealed that there is 1 HWP site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GENERAL ELECTRIC MED EPA Id: CAD000819680 Cleanup Status: CLOSED	3920 SECURITY PARK	NNE 1/2 - 1 (0.624 mi.)	A1	8

DRAFT

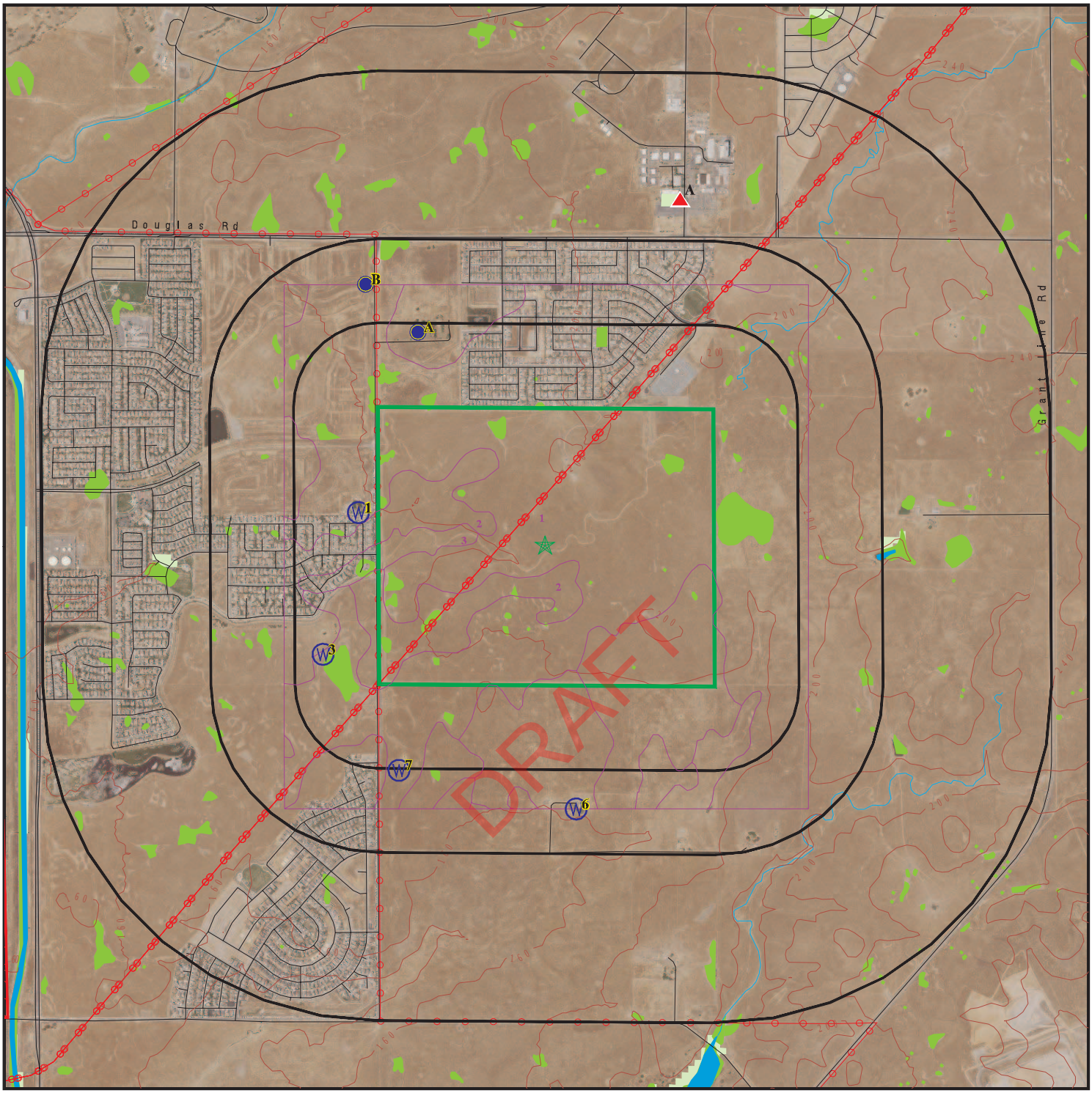
EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

Site Name	Database(s)
ANATOLIA II ELEMENTARY SCHOOL	ENVIROSTOR, SCH

DRAFT

OVERVIEW MAP - 4700133.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

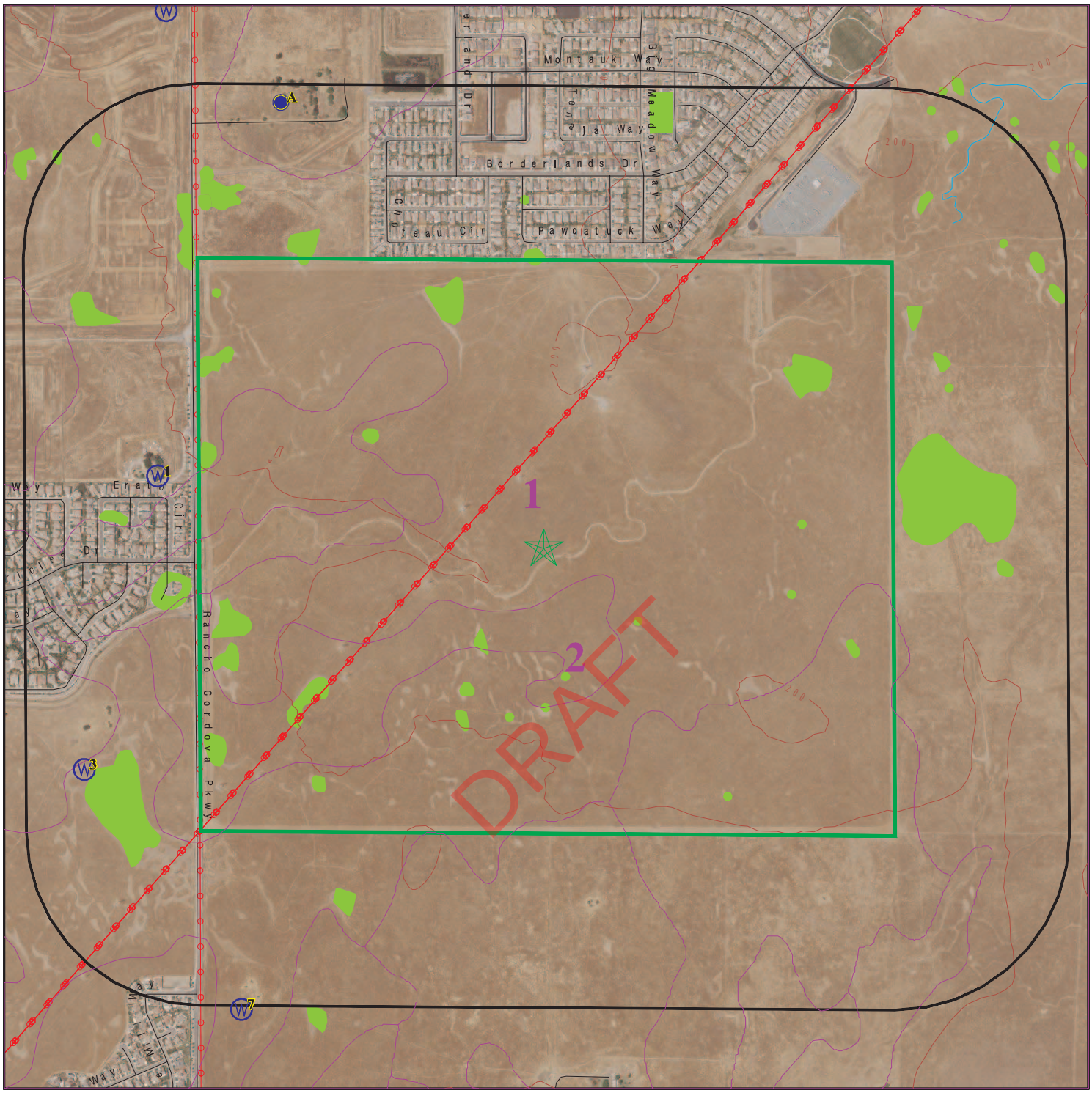
Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Jaeger Ranch Property	CLIENT: Wallace - Kuhl & Associates
ADDRESS: Jaeger Road Rancho Cordova CA 95742	CONTACT: Bryan C. Yates
	INQUIRY #: 4700133.2s
LAT/LONG: 38.545947 / 121.214994	DATE: August 15, 2016 1:48 pm

Copyright © 2016 EDR, Inc. © 2015 TomTom Rel. 2015.

DETAIL MAP - 4700133.2S



0 1/8 1/4 1/2 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Jaeger Ranch Property	CLIENT: Wallace - Kuhl & Associates
ADDRESS: Jaeger Road Rancho Cordova CA 95742	CONTACT: Bryan C. Yates
	INQUIRY #: 4700133.2s
LAT/LONG: 38.545947 / 121.214994	DATE: August 15, 2016 1:50 pm

Copyright © 2016 EDR, Inc. © 2015 TomTom Rel. 2015.

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	1	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

DRAFT

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
Sacramento Co. CS	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0

DRAFT

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	1	NR	1
HWT	0.250		0	0	NR	NR	NR	0

DRAFT

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MINES	0.001		0	NR	NR	NR	NR	0
Sacramento Co. ML	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	0	0	0	2	0	2

DRAFT

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 NNE 1/2-1 0.624 mi. 3297 ft. | **GENERAL ELECTRIC MEDICAL SYSTEMS** | **HWP** | **S111865965**
3920 SECURITY PARK | **N/A**
RANCHO CORDOVA, CA 95670

Site 1 of 2 in cluster A

Relative: Higher

Actual: 208 ft.

HWP:

EPA Id:	CAD000819680
Cleanup Status:	CLOSED
Latitude:	38.56405
Longitude:	-121.2178
Facility Type:	Historical - Non-Operating
Facility Size:	Not reported
Team:	Not reported
Supervisor:	Not reported
Site Code:	100393
Assembly District:	08
Senate District:	08
Public Information Officer:	Not reported
Public Information Officer:	Not reported

Activities:

EPA Id:	CAD000819680
Facility Type:	Historical - Non-Operating
Unit Names:	CONTAIN1, TANKTRT, TANKTRT1
Event Description:	New Operating Permit - APPLICATION PART A RECEIVED
Actual Date:	11/19/1980

EPA Id:	CAD000819680
Facility Type:	Historical - Non-Operating
Unit Names:	CONTAIN1, TANKTRT, TANKTRT1
Event Description:	New Operating Permit - FINAL PERMIT - WITHDRAWAL REQUEST ACKNOWLEDGED
Actual Date:	10/21/1988

EPA Id:	CAD000819680
Facility Type:	Historical - Non-Operating
Unit Names:	CONTAIN1, TANKTRT, TANKTRT1
Event Description:	New Operating Permit - APPLICATION PART B RECEIVED
Actual Date:	06/10/1982

EPA Id:	CAD000819680
Facility Type:	Historical - Non-Operating
Unit Names:	CONTAIN1, TANKTRT, TANKTRT1
Event Description:	New Operating Permit - CALL-IN LETTER ISSUED
Actual Date:	02/15/1982

EPA Id:	CAD000819680
Facility Type:	Historical - Non-Operating
Unit Names:	CONTAIN1, TANKTRT, TANKTRT1
Event Description:	New Operating Permit - FINAL PERMIT - WITHDRAWAL REQUEST RECEIVED
Actual Date:	11/30/1987

EPA Id:	CAD000819680
Facility Type:	Historical - Non-Operating
Unit Names:	CONTAIN1, TANKTRT, TANKTRT1
Event Description:	New Operating Permit - FINAL PERMIT
Actual Date:	06/29/1987

EPA Id:	CAD000819680
Facility Type:	Historical - Non-Operating

DRAFT

GENERAL ELECTRIC MEDICAL SYSTEMS (Continued) **S111865965**

Unit Names: CONTAIN1, TANKTRT, TANKTRT1
Event Description: New Operating Permit - FINAL PERMIT (EXPIRES)
Actual Date: 06/29/1992

EPA Id: CAD000819680
Facility Type: Historical - Non-Operating
Unit Names: CONTAIN1, TANKTRT, TANKTRT1
Event Description: New Operating Permit - FINAL PERMIT (EFFECTIVE)
Actual Date: 06/29/1987

Closure:
EPA Id: CAD000819680
Facility Type: Historical - Non-Operating
Unit Names: CONTAIN1, TANKTRT, TANKTRT1
Event Description: Closure Final - RECEIVE CLOSURE CERTIFICATION
Actual Date: 12/22/1988

EPA Id: CAD000819680
Facility Type: Historical - Non-Operating
Unit Names: CONTAIN1, TANKTRT, TANKTRT1
Event Description: Closure Final - CLOSURE PLAN RECEIVED
Actual Date: 11/30/1987

EPA Id: CAD000819680
Facility Type: Historical - Non-Operating
Unit Names: CONTAIN1, TANKTRT, TANKTRT1
Event Description: Closure Final - CLOSURE PLAN APPROVED
Actual Date: 10/21/1988

EPA Id: CAD000819680
Facility Type: Historical - Non-Operating
Unit Names: CONTAIN1, TANKTRT, TANKTRT1
Event Description: Closure Final - ISSUE CLOSURE VERIFICATION
Actual Date: 06/28/1991

Alias:
EPA Id: CAD000819680
Facility Type: Historical - Non-Operating
Alias Type: Project Code (Site Code)
Alias: 100393

DRAFT

A2
NNE
1/2-1
0.624 mi.
3297 ft.

Relative:
Higher

Actual:
208 ft.

GENERAL ELECTRIC MEDICAL SYSTEMS
3920 SECURITY PARK DR
RANCHO CORDOVA, CA 95742

Site 2 of 2 in cluster A

SEMS-ARCHIVE
CORRACTS
RCRA-TSDF
RCRA-SQG
FINDS
HAZNET
ECHO

1000214137
CAD000819680

SEMS-ARCHIVE:
Site ID: 903397
EPA ID: CAD000819680
Federal Facility: N
NPL: Not on the NPL
Non NPL Status: Deferred to RCRA

GENERAL ELECTRIC MEDICAL SYSTEMS (Continued) **1000214137**

Following information was gathered from the prior CERCLIS update completed in 10/2013:

Site ID: 0903397
Federal Facility: Not a Federal Facility
NPL Status: Not on the NPL
Non NPL Status: Deferred to RCRA

CERCLIS-NFRAP Site Contact Details:

Contact Sequence ID: 13287961.00000
Person ID: 13003854.00000

Contact Sequence ID: 13293556.00000
Person ID: 13003858.00000

Contact Sequence ID: 13299414.00000
Person ID: 13004003.00000

Program Priority:

Description: RCRA Deferral - Lead Confirmed

CERCLIS-NFRAP Assessment History:

Action: DISCOVERY
Date Started: / /
Date Completed: 03/01/91
Priority Level: Not reported

Action: PRELIMINARY ASSESSMENT
Date Started: / /
Date Completed: 09/16/91
Priority Level: Deferred to RCRA (Subtitle C)

Action: ARCHIVE SITE
Date Started: / /
Date Completed: 01/23/96
Priority Level: Not reported

DRAFT

CORRACTS:

EPA ID: CAD000819680
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19980911
Action: CA050RF - RFA Completed, Assessment was an RFA
NAICS Code(s): Not reported
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAD000819680
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19910831
Action: CA075ME - CA Prioritization, Facility or area was assigned a medium corrective action priority
NAICS Code(s): Not reported
Original schedule date: Not reported
Schedule end date: Not reported

GENERAL ELECTRIC MEDICAL SYSTEMS (Continued) **1000214137**

EPA ID: CAD000819680
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19910831
Action: CA029WQ
NAICS Code(s): Not reported
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAD000819680
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19910831
Action: CA074ME
NAICS Code(s): Not reported
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAD000819680
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19910831
Action: CA049PA
NAICS Code(s): Not reported
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CAD000819680
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: Not reported
Action: CA03193
NAICS Code(s): Not reported
Original schedule date: 19931001
Schedule end date: Not reported

DRAFT

RCRA-TSDF:
Date form received by agency: 09/01/1996
Facility name: GENERAL ELECTRIC MEDICAL SYSTEMS
Facility address: 3920 SECURITY PARK DR
RANCHO CORDOVA, CA 95742
EPA ID: CAD000819680
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 09
Land type: Private
Classification: TSDF
Description: Handler is engaged in the treatment, storage or disposal of hazardous waste

Owner/Operator Summary:
Owner/operator name: GENERAL ELECTRIC CO

GENERAL ELECTRIC MEDICAL SYSTEMS (Continued) **1000214137**

Owner/operator address: 3920 SECURITY PARK
CITY NOT REPORTED, CA 99999
Owner/operator country: Not reported
Owner/operator telephone: (916) 361-4202
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: MCDONNELL DOUGLAS CORP
Owner/operator address: 11505 DOUGLAS RD
RANCHO CORDOVA, CA 95670
Owner/operator country: Not reported
Owner/operator telephone: (916) 351-0550
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

DRAFT

Historical Generators:
Date form received by agency: 02/14/1996
Site name: GENERAL ELECTRIC MEDICAL SYSTEMS
Classification: Large Quantity Generator

Corrective Action Summary:
Event date: 08/31/1991
Event: CA029WQ

Event date: 08/31/1991
Event: CA049PA

Event date: 08/31/1991
Event: CA074ME

Event date: 08/31/1991
Event: CA Prioritization, Facility or area was assigned a medium corrective action priority.

Event date: 09/11/1998

GENERAL ELECTRIC MEDICAL SYSTEMS (Continued) **1000214137**

Event: RFA Completed, Assessment was an RFA.

Event date: Not reported
Event: CA03193

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: TSD - Financial Requirements
Date violation determined: 05/19/1988
Date achieved compliance: 07/23/1988
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/26/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 05/30/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/22/1989
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/21/1989
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/19/1988
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: TSD - Financial Requirements
Date achieved compliance: 07/23/1988
Evaluation lead agency: State

Evaluation date: 01/19/1988
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 12/22/1987
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

DRAFT

GENERAL ELECTRIC MEDICAL SYSTEMS (Continued) **1000214137**

FINDS:

Registry ID: 110009552607

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Registry ID: 110000609173

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

DRAFT

HAZNET:

envid:	1000214137
Year:	1996
GEPAID:	CAD000819680
Contact:	MCDONNEL DOUGLAS CORPORATION
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	3920 SECURITY PARK
Mailing City,St,Zip:	RANCHO CORDOVA, CA 956700000
Gen County:	Not reported
TSD EPA ID:	WAD000812909
TSD County:	Not reported
Waste Category:	Other inorganic solid waste
Disposal Method:	Not reported
Tons:	1.9836
Cat Decode:	Other inorganic solid waste
Method Decode:	Not reported
Facility County:	Sacramento

envid:	1000214137
Year:	1996
GEPAID:	CAD000819680
Contact:	MCDONNEL DOUGLAS CORPORATION
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	3920 SECURITY PARK
Mailing City,St,Zip:	RANCHO CORDOVA, CA 956700000
Gen County:	Not reported
TSD EPA ID:	CA0000084517
TSD County:	Not reported
Waste Category:	Hydrocarbon solvents (benzene, hexane, Stoddard, Etc.)
Disposal Method:	Transfer Station
Tons:	1.6262

GENERAL ELECTRIC MEDICAL SYSTEMS (Continued) **1000214137**

Cat Decode: Hydrocarbon solvents (benzene, hexane, Stoddard, Etc.)
Method Decode: Transfer Station
Facility County: Sacramento

envid: 1000214137
Year: 1996
GEPAID: CAD000819680
Contact: MCDONNEL DOUGLAS CORPORATION
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 3920 SECURITY PARK
Mailing City,St,Zip: RANCHO CORDOVA, CA 956700000
Gen County: Not reported
TSD EPA ID: WAD000812909
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Not reported
Tons: 2.2500
Cat Decode: Asbestos containing waste
Method Decode: Not reported
Facility County: Sacramento

envid: 1000214137
Year: 1995
GEPAID: CAD000819680
Contact: MCDONNEL DOUGLAS CORPORATION
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 3920 SECURITY PARK
Mailing City,St,Zip: RANCHO CORDOVA, CA 956700000
Gen County: Not reported
TSD EPA ID: WAD000812909
TSD County: Not reported
Waste Category: Other inorganic solid waste
Disposal Method: Not reported
Tons: .7129
Cat Decode: Other inorganic solid waste
Method Decode: Not reported
Facility County: Sacramento

envid: 1000214137
Year: 1993
GEPAID: CAD000819680
Contact: MCDONNEL DOUGLAS CORPORATION
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 3920 SECURITY PARK
Mailing City,St,Zip: RANCHO CORDOVA, CA 956700000
Gen County: Not reported
TSD EPA ID: CAT000613950
TSD County: Not reported
Waste Category: Liquids with halogenated organic compounds >= 1,000 Mg./L
Disposal Method: Transfer Station
Tons: 3.74999999999
Cat Decode: Liquids with halogenated organic compounds >= 1,000 Mg./L
Method Decode: Transfer Station
Facility County: Sacramento

DRAFT

GENERAL ELECTRIC MEDICAL SYSTEMS (Continued) **1000214137**

Click this hyperlink while viewing on your computer to access
additional CA_HAZNET: detail in the EDR Site Report.

ECHO:

Envid:	1000214137
Registry ID:	110000609173
DFR URL:	http://echo.epa.gov/detailed_facility_report?fid=110000609173

Envid:	1000214137
Registry ID:	110009552607
DFR URL:	http://echo.epa.gov/detailed_facility_report?fid=110009552607

DRAFT

APPENDIX D

Preliminary Screen for Vapor Encroachment Conditions Matrix

DRAFT

Screen for Vapor Encroachment Conditions Matrix
Jaeger Ranch Property
WKA No. 11103.01

Phase I ESA Screen for Vapor Encroachment Conditions (VEC) matrix includes a (1) **Search Radius Test,** (2) **Chemicals of Concern Test (COC),** and (3) a **Critical Distance Test**[1].

(1) Search Radius Test: Are there any known or suspect contaminated sites in the primary area of concern within the corresponding search radii? (if yes, see attached Table A).

Yes No If No, then screening for a VEC is complete and no VEC *currently* exists, go to #4. If Yes, then:

(2) **Chemicals of Concern**[2] **Test**: Are COC likely to be present within the area of concern for those known or suspect contaminated sites identified based on the Search Distance Test?

Yes No If No, then screening for a VEC is complete and no VEC *currently* exists, go to #4. If Yes, then:

If Yes, check all COC that apply on attached Table B.

(3) Critical Distance Test: A plume test to determine whether or not COC in the contaminated plume(s) may be within the critical distance.

(3a) Is information related to the contaminated(s) plume available (i.e. isoconcentration maps, site drawings, etc.)?
Yes No

(3b) If ***No***, then screening for a VEC is complete and no VEC *currently* exists, go to #4. If ***Yes***, then:

(3c) Is the site less than 100 feet to the nearest edge of a contaminated [non-petroleum hydrocarbon] plume(s)?
Yes No

(3d) Is the site less than 30 feet to the nearest edge of a dissolved petroleum hydrocarbon plume(s)?
Yes No

DRAFT

If the distance from the nearest edge of a contaminated plume to the nearest existing or planned structure on the site is less than 100 feet for non-petroleum hydrocarbon COC, or less than 30 feet for dissolved petroleum hydrocarbons, then it is presumed that a VEC *currently* exists beneath the site. If the distance from the nearest edge of the contaminated plume is greater than or equal to 100 feet for non-petroleum hydrocarbons, or 30 feet for dissolved petroleum hydrocarbon chemicals of concern, then it is presumed unlikely that a VEC *currently* exists beneath the site.

(4) Is it likely that a VEC *currently* exists beneath the site?
Yes No If *Yes,* then recommend performing a full scope VEC assessment according to ASTM E 2600-10.

[1] Based on guidance presented in the ASTM E 2600-10 Standard.
[2] Chemical(s) of concern (COC): See attached table for typical chemicals of concern (as presented in Appendix X6.1 of the ASTM E 2600-10 Standard).

APPENDIX G

The Ranch Project Consistency with Rancho Cordova General Plan Policies

APPENDIX G: THE RANCH PROJECT CONSISTENCY WITH RANCHO CORDOVA GENERAL PLAN POLICIES

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
LAND USE	
Policy LU.1.3 – Maintain a strong jobs-housing ratio, with a diverse job base and corresponding housing stock, within the Planning Area. Improve the relationship and proximity of jobs to housing and commercial services. (Further implemented through Action LU.1.3.2)	**Consistent.** As described in Section 3.11, the project is generally consistent with the City's General Plan in regards to the mix of residential and nonresidential land uses. Additionally, the project area includes retail and commercial uses interspersed with residential uses as envisioned for the SunCreek/Preserve Planning Area; thereby providing jobs within proximity to housing consistent with the General Plan. Further, the future employment growth associated with the project is consistent with the growth anticipated in the SACOG 2016 MTP/SCS.
Policy LU.1.4 - Promote high quality, efficient, and cohesive land utilization that minimizes negative impacts (e.g., traffic congestion and visual blight) and environmental hazards (e.g. flood, soil instability) on adjacent neighborhoods and infrastructure and preserve existing and future residential neighborhoods from encroachment of incompatible activities and land uses.	**Consistent.** The proposed project has been designed to minimize congestion, visual imposition, and environmental hazards between adjoining, but different land uses, as discussed in The Ranch Draft EIR.
Policy LU.1.6 Ensure adequate provisions for development of civic uses (public/quasi-public). (Further implemented by Action LU.1.6.1).	**Consistent.** The proposed project includes the public uses including park and recreation facilities, trails, and a recreation center.
Policy LU.1.7 – Promote higher density and intensity land uses that support transit within one- half mile of major transit stations. Development should be pedestrian- and transit-friendly with direct connections to transit. Large, expansive parking fields that separate the retail from the station are prohibited.	**Consistent.** The project is not located within one-half mile of a major transit station. The project includes multifamily development near the proposed retail and commercial areas and locates the higher intensity land uses (268 multifamily units and approximately 5 acres of commercial uses) associated with the project in close proximity to the planned Signature Transit Line facility.
Policy LU.1.9 - The City shall require development to protect one acre of existing farmland of equal or higher quality for each acre of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance that would be converted to non- agricultural uses. This protection may consist of the establishment of farmland conservation easements, farmland deed restrictions, or other appropriate farmland conservation in perpetuity, but may also be utilized for compatible wildlife conservation efforts. The farmland to be preserved shall be located within Sacramento County and must have adequate water supply to support agricultural use. As part of the consideration of land areas proposed to be protected, the City shall consider the benefits of preserving farmlands in proximity to other protected lands.	**Consistent.** The majority of the project site is depicted on the California Department of Conservation's Farmland Mapping and Monitoring Program as Grazing Land, with some portions of the site depicted as Urban and Built-Up Land. Grazing Land is suitable for the grazing of livestock and does not qualify as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, no protection of existing farmland is required and the proposed project is consistent with this policy.
Policy LU.1.11 – Proper buffering for the Kiefer landfill of a 2,000-foot buffer around the permitted footprint of the landfill shall be required. Where appropriate, land use density, buffers, or other measures should be used when planning future land uses near the landfill.	**Consistent.** No portion of the project site falls within 2,000 feet of the land fill footprint.
Policy LU.2.1 - Ensure future land use and growth within the Planning Area adheres to the City's smart growth principles, as described in this Element.	**Consistent.** The proposed project impacts the applicable Smart Growth Principles as follows: *Transportation Choices* - In addition to major and minor roads planned throughout the project, the project would provide an on-site transit facility consistent with the

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
	City's Transit Master Plan. Additionally, the project has proposed pedestrian/bicycle path network for the site. *Housing Choices* - The proposed project includes a mix of medium and low-density residential land uses, including age-restricted and non-age restricted, providing choices for future residents in the area of density and ultimately home size and price. *Mixed Land Uses* - The proposed project includes residential, commercial, parks, and recreation land uses. *Compact Urban Development* - The proposed project is designed with commercial land uses surrounded by residential uses and connected by both roads and pedestrian/bicycle paths and has clustered uses in order to avoid the large, continuous nature preserve that would be established by the project. Neighborhoods within the proposed project are consistent with the building blocks concept of the City and are therefore clustered and compact. *Walkable Neighborhoods* - Residential land uses in the proposed project are clustered, fostering a walkable community and serving to create compact residential areas. In addition, the project will include sidewalks, off-street trails, standard pedestrian crossing warning signs, signs to identify pedestrian and bicycle paths, and pedestrian signal heads. Sidewalks will be constructed as part of the frontage improvements along all new roadway construction for Jaeger Road/Rancho Cordova Parkway and Chrysanthy Boulevard. *Preservation/Integration of Natural Resources* - The proposed project includes an approximate 199.5-acre preserve. The project would also include additional park and open space associated with project drainage improvements and public trails. *Quality Design/Sense of Place* - The final design of structures within the proposed project will be subject to the The Ranch Special Planning Area Handbook (SPA Handbook), which has been developed to provide a cohesive community with high quality design.
Policy LU.2.2 - Promote new development and redevelopment in accordance with the building blocks concepts of neighborhoods, villages, and districts.	**Consistent.** The project is designed in accordance with the building blocks concept to include cohesive neighborhoods.
Policy LU.2.4 – Use Community Plans, Proposed projects, and development projects to promote pedestrian movement via direct, safe, and pleasant routes that connect destinations inside and outside the plan or project area.	**Consistent.** The project includes ample bicycle and pedestrian trails throughout the project site. The project provides a well detailed plan for internally pleasant travel as well as for connection with external routes.
Policy LU.2.5 - Phase growth based on infrastructure capacity, infrastructure financing, and the timing of the design, approval/permitting, and construction of transportation facilities and other infrastructure.	**Consistent.** The project includes a phasing plan. The project is to be accomplished in four phases. These four phases are designed to match the construction of infrastructure.

APPENDIX G: THE RANCH PROJECT CONSISTENCY WITH RANCHO CORDOVA GENERAL PLAN POLICIES

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Policy LU.2.6 - Discourage the over concentration of retail shopping facilities in a single location in order to ensure neighborhood services are distributed and integrated into the City's neighborhoods and that market demand is met without diminishing the viability of nearby commercial properties with the same customer base. Further implemented by Action LU.2.6.1.	**Consistent.** The project implements the building block approach in conjunction with the provision of a neighborhood-serving commercial parcel. The commercial parcel is sized appropriately for the area and would not result in an over concentration of retail uses.
Policy LU.2.7 – Promote sustainable development that reduces the impact of projects on energy, water, and transportation systems. Encourage sustainable development to occur in ways that complement the built form.	**Consistent.** The proposed project integrates sustainable development practices at each level of community planning and implementation. See Section 3.6 (Greenhouse Gases, Climate Change, and Energy) of The Ranch Draft EIR for a description of the project's design measures as well as mitigation requirements that reduce energy consumption, water use, reduce vehicle trips, reduce GHG emissions, and promote sustainable development.
Policy LU.3.4 - Consult with state and federal regulatory and resource agencies during initial review of development projects to identify potential environmental conflicts and establish, if appropriate, concurrent application processing schedules.	**Consistent.** The proposed project is subject to CEQA review. A Notice of Preparation (NOP) to prepare an EIR was published for this project. State and federal regulatory and resource agencies had the opportunity to provide comments based on this initial notice and will also be notified and provided the opportunity to comment during the public review period for The Ranch Draft EIR.
Policy LU.3.5 - Work with community service providers such as the Cordova Recreation and Park District and the Rancho Cordova Neighborhood Center to expand their services to new areas of the City as opportunities arise.	**Consistent.** Plan development, including location and sizing of parks, has been coordinated with the Cordova Recreation and Park District.
Policy LU.3.9 - Ensure that land uses adjacent to or near Mather Airport are subject to the location, use, and height restrictions of the most recently adopted CLUP/ALUP at the time of development consideration, except when the CLUP/ALUP is under an update process. In the circumstance of a CLUP/ALUP update, coordinate with the County in the review of development projects to determine the most appropriate development restrictions for the continued operation of the airport.	**Consistent.** The proposed project area is not located within the Airport Area of Influence. Therefore, the CLUP guidelines and restrictions on development do not apply to the proposed project or any of the alternatives.
Policy LU.6.2 – Ensure subsequent detailed land planning for those Planning Areas with Conceptual Land Plans.	**Consistent.** The proposed project provides a detailed land use plan in the SPA Handbook, including land use designations, proposed land uses depicted on a land use map, and policies and details regarding development standards and allowed uses.
URBAN DESIGN	
Policy UD.1.1 – Promote the design of residential neighborhoods in accordance with the desired character of the village and district in which it is located. All City codes and regulations shall be updated to reflect the City's vision for Urban Design neighborhoods, villages, and districts as the building blocks of the City.	**Consistent.** The Rancho Cordova General Plan currently designates the project site as the SunCreek/Preserve Planning Area. As part of the proposed project, the applicant is requesting a General Plan Amendment to establish specific General Plan land use designations, LDR, MDR, HDR, C, P/OS, and NR in order to implement the General Plan's land use concept for the project's portion of the SunCreek/Preserve Planning Area. The proposed project has been designed to incorporate the development directives and conform with the expectations described in the Rancho Cordova General Plan.

APPENDIX G: THE RANCH PROJECT CONSISTENCY WITH RANCHO CORDOVA GENERAL PLAN POLICIES

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Policy UD.1.3 - Design neighborhoods as walkable places, approximately 1/3 mile in radius, and connected to adjoining neighborhoods by trails, open spaces, and commercial activity nodes.	**Consistent.** The site plan for the proposed project illustrates that no community is more than 1/2-mile wide, and is planned to be developed in neighborhood phases that are at most 1/4-- to 1/3--mile wide. The proposed neighborhoods would be connected to adjoining neighborhoods by trails, open spaces, and the proposed commercial area.
Policy UD.1.4 - Design residential subdivisions with a mix of housing types and densities that satisfy a wide range of lifestyles and income levels. (Further implemented by Actions UD.1.3.1, UD.1.3.2 and UD.1.3.3)	**Consistent.** The proposed project contains many different housing types that would be utilized in the community.
Policy UD.1.5- Develop vibrant urban cores (village centers and local town centers) as the primary activity centers of each district within the City.	**Consistent.** The proposed project includes two commercial sites at the intersection of Chrysanthy Boulevard and Rancho Cordova Parkway. These areas are intended to serve as a local town center, with retail and commercial uses providing products and services to the surrounding residents.
Policy UD.1.6 - Encourage the design of village and local town centers as pedestrian- and cyclist- friendly activity centers with successful public spaces.	**Consistent.** This is accomplished by the overall design approach with an emphasis upon proximity to open space and limiting conflict between the automobile and the pedestrian and bicyclist. The commercial areas are located along Rancho Cordova Parkway and Chrysanthy Boulevard, which will have pedestrian and bicycle access routes included.
Policy UD.2.1 - Require new development and redevelopment areas to be designed in accordance with the City's building blocks concept.	**Consistent.** See response to Policy LU.2.6 (below).
Policy UD.2.6 - Create streetscape designs with themes that are oriented toward and inviting to pedestrians and cyclists and that are unique in character to a district, corridor, or area within the City.	**Consistent.** The proposed project includes an extensive network of pedestrian trails and paths (See discussion under Policy LU.2.4 above) as well as bicycle lanes and paths. The proposed project includes details on the design and location of these paths, providing a unique visual character.
Policy UD.3.1 – Ensure quality design of new development and redevelopment with an integrated architectural style.	**Consistent.** The proposed Architectural + Site Design Guidelines (included in the SPA Handbook) for multifamily and commercial uses include guidance as to the architectural design of buildings in the project area, thereby establishing a cohesive style for the project area. The architectural design of the single-family residential areas is also guided by the proposed SPA Handbook.
Policy UD.3.2 - Create safe, inviting, and functional pedestrian and cyclist environments in commercial, office, and mixed-use projects.	**Consistent.** The proposed project creates an interconnected and multi-modal transportation network and provides a hierarchical interconnected street system with streets as inviting, multi-modal public spaces. Various modes of transportation including an intricate pedestrian and bicycle trail network will reduce automobile dependency. Additionally, the entire pedestrian system will provide access to meaningful destinations like commercial centers, schools, and parks on the project site and off-site.
Policy UD.3.3 - Promote the incorporation of public spaces and pedestrian amenities into all commercial and mixed-use projects.	**Consistent.** This is accomplished by the overall design approach with an emphasis upon proximity to open space and limiting conflict between the automobile and the pedestrian and bicyclist. Extensive public space, including active and passive parks, open space, and a trail system, is included in the proposed project.

APPENDIX G: THE RANCH PROJECT CONSISTENCY WITH RANCHO CORDOVA GENERAL PLAN POLICIES

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Policy UD.4.2 - Design new development to be compatible with surrounding development in ways that contribute to the desired character of the City and District.	**Consistent.** The urban development on the project site would be consistent with, and appear as a continuation of, development in the subdivision to the north and west and future development in the area to the south and east.
ECONOMIC DEVELOPMENT	
Policy ED.1.8 – Provide a variety of housing types in Rancho Cordova to support a diverse economy, including workforce housing, move-up housing, and executive housing.	**Consistent.** See response to Policy UD.1.1 (above).
Policy ED.2.1 – Provide a mix of neighborhood retail, community retail, regional retail and specialty retail to serve Rancho Cordova and surrounding communities to achieve the recommendations outlined in the City's Retail Strategy.	**Consistent.** The proposed project includes 32,000 square feet of neighborhood-serving commercial/retail space for the planned community and nearby areas.
Policy ED.2.3 - Strategically locate regional retail properties to take advantage of the local and regional transportation corridors (e.g., Highway 50, State Route 16, light rail, etc.) and integrate local retail and services into neighborhoods.	**Consistent.** The proposed project proposes a retail center along Chrysanthy Boulevard and Rancho Cordova Parkway, that would be integrated into the community through pedestrian and bicycle connections as well as landscaping transitions.
HOUSING	
Policy H.1.1 – Improve the City's jobs-housing balance through ensuring that housing development in Rancho Cordova provides opportunities for all income levels in order to serve the full range of available and projected jobs in the City.	**Consistent.** The variety of residential densities (including low and medium densities) provided for in the proposed project would result in a range of housing types and opportunities for a range of income levels. See also, response to Policy UD.1.1 and Policy LU.1.3 (above).
Policy H.1.2: Maintain adequate sites that support a range of housing types appropriate for the City's housing needs, taking into account employment projections, household growth, and the City's share of regional housing needs.	**Consistent.** See response to Policy UD.1.1 (above), Policy LU.1.3 (above) and Policy H.1.1 (above).
Policy H.1.3 – Promote a broader range of housing options for executives.	**Consistent.** The project includes non-restricted and age-restricted single family residential uses, with a variety of lot sizes and significant community amenities (parks, off-street trail system, open space, age-restricted community center and garden), that may appeal to executives.
Policy H.1.4 – Ensure that an appropriate range of housing opportunities is available to accommodate both local and out-of-region executives.	**Consistent.** See response to Policy UD.1.1 and Policy H.1.3 (above).
Policy H.1.5 – Promote higher density housing in close proximity to transit, employment, and appropriate services, such as transit-oriented development.	**Consistent.** The proposed project includes high and medium density residential uses adjacent to the proposed Signature Bus Route facility along Rancho Cordova Parkway and the two commercial parcels at the intersection of Rancho Cordova Parkway and Chrysanthy Boulevard.
Policy H.4.1 – Ensure that neighborhoods are developed in a balanced, sustainable manner, avoiding over-concentration of affordable housing or over-sized rental complexes and providing a range of housing prices and rents.	**Consistent.** As identified in the Tentative Subdivision Map for the project, the high and medium densities of housing within the project are interspersed with lower density residential, avoiding over concentration. The various lot sizes and housing types would result in a range of housing prices and rents.
Policy H.4.5 – Ensure that adequate parking is available in multi-family rental properties, condominiums, townhomes, and senior facilities.	**Consistent.** The proposed project will be subject to Zoning Code Section 23.719, which regulates parking and loading standards.

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Policy H.4.6 – Ensure that housing appropriate for empty-nesters and single persons, such as townhomes or small lot, single-family homes, rather than large single-family homes, is developed.	**Consistent.** See discussion under Policy H.1.1 above. Higher density residential development is included within the proposed project and is typically associated with townhomes and other multi-family homes as well as small lot detached homes.
Policy H.4.8 – The City will continue to promote equal housing opportunity for all persons regardless of race, religion, sex, marital status, ancestry, nation origin, color, disability, familial status, source of income, or sexual orientation.	**Consistent.** The proposed project encourages diversity and balance by encouraging housing, social and economic diversity through an appropriate mix of integrated land uses that result in a vibrant community with rich experiences and conveniences.
Policy H.4.9 – Promote improved aesthetics and amenities in residential construction.	**Consistent.** The project has prepared a SPA Handbook that addresses the design of the neighborhoods, including architectural styles and development standards for single-family, multifamily, and commercial uses, as well as a Parks + Open Space Design Program and Circulation Design Standards.
Policy H.6.1 – Require energy efficiency in the design and construction of housing developments through implementation of the State Energy Conservation Standards (Title 24). The long-term economic and environmental benefits of energy efficiency shall be weighed against any increased initial costs of energy saving measures. Encourage sustainable development by reducing energy use.	**Consistent.** All construction is required to conform to Title 24 as that regulation exists at the time of construction of commercial, office and residential uses. Additionally, details regarding project design measures that address energy efficiency as well as mitigation measures are presented in Section 3.2 (Air Quality) and Section 3.6 (Greenhouse Gases, Climate Change, and Energy) of The Ranch Draft EIR.
Policy H.6.2 – Encourage participation in SMUD's photovoltaic (solar), energy efficiency, peak reduction, and other comparable programs.	**Consistent.** The project would either provide on-site renewable energy systems for the residential lots, which would then connect to SMUD's system, or would partner with SMUD to provide a renewable energy commitment for the residential uses.
Policy H.7.4 – Require non-residential development to provide for the affordable housing needs generated or contributed to by their development.	**Consistent.** The project provides two multifamily parcels, including one parcel that could be used to provide affordable housing. See response to Policy UD.1.1 and Policy H.4.1 (above).
CIRCULATION	
Policy C.1.1 - Implement the Circulation Plan with the Roadway System and Sizing Diagram, shown as Figure C-1, as a modified grid network.	**Consistent.** The proposed project is consistent with the General Plan's Roadway System and Sizing Diagram.
Policy C.1.2 - Seek to maintain operations on all roadways and intersections at Level of Service D or better at all times, including peak travel times, unless maintaining this Level of Service would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. Congestion in excess of Level of Service D may be accepted in these cases, provided that provisions are made to improve traffic flow and/or promote non-vehicular transportation as part of a development project or a City-initiated project. Please see Policy C.1.3 for additional policy guidance related to this issue. Examples of system improvements which may be accepted when Level of Service D cannot be maintained include the following, where the improvement or funding is in excess of standard City requirements: Development of on- or off-street bicycle or pedestrian circulation (not including sidewalks that are constructed as part of roadway improvements);	**Consistent.** The analysis included in Section 3.13 of The Ranch Draft EIR utilized LOS D as the minimum acceptable level of service for City roadways analyzed in the section and identifies feasible mitigation measures to reduce the project's impact to City roadway facilities as well as identifies where maintaining LOS D is not feasible, and/or would conflict with other City goals. The project design provides for new roadway connections and additional trail, bike and transit facilities to promote non-vehicular transportation. The proposed project land use mix also provides for residential, retail, employment, and public (parks) uses within close proximity that would reduce length of vehicle miles traveled and internalize project traffic.

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Providing or funding public transportation facilities or services; Other features as determined appropriate by the City.	
Policy C.1.4 - Discourage the creation of private roadways, except when the roadways are constructed to public roadway standards and private maintenance is assured, or are used in an affordable residential development.	**Consistent.** Some private roadways would be included in the proposed project. However, these would be maintained by private homeowner associations and would be constructed to the City's roadway standards.
Policy C.1.6 - Strongly discourage the use of cul-de-sacs on local roads, except where they are necessary due to site-specific concerns, such as habitat areas, that preclude construction of through routes. When cul-de-sacs are used, they should include bicycle and pedestrian connections to trail systems or adjacent major or connector streets.	**Consistent.** The proposed project includes some cul-de-sacs on local roads. However, when cul-de-sacs are used, they provide "pass-through" lots that offer bicycle and pedestrian connections to trail systems or adjacent major or connector streets and offer visibility into the cul-de-sacs from adjacent streets and uses.
Policy C.1.7 - Require the installation of traffic pre-emption devices for emergency vehicles (police and fire) at all newly constructed intersections and seek to retrofit all existing intersections to incorporate these features.	**Consistent.** The proposed project would install traffic pre-emption devices for emergency vehicles (police and fire) at signalized intersections.
Policy C.1.8 - Ensure that where traffic calming devices or techniques are employed, adequate access is provided for police and fire vehicles.	**Consistent.** See response to Policy C.1.7, above.
Policy C.1.9 – In an effort to reduce automobile traffic and congestion and increase use of other travel modes, support the use of trip reduction programs.	**Consistent.** As noted in Section 3.2, the project will implement a trip reduction program.
Policy C.1.10 – Encourage maximum block lengths that provide multiple vehicular paths and increase pedestrian circulation around the City at the neighborhood level. The City's preferred block length is less than 600 feet. Block lengths between 600 and 800 feet may be acceptable on a case-by- case basis, and block lengths greater than 800 feet are generally considered unacceptable.	**Consistent.** The proposed neighborhood streets have been developed to provide block lengths in the range of the City's preferred block lengths.
Policy C.2.1 - Create a system of on- and off- street trails and multi-use paths, as generally illustrated on Figure C-2, that are used for walking and bicycling and that are attractive, natural, and safe transportation corridors.	**Consistent.** The proposed project includes bike paths and trails that provide for an extensive trails network. Many of these trails are located in landscaped parkways, and along open space corridors within the proposed project. Additional circulation features for pedestrians and bicycles are also planned along major roads within the project.
Policy C.2.2 – Require bicycle and pedestrian connections to public transit systems at stops, stations, and terminals; carpool/vanpool park-and- ride lots; and activity centers (e.g., schools, community centers, medical facilities, senior residences, parks, employment centers, high- density residential areas, commercial centers).	**Consistent.** Transit (a Signature Bus Route) is planned for Rancho Cordova Parkway within the project area and the project would provide a transit stop for the planned route. The pedestrian and bicycle system, including a range of sidewalks, bike facilities, and an off-street trails, within the proposed project would allow for connections to planned transit as well as the proposed commercial, parks, and recreation uses.
Policy C.2.3 - In designing development projects, design for the pedestrian first.	**Consistent.** All subdivisions will be constructed with sidewalks which will connect to the trail system. Additionally, see response to Policy UD.3.2, above.

APPENDIX G: THE RANCH PROJECT CONSISTENCY WITH RANCHO CORDOVA GENERAL PLAN POLICIES

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Policy C.2.4 - Provide sidewalks throughout the City. Meandering sidewalks are discouraged, except where necessary to accommodate site- specific features such as trees or habitat.	**Consistent.** Sidewalks are planned to run parallel with the curb on all public streets.
Policy C.2.5 - Provide safe and convenient bicycle access to all parts of the community.	**Consistent.** See discussion under Policy C.2.1 and Policy C.2.2 above.
Policy C.2.6 – Provide on-street bike lanes along all connector roadways and on local and major roadways when necessary to provide for interconnected routes. On-street bike routes may be provided on local, connector, and major roadways as deemed necessary by the City.	**Consistent.** See discussion under Policy C.2.1 and Policy C.2.2 above.
Policy C.2.8 - Promote bicycling and walking as a safe and attractive activity. Educate all road users to share the road and interact safely.	**Consistent.** The project has been designed to provide an extensive network of pedestrian and bicycle facilities, with marked features, including road crossings, bicycle lanes, etc., to encourage safe walking and bicycling. Additionally, see response to Policy UD.3.2, above.
Policy C.2.10 – Create safe and efficient at-grade crossings of roadways for pedestrian and bicyclists.	**Consistent.** See discussion under Policy C.2.1 and Policy C.2.2 above.
Policy C.3.1 - Advocate and develop transit services which meet the needs of residents and employees in Rancho Cordova.	**Consistent.** As previously described, the project will provide a transit facility to serve the Signature Bus Route planned for Rancho Cordova Parkway by the City's Transit Master Plan.
Policy C.3.3 - Promote the integration of transit facilities into new development.	**Consistent.** See response to Policy C.3.1 above.
Policy C.5.2 - Require proposed new development projects to analyze their contribution to increased traffic and to implement improvements necessary to address their impact on facilities not covered by a fee program.	**Consistent.** A traffic study has been prepared for the proposed project, and is included incorporated by reference. Results from the study, including requirements for the project to contribute to facilities that it has the potential to significantly impact, have been incorporated into the Section 3.13, Traffic and Transportation, of The Ranch Draft EIR.
Policy C.5.3 - Assess fees sufficient to cover the fair share portion of all new development impacts on the local and regional transportation system.	**Consistent.** The proposed project will be subject to improvement fees based on the necessary improvements identified in the traffic study prepared for this project.
OPEN SPACE, PARKS AND TRAILS	
Policy OSPT.1.1 - Review all proposals for new residential development to ensure each project complies with the City's minimum standards for parkland dedication, and is consistent with Cordova Recreation and Park District goals.	**Does Not Conflict.** The Rancho Cordova General Plan requires that new residential development dedicate parkland at a rate of five acres of land per 1,000 people. The proposed project is addressing the demand for parkland through a two-fold approach: the project would dedicate a 10.78-acre active park site, a 1.21-acre passive park site, and a 7.86-acre passive recreation open space site to the CRPD. The project would provide an additional trail along the nature preserve as well as private facilities, including a 5.40-acre recreation center, a 1.10-acre garden, and a 1.40-acre passive park, for the age-restricted component of the project. These facilities would total 27.75 acres, not including the off-street trail system adjacent the preserve.

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Policy OSPT.1.2 - Coordinate with the Cordova Recreation and Park District to ensure that parks are provided, developed, and operated in a way that ensures that the City's parks goals are achieved throughout the community.	**Consistent.** See response to Policy OSPT.1.1, and Policy LU.3.5, above.
Policy OSPT.1.3 - Encourage park development adjacent to school sites and other compatible uses (public and private) for enhanced civic space and integration into the community.	**Consistent.** The proposed project does not include school sites. The proposed parks, trails, and public open space areas would be located within neighborhoods and adjacent to the preserve area.
Policy OSPT.1.4 – Ensure that adequate and reliable funding sources are established for the long term maintenance of parks and trails.	**Consistent.** The proposed project would dedicate the public parks and 7.86 acres of passive open space to CRPD. The timing for the delivery of parks, recreation facilities, and open space shall be determined before the approval of the first tentative subdivision map in the corresponding phase of the proposed project.
Policy OSPT.2.1 - Review all proposals for new residential development to ensure compliance with the City's minimum open space standards.	**Consistent.** See response to Policy OSPT.1.1, above.
Policy OSPT.2.3 - Maximize the potential benefits of natural resource mitigation lands within urban development.	**Consistent.** The preserve portion of the project area not only provides mitigation for impacts to biological resources but also a benefit to the visual quality of the site. The preserve provides further benefit through trails planned along the perimeter of the preserve (outside the actual preserve area) in order to increase opportunities for community enjoyment of the preserve.
Policy OSPT.3.1 - Develop a trails system that provides for maximum connectivity, so that all trails are linked for greater use as recreational and travel routes.	**Consistent.** The proposed project includes pedestrian, bicycle, and trail facilities that provide connectivity throughout the site as well as connections to existing and planned bike and pedestrian facilities in the area. The project also proposes enhanced street crossing locations for trails.
Policy OSPT.3.3 - Provide major off-street trails with grade-separated crossings or enhanced at- grade pedestrian crossings, especially across four- lane streets and collector roadways, to provide safe routes free from conflicts with vehicles.	**Consistent.** The proposed project includes enhanced at-grade pedestrian crossings along Chrysanthy Boulevard.
INFRASTRUCTURE, SERVICES AND FINANCE	
Policy ISF.2.1 – Ensure the development of public infrastructure that meets the long-term needs of residents and ensure infrastructure is available at the time such facilities are needed.	**Consistent.** See response to Policy LU.2.5, above.
Policy ISF.2.2 - Coordinate with independent public service providers, including schools, parks and recreation, utility, transit, and other service districts, in developing service and financial planning strategies.	**Consistent.** Preparation of the proposed project has involved coordination with public service providers, including The Sacramento Metro Fire Department, Rancho Cordova Police Department, Elk Grove Unified School District (EGUSD), the CRPD, utility providers, and other responsible public service providers.
Policy ISF.2.3 - Ensure that adequate funding is available for all infrastructure and public facilities, and make certain that the cost of improvements is equitably distributed.	**Consistent.** The phasing plan will assure equitable distribution of burden for facility costs within the proposed project as well as timely provision of needed infrastructure.

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Policy ISF.2.4 - Ensure that water supply and delivery systems are available in time to meet the demand created by new development, or are guaranteed to be built by bonds or securities.	**Consistent.** A Water Supply Assessment was prepared in conjunction with this EIR. The project was anticipated in Sacramento County Water Agency's Urban Water Management Plan and the project would connect to existing water supply infrastructure.
Policy ISF.2.5 - Ensure that water flow and pressure are provided at sufficient levels to meet domestic, commercial, industrial, and firefighting needs.	**Consistent.** All subdivision improvements will meet City and Sacramento Metropolitan Fire District standards, including flow and pressure standards.
Policy ISF.2.6 - Ensure that sewage conveyance and treatment capacity are available in time to meet the demand created by new development, or are guaranteed to be built by bonds or other sureties.	**Consistent.** The requirement addresses mandatory findings of the State Map Act to be made at the time of approval of a final map for recordation. This language will be referenced in the project Development Agreement
Policy ISF.2.7 – Minimize visual impacts and physical impediments of utility sites, infrastructure, and equipment.	**Consistent.** The majority of utility infrastructure will be installed underground, eliminating visual impacts. Electrical supply infrastructure is commonly installed underground between power substations and individual customers. Telephone and cable television are installed underground as well. Water supply and wastewater infrastructure is to be installed under roadways. Existing transmission lines will be visible and have been incorporated into the proposed open space lots and preserve to reduce visual impacts.
Policy ISF.3.2 – Support enhanced library services for existing and future residents and employees that exceed regional and national standards.	**Does Not Conflict.** The proposed project does not include a library. As discussed in Section 3.12 (Public Services and Recreation), the proposed project does not trigger the need for new facilities or expansion of existing facilities associated with other public services and facilities, such as libraries and community buildings. The project would be subject to the City's impact fees for new development as well as property taxes, sales taxes, and other revenues generated by the proposed project, that may be used to fund library and other public services.
NATURAL RESOURCES	
Policy NR.1.1 - Protect rare, threatened, and endangered species and their habitats in accordance with State and federal law.	**Consistent.** The proposed project design provides protection of a majority of the higher quality wetland habitat on the site. In addition to the site design, the project site's biological resources have been evaluated under several technical studies. Multiple studies to address biological resources have been prepared for the project to identify potential impacts and, where necessary, mitigation measures have been identified to address impacts, as described in Section 3.3 (Biological Resources) of The Ranch Draft EIR to address impacts to rare, threatened and endangered species and habitats in accordance with State and federal law, as well as to the furthest extent feasible.
Policy NR.1.2 - Conserve Swainson's hawk habitat consistent with State policies and Department of Fish and Game guidelines.	**Consistent.** The Biological Resources section (Section 3.3) address impacts to Swainson's hawk and provides mitigation to reduce impacts to Swainson's hawks and other tree-nesting birds (see Section 3.3). This mitigation would reduce project impacts to these species to the furthest extent feasible and be consistent with the General Plan policy.

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Policy NR.1.6 – Participate in the development of a habitat conservation plan to address the unique biological resources in Rancho Cordova.	**Consistent.** The City has been an active participant in development of the South Sacramento Habitat Conservation Plan (SSHCP) and the project anticipates participation in the SSHCP.
Policy NR.1.7 – Prior to project approval, the City shall require a biological resources evaluation for private and public development projects in areas identified to contain or possibly contain listed plant and/or wildlife species based upon the City's biological resource mapping provided in the General Plan EIR or other technical materials.	**Consistent.** See analysis associated with Policy NR1.1.
Policy NR.1.8 - The City shall encourage creation of habitat preserves that are immediately adjacent to each other in order to provide interconnected open space areas for animal movement.	**Consistent.** The project would preserve approximately 199.5 acres as a nature preserve that would be deeded to a third-party conservation entity. Preserves are physically connected either directly with one another or by way existing creek corridors and or drainages. The preserve has been designed as a continuous feature to that runs the extent of the project site, to allow connectivity to potential future preserve areas on adjoining lands to the east and southwest.
Policy NR.1.9 - The City shall require that impacts to riparian habitats be mitigated at a no net loss of existing function and value based on field survey and analysis of the riparian habitat to be impacted. No net loss may be accomplished by avoidance of the habitat, restoration of existing habitat, or creation of new habitat, or through some combination of the above.	**Consistent.** The Biological Resources section (Section 3.3) of The Ranch Draft EIR address impacts to riparian habitats. The project would not have substantial adverse effects on riparian habitat.; however, the project would result in impacts to sensitive natural community. Mitigation is provided (see Section 3.3) to reduce impacts to sensitive habitats to a less than significant level and be consistent with the General Plan policy.
Policy NR.1.11 - In such cases where habitat preserves are crossed by a roadway, or where two adjacent preserves are separated by a roadway, the roadway shall be designed or updated with wildlife passable fencing separating the roadway from the preserve and/or shall incorporate design features that allow for the movement of wildlife across or beneath the road without causing a hazard for vehicles and pedestrians on the roadway.	**Consistent.** See discussion under Policy NR.1.10 above.
Policy NR.2.1 – Require mitigation that provides for "no net loss" of wetlands consistent with current State and federal policies.	**Consistent.** See discussion under Policy NR.1.9 above. Mitigation measures included in Section 3.3 of The Ranch Draft EIR require that the project applicant ensure no net loss of wetlands.
Policy NR.2.2 - Ensure that direct and indirect effects to wetland habitats are minimized by environmentally sensitive project siting and design, to the maximum extent feasible.	**Consistent.** See discussion under Policy NR.1.10 above. Mitigation measures under Section 3.3 of the EIR address direct and indirect effects to wetland resources. Because of the general plan designation for the project area, which contemplates fairly dense urban development, the avoidance of all wetland habitat has proven to be infeasible. However, wetlands have been avoided or impacts have been minimized where feasible and the project has included a continuous preserve area to provide for the long-term protection and conservation of an extensive amount of wetland habitats.

APPENDIX G: THE RANCH PROJECT CONSISTENCY WITH RANCHO CORDOVA GENERAL PLAN POLICIES

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Policy NR.2.5 - The City shall require that drainage improvements that discharge into areas of wetlands to be preserved are, to the maximum extent feasible, designed to mimic the undeveloped surface water flow conditions of the area in terms of seasonality, volume, and flow velocity.	**Consistent.** The proposed project proposes to discharge directly to basins which will have multiple functions and which will mimic natural discharge sequences.
Policy NR.3.2 - In general, the City will encourage the preservation of existing location, topography, and meandering alignment of creeks. Where necessary, and if consistent with other City policies, the creation and realignment of creek corridors shall be constructed to recreate the character of the natural creek corridor. Channelization and the use of concrete within creek corridors shall not be supported.	**Consistent.** See discussion under Policy NR.1.1 above. An extensive amount of on-site wetlands and aquatic areas would be retained through the project area within the proposed preserve area.
Policy NR.3.4 – Encourage projects that contain wetland preserves or creeks, or are located adjacent to wetland preserves or creeks, to be designed for visibility and, as appropriate, access.	**Consistent.** The proposed project includes significant opportunity for access and direct view of the onsite wetlands and preserve areas.
Policy NR.4.1 - Conserve native oak and landmark tree resources for their historic, economic, aesthetic, and environmental value.	**Consistent.** There are no trees located on the project site. Therefore, the project would not conflict with the City's Preservation and Protection of Private Trees Ordinance.
Policy NR.4.2 - Improve overall landscaping quality and sustainability in all areas visible to the public.	**Consistent.** See response to Policy UD.2.4, above.
Policy NR.4.4 - Prior to the approval of any public or private development project in areas identified or assumed to contain trees, the City shall require that a determinate survey of trees species and size be performed. If any native oaks or other native trees six inches or more in diameter at breast height (dbh), multi-trunk native oaks or native trees of 10 inches or greater dbh, or non-native trees of 18 inches or greater dbh that have been determined by a certified arborist to be in good health are found to occur, such trees shall be avoided if feasible. If such trees cannot be avoided, the project applicant shall do one of the following: All such trees shall be replaced at an inch- for-inch ratio. A replacement tree planting plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the City of Rancho Cordova for approval prior to removal of trees; or, The project applicant shall submit a mitigation plan that provides for complete mitigation of the removal of such trees in coordination with the City of Rancho Cordova. The mitigation plan shall be subject to the approval of the City. If the City of Rancho Cordova adopts a tree preservation ordinance at any time in the future, any future development activities shall be subject to that ordinance instead.	**Consistent.** See analysis under Policy NR4.1.

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
Policy NR.5.1 - Promote water conservation within existing and future urban uses.	**Consistent.** As required by Mitigation Measure 3.2-1 of The Ranch Draft EIR, the project would use water-efficient irrigation systems and would use low-flow appliances for all residential uses.
Policy NR.5.2 - Encourage the use of treated wastewater to irrigate parks, golf courses, and landscaping.	**Does not Conflict.** The project does not include the use of treated wastewater.
Policy NR.5.3 - Protect surface and ground water from major sources of pollution, including hazardous materials contamination and urban runoff.	**Consistent.** Mitigation measures included in Section 3.8 of The Ranch Draft EIR as well as compliance with the required SWPPP and City's existing NPDES permit (CAS082597) would ensure that the proposed project is consistent with this policy.
Policy NR.5.4 - Prevent contamination of the groundwater table and surface water, and remedy existing contamination to the extent practicable.	**Consistent.** This issue is addressed in Section 3.8 (Hydrology and Water Quality) of The Ranch Draft EIR.
Policy NR.5.5 – Minimize erosion to stream channels resulting from new development in urban areas consistent with State law.	**Consistent.** The drainage plan submitted with the proposed project applies a project wide system of water quality/flow duration control/stormwater detention basins to accomplish this policy.
Policy NR.5.6 - Incorporate Storm Water, Urban Runoff, and Wetland Mosquito Management Guidelines and Best Management Practices into the design of water retention structures, drainage ditches, swales, and the construction of mitigated wetlands in order to reduce the potential for mosquito-borne disease transmission.	**Consistent.** Basins and swales will be constructed and operated in conformance with applicable City requirements, as well as health and safety best management practices.
Policy NR.5.7 - Continue to cooperate and participate with the County, other cities, and the Regional Water Quality Control Board regarding compliance with the joint National Pollutant Discharge Elimination System Permit (NPDES No. CAS082597) or any subsequent permit and support water quality improvement projects in order to maintain compliance with regional, state and federal water quality requirements.	**Consistent.** A drainage plan is included as part of the proposed project. The Drainage Plan will be consistent with the joint National Pollutant Discharge Elimination System Permit (NPDES No. CAS082597).
Policy NR.7.1 - Increase energy conservation Citywide.	**Consistent.** See response to Policy H.6.1, Policy H.6.2, and Policy LU.2.7, above.
Policy NR.7.2 - Promote the development and use of advanced energy technology and building materials in Rancho Cordova.	**Consistent.** See response to Policy H.6.1, Policy H.6.2, and Policy LU.2.7, above.
Policy NR.7.3 – Encourage the development of energy efficient buildings and subdivisions.	**Consistent.** See response to Policy H.6.1, Policy H.6.2, and Policy LU.2.7, above.
CULTURAL AND HISTORIC RESOURCES	
Policy CHR.1.3 - Establish review procedures for development projects that recognize the history of the area in conjunction with State and federal laws. (Further implemented through Actions CHR.1.3.1 and CHR.1.3.2)	**Consistent.** A cultural resource study was completed for the project. Outreach to Native American tribes was performed as required by State law. Mitigation measures have been identified in Section 3.4 (Cultural and Tribal Resources) of The Ranch Draft EIR.
SAFETY	
Policy S.1.1 - Maintain acceptable levels of risk of injury, death, and property damage resulting from reasonably foreseeable safety hazards in Rancho Cordova.	**Consistent.** Section 3.7 (Hazards and Hazardous Materials) of The Ranch Draft EIR analyzes potential hazards associated with the project. As discussed, the project applicant would be required to submit a Construction Site Management Plan for review and approval by the City. Additionally, the applicant would be required to submit a HMBP to the Sacramento County Environmental Management Department (CUPA) for review and approval. Compliance with these programs is intended to reduce

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
	the risks of injury, death, and property damage to levels deemed acceptable under federal and state law.
Policy S.1.5 - The City shall require written confirmation from applicable local, regional, state, and federal agencies that known contaminated sites have been deemed remediated to a level appropriate for land uses proposed prior to the City approving site development or provide an approved remediation plan that demonstrates how contamination will be remediated prior to site occupancy. This documentation will specify the extent of development allowed on the remediated site as well as any special conditions and/or restrictions on future land uses.	**Consistent.** See discussion under Policy S.1.1 above.
Policy S.2.2 - Manage the risk of flooding by discouraging new development located in an area that is likely to flood.	**Consistent.** The project site is not located in the 100-year floodplain.
Policy S.2.3 – Discourage the creation of new parcels when the presence of easements, floodplain, marsh, or riparian habitat, and/or other features would leave insufficient land to build and operate structures. This policy shall not apply to open space lots specifically created for dedication to the City or another appropriate party for habitat protection, flood control, drainage, or wetland maintenance.	**Consistent.** The project is designed with a mixture of residential, commercial, and natural spaces to maximize the developed area while preserving aquatic resources.
Policy S.2.4 – Ensure that adequate drainage exists for both existing and new development.	**Consistent.** Development will provide adequate drainage and will not increase flows from the project site.
Policy S.3.2 - Ensure that new structures are protected from damage caused by geologic and/or soil conditions to the greatest extent feasible.	**Consistent.** The project site is located in an area of low seismic activity, site soils are not subject to liquefaction, and structures at the site would be designed in accordance with State building standards.
Policy S.5.2 Consider the potential impact of hazardous facilities on the public and/or adjacent or nearby properties posed by reasonably foreseeable events. The City considers an event to be "reasonably foreseeable" when the probability of the event occurring is greater than one in one million per year.	**Consistent.** The proposed project does not include development of hazardous facilities. Impacts associated with hazardous materials are considered and addressed in Section 3.7, Hazards and Hazardous Materials, of The Ranch Draft EIR.
Policy S.5.3 - Regulate the storage of hazardous materials and waste consistent with State and Federal law.	**Consistent.** Commercial uses would likely store varying amounts of hazardous materials. These uses will be required to adhere to all federal, state, and local laws relating to the storage of hazardous materials.
Policy S.5.5 - Separate hazardous or toxic materials from the public.	**Consistent.** Commercial uses to be constructed as part of the proposed project are the most likely location for the use or storage of hazardous or toxic materials. These uses will be required to adhere to all federal, state, and local laws relating to the use, storage, or transport of hazardous materials.
Policy S.7.1 - Use Crime Prevention Through Environmental Design (CPTED) principles in the design of projects and buildings.	**Consistent.** The proposed project has undergone review by City departments, including the Police Department. Police Department recommendations have been considered in development of the project, including use of various CPTED principles.
AIR QUALITY	
Policy AQ.1.2 – Evaluate projects for compliance with State and federal ambient air quality standards and the Sacramento Metropolitan Air Quality Management	**Consistent.** Compliance with these standards and thresholds are addressed in Sections 3.2 (Air Quality) and 3.6 (Greenhouse Gases, Climate Change, and Energy) of The Ranch Draft EIR.

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
District's (SMAQMD) thresholds of significance. (Refer to Table AQ-3 in this Element for ambient air quality standards.)	
Policy AQ.1.5 - Require odor impact analyses be conducted for evaluating new development requests that either could generate objectionable odors that may violate SMAQMD Rule 402 or any subsequent rules and regulations regarding objectionable odors near sensitive receptors or locate new sensitive receptors near existing sources of objectionable odors. Should objectionable odor impacts be identified, odor mitigation shall be required in the form of setbacks, facility improvements or other appropriate measures.	**Consistent.** The proposed project does not include land uses that would generate significant odors. Odor impacts on proposed residential uses are discussed in Section 3.2 (Air Quality) of The Ranch Draft EIR.
Policy AQ.2.1 - Promote strategic land use patterns for businesses that reduce the number and length of motor vehicle trips and that encourage multiple forms of transportation for employees and patrons.	**Consistent.** See response to Policy LU 1.3, above.
Policy AQ.2.2 - Encourage mixed-use developments that put residences in close proximity to services, employment, transit, schools, and civic facilities/services.	**Consistent.** See response to Policy LU1.3, above.
Policy AQ.2.5 - Utilize the guidelines in the California Air Resources Control Board *Air Quality and Land Use Handbook: A Community Health Perspective* when evaluating new development requests that either would generate toxic air contaminant emissions near sensitive receptors or locate new sensitive receptors near existing sources of air toxic emissions or order to minimize health hazards, and implement all feasible best available control technology, as required by SMAQMD.	**Consistent.** The Ranch Draft EIR (see Section 3.2) evaluated potential impacts associated with the guidelines in the California Air Resources Control Board Air Quality and Land Use Handbook: A Community Health Perspective.
Policy AQ.3.1 - Promote walking and bicycling as viable forms of transportation to services, shopping, and employment.	**Consistent.** See response to UD.3.2, above.
Policy AQ.4.1 - Promote improved air quality benefits through energy conservation measures for new and existing development.	**Consistent.** See response to Policy LU.2.7, above.
Policy AQ.5.2 - Support programs that encourage children to safely walk or bike to school.	**Consistent.** Existing and future planned schools are located in nearby developments located in the southern portion of the City. The s project will include sidewalks, standard pedestrian crossing warning signs, signs to identify pedestrian and bicycle paths, and pedestrian signal heads to provide safe pedestrian and bicycle facilities and will provide for connectivity to adjacent bicycle and pedestrian facilities. Sidewalks will be constructed as part of the frontage improvements along all new roadway construction for Jaeger Road/Rancho Cordova Parkway and Chrysanthy Boulevard.
NOISE	
Policy N.1.2 - Ensure that the indoor and outdoor areas of new projects will be located, constructed, and/or shielded from noise sources in compliance with the City's noise standards to the maximum extent feasible.	**Consistent.** Proposed project noise impacts are discussed in Section 3.10 of The Ranch Draft EIR. Mitigation measures are presented to reduce noise impacts to indoor and outdoor areas of new projects to the furthest extent feasible.
Policy N.1.3 - Ensure that proposed non-residential land uses likely to exceed the City's standards do not	**Consistent.** Non-residential uses are sited within specific areas of the project area and are located immediately adjacent to other

GENERAL PLAN POLICY	*PROJECT CONSISTENCY*
create noise disturbances in existing noise-sensitive areas.	noise generating uses in order to minimize the area impacted by these noise sources. Additionally, mitigation measures included in Section 3.10 of The Ranch Draft EIR would ensure that impacts to existing noise sensitive areas are consistent with City standards.
Policy N.1.4 - Mitigate noise created by proposed non-transportation noise sources to comply with the City's noise standards to the maximum extent feasible.	**Consistent.** See discussion under Policy N.1.2 above.
Policy N.1.5 - Mitigate noise created by the construction of new transportation noise sources (such as new roadways or new light rail service) to the maximum extent feasible to comply with the City's standards.	**Consistent.** See discussion under Policy N.1.2 above. At present, the City has no plan to extend light rail service through the project area.
Policy N.1.6 – Ensure that comfortable noise levels and adequate privacy are maintained in higher density development.	**Consistent.** See discussion under Policy N.1.2 above.
Policy N.1.7 - To the extent feasible and appropriate, the City shall require the use of temporary construction noise control measures for public and private project that may include the use of temporary noise barriers, temporary relocation of noise-sensitive land uses or other appropriate measures.	**Consistent.** Construction noise impacts are reduced by mitigation measures included in Section 3.10 of The Ranch Draft EIR. Mitigation includes methods described in this policy.
Policy N.1.8 - New residential development shall only be allowed inside of the 60 CNEL Mather Airport Policy Area if the following conditions are met: Noise insulation is provided in all new residential dwelling units that reduces interior noise levels to 45 dB with windows closed in any habitable room. Prospective buyers are notified through the Public Report prepared by the California Department of Real Estate disclosing the fact that the parcel is located within the Mather Airport Policy Area. An Aviation Easement is recorded on the property acknowledging that the property is located within the Mather Airport Policy Area. The easement shall grant the right of flight and unobstructed passage of all aircraft into and out of Mather Airport. The Avigation Easement shall be granted to the County of Sacramento, recorded with the Sacramento County Recorder and filed with the County Department of Airports.	**Consistent.** The proposed project is not located within the 60 CNEL Mather Airport Policy Area.
Policy N.2.2 - Ensure that operational noise levels of new roadway projects will not result in significant noise impacts.	**Consistent.** Section 3.10 of The Ranch Draft EIR evaluates noise exposure associated with new roadway facilities. As discussed in Section 3.10, the project is not anticipated to result in significant noise impacts to existing receptors and mitigation is provided to ensure that sensitive receptors associated with the proposed project are not subjected to significant noise levels.

SOURCE: DE NOVO PLANNING GROUP, 2019; CITY OF RANCHO CORDOVA PLANNING DEPARTMENT, 2019.

APPENDIX H

Environmental Noise Assessment

Environmental Noise Assessment

The Ranch –
Environmental Impact Report

City of Rancho Cordova, California

March 6, 2019

Project # 180804

Prepared for:

De Novo Planning Group
1020 Suncast Lane, Suite 106
El Dorado Hills, California 95762

Prepared by:
Saxelby Acoustics

Luke Saxelby, INCE Bd. Cert.
Principal Consultant
Board Certified, Institute of Noise Control Engineering (INCE)

(916) 760-8821
www.SaxNoise.com | Luke@SaxNoise.com
915 Highland Pointe Drive, Suite 250
Roseville, CA 95678

This section provides a general description of the existing noise sources in the Project vicinity, a discussion of the regulatory setting, and identifies potential noise impacts associated with the proposed Project. Project impacts are evaluated relative to applicable noise level criteria and to the existing ambient noise environment. Mitigation measures have been identified for significant noise-related impacts.

3.7.1 ENVIRONMENTAL SETTING

KEY TERMS

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given area consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of noise.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, defined as ten times the logarithm of the ratio of the sound pressure squared over the reference pressure squared.
CNEL	Community noise equivalent level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic acoustic signal, expressed in cycles per second or Hertz.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
L_{eq}	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
$L_{(n)}$	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L_{50} is the sound level exceeded 50 percent of the time during the one hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
SEL	Sound exposure levels. A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy into a one-second event.

FUNDAMENTALS OF ACOUSTICS

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound, and twice as loud as a 60-dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average,

it tends to disguise short-term variations in the noise environment. CNEL is similar to L_{dn}, but includes a +5-dB penalty for evening noise. Table 3.7-1 lists several examples of the noise levels associated with common situations.

TABLE 3.7-1: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	*NOISE LEVEL (DBA)*	*COMMON INDOOR ACTIVITIES*
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

SOURCE: CALTRANS, TECHNICAL NOISE SUPPLEMENT, TRAFFIC NOISE ANALYSIS PROTOCOL. SEPTEMBER 2013.

EFFECTS OF NOISE ON PEOPLE

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction;
- Interference with activities such as speech, sleep, and learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a 1 dBA change cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;

- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING NOISE LEVELS

Existing and Surrounding Land Uses

North: The Sunridge Park Village residential area is located directly north of the project site, south of Douglas Road and east of Sunrise Boulevard. A mix of industrial uses and additional residential communities are located north of Douglas Road.

East: The land directly to the east of the project site is vacant.

South: The land directly to the south of the project site is vacant.

West: Anatolia and Anatolia Village residential areas are located directly to the west of the project site. Another residential community is also under construction along with Rancho Cordova Parkway, which is being extended from Douglas Road to Chrysanthy Boulevard.

Existing Ambient Noise Levels

To quantify the existing ambient noise environment in the Project vicinity, short-term and continuous (24-hour) noise level measurements were conducted on the Project site on August 28th and 29th, 2018. The noise measurement locations are shown on Figure 3.7-4. The noise level measurement survey results are provided in Table 3.7-2. Appendix A of Appendix F shows the complete results of the noise monitoring survey.

The sound level meters were programmed to collect hourly noise level intervals at each site during the survey. The maximum value (L_{max}) represents the highest noise level measured during an interval. The average value (L_{eq}) represents the energy average of all of the noise measured during an interval. The median value (L_{50}) represents the sound level exceeded 50 percent of the time during an interval.

TABLE 3.7-2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

SITE	LOCATION	DATE/TIME	L_{DN}	AVERAGE MEASURED HOURLY NOISE LEVELS, DB					
				DAYTIME (7AM-10PM)			NIGHTTIME (10PM-7AM)		
				L_{EQ}	L_{50}	L_{MAX}	L_{EQ}	L_{50}	L_{MAX}
Continuous (24-hour) Noise Level Measurements									
1	31 ft. from centerline of Rancho Cordova Parkway	08/28/18 - 08/29/18	52	51	40	72	44	34	63
2	North boundary of project site, behind 12368 Pawcatuk Way.	08/28/18 – 08/29/18	45	44	37	61	38	35	50
Short-Term Noise Level Measurements									
1	140 ft. from centerline of Rancho Cordova Parkway.	08/28/18 10:58 AM	NA	53	49	64	Construction at housing development to the west is the primary noise source.		

NOTE: SOURCE: SAXELBY ACOUSTICS, 2019.

Larson Davis Laboratories (LDL) Model 820, Model 812, and Model 831 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

EXISTING ROADWAY NOISE LEVELS

To predict existing noise levels due to traffic, the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise emission factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions.

Traffic volumes for existing conditions were obtained from the Traffic Data prepared for the Project (Kimley Horn). Truck percentages and vehicle speeds on the local area roadways were estimated from field observations.

Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each Project-area roadway segment. Where traffic noise barriers are predominately along a roadway segment, a -5 offset was added to the noise prediction model to account for various noise barrier heights. A -5 to dB offset was also applied where outdoor activity areas are shielded by intervening buildings. In some locations, sensitive receptors may be located at distances which vary from the assumed calculation distance and may experience shielding from intervening barriers

or sound walls. However, the traffic noise analysis is believed to be representative of the majority of sensitive receptors located closest to the Project-area roadway segments analyzed in this report.

Table 3.7-3 shows the existing traffic noise levels in terms of L_{dn} at closest sensitive receptors along each roadway segment. A complete listing of the FHWA Model input data is contained in Appendix B of Appendix F.

TABLE 3.7-3: EXISTING TRAFFIC NOISE LEVELS

ROADWAY	*SEGMENT*	*EXTERIOR TRAFFIC NOISE LEVEL, DB L_{DN}*
Jackson Rd.	Bradshaw Rd. to Excelsior Rd.	67.4
Jackson Rd.	Excelsior Rd. to Eagles Nest Rd.	67.1
Jackson Rd.	Eagles Nest Rd. to Sunrise Blvd.	66.1
Jackson Rd.	Sunrise Blvd. to Grant Line Rd.	67.1
Excelsior Rd.	Kiefer Blvd. to Jackson Rd.	60.0
Kiefer Blvd.	Grant Line Rd. to Jackson Rd./SR-16	55.1
International Dr.	Zinfandel Dr. to Sunrise Blvd.	65.2
Mather Blvd.	Femoyer St. to Douglas Rd.	58.1
Douglas Rd.	Mather Blvd. to Sunrise Blvd.	66.3
Douglas Rd.	Sunrise Blvd. to Grant Line Rd.	61.0
White Rock Rd.	Zinfandel Dr. to Sunrise Blvd.	65.3
White Rock Rd.	Sunrise Blvd. to Grant Line Rd.	60.9
White Rock Rd.	Grant Line Rd. to Prairie City Rd.	67.3
Mather Field Rd.	Folsom Blvd. to US 50 WB Ramp	65.7
Mather Field Rd.	US 50 WB Ramp to US 50 EB Ramp	68.7
Mather Field Rd.	US 50 to International Dr.	69.5
Zinfandel Dr.	Folsom Blvd. to US 50 WB	57.0
Zinfandel Dr.	US 50 to White Rock Rd.	66.6
Zinfandel Dr.	White Rock Rd. to International Rd.	65.8
Zinfandel Dr.	International Rd. to Douglas Rd.	59.6
Sunrise Blvd.	US 50 WB Ramp to US 50 EB Ramp	64.3
Sunrise Blvd.	US 50 to Folsom Blvd.	67.1
Sunrise Blvd.	Folsom Blvd. to White Rock Rd.	69.4
Sunrise Blvd.	White Rock Rd. to Douglas Rd.	69.3
Sunrise Blvd.	Douglas Rd. to Jackson Rd.	64.6
Sunrise Blvd.	Jackson Rd. to Grant Line Rd.	66.8
Grant Line Rd.	White Rock Rd. to Douglas Rd.	69.8
Grant Line Rd.	Douglas Rd. to Jackson Rd.	64.7
Grant Line Rd.	Jackson Rd. to Sunrise Blvd.	64.3

SOURCE: FHWA-RD-77-108 WITH INPUTS FROM KIMLEY HORN AND SAXELBY ACOUSTICS. 2019.

3.7.2 REGULATORY SETTING

FEDERAL

There are no federal regulations related to noise that apply to the proposed Project.

STATE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise or vibration levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels. CEQA standards are discussed more below under the Thresholds of Significance section.

California State Building Codes

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room.

Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment

City of Rancho Cordova General Plan

The City of Rancho Cordova General Plan Noise Element includes the following goals, policies, and actions regarding noise that are applicable to the proposed Project:

Goal N-1	Ensure that all new development will be free of noise disturbances.
Policy N-1.1	Establish standards and policies consistent with those in Tables N-1 and N-2 to govern maximum sound levels in new development.
Policy N-1.2	Ensure that the indoor and outdoor areas of new projects will be located, constructed, and/or shielded from noise sources in compliance with the City's noise standards to the maximum extent feasible.
Policy N-1.7	To the extent feasible and appropriate, the City shall require the use of temporary construction noise control measures for public and

private projects that may include the use of temporary noise barriers, temporary relocation of noise-sensitive land uses or other appropriate measures.

Noise Compatibility Standards

Table N-1 (Figure 3.7-1) of the General Plan shows the maximum allowable daytime and nighttime noise levels from non-transportation sources. Table N-2 (Figure 3.7-2) gives an overview of maximum interior and exterior traffic noise exposure for land use categories that are applied throughout the City.

TABLE N-1
CITY NOISE STANDARDS
NOISE LEVEL PERFORMANCE STANDARDS FOR NEW PROJECTS AFFECTED BY OR INCLUDING NON-TRANSPORTATION NOISE SOURCES

Stationary Noise Source	Noise Level Descriptor	Daytime Maximum (7 a.m. to 10 p.m.)	Nighttime Maximum (10 p.m. to 7 a.m.)
Typical	Hourly L_{eq}, dB	55	45
Tonal, impulsive, repetitive, or consist primarily of speech or music	Hourly Leq, dB	50	40

The City may impose noise level standards which are more or less restrictive than those specified above based upon determination of existing low or high ambient noise levels.

Figure 3.7-1: Table N-1 of the City of Rancho Cordova General Plan Noise Element

TABLE N-2
MAXIMUM TRANSPORTATION NOISE EXPOSURE

Land Use	Outdoor Activity Areas[1] Ldn/CNEL, dB	Interior Spaces	
		Ldn/CNEL, dB	Leq, dB[2]
Residential	60[3]	45	--
Residential subject to noise from railroad tracks, aircraft overflights, or similar noise sources which produce clearly identifiable, discrete noise events (e.g., the passing of a single train)	60[3]	40[5]	--
Transient lodging	60[4]	45	--
Hospitals, nursing homes	60[3]	45	--
Theaters, auditoriums, music halls	--	--	35
Churches, meeting halls	60[3]	--	40
Office buildings	--	--	45
Schools, libraries, museums	--	--	45
Playgrounds, neighborhood parks	70	--	--

1 *Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.*

2 *As determined for a typical worst-case hour during periods of use.*

3 *Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.*

4 *In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply.*

5 *The intent of this noise standard is to provide increased protection against sleep disturbance for residences located near railroad tracks.*

Figure 3.7-2: Table N-2 of the City of Rancho Cordova General Plan Noise Element

City of Rancho Cordova Municipal Code and Noise Ordinance

Chapter 6.68 of the Municipal Code identifies performance standards for noise. The maximum exterior noise level for Residential Districts is set at 55 dBA. This standard is 5.0 dBA lower between 10:00 P.M and 7:00 A.M. The following table from Section 6.68.070, subsection B (Figure 3.7-3) outlines allowable exterior noise standard exceedances in any one hour. The limits specified in subsection B are reduced by five dBA for noises which are impulsive or consist of speech or music. If the existing ambient noise level exceeds the first four categories in subsection B, then the allowable noise exterior limit shall be increased by five-dBA increments to encompass the ambient noise level.

Cumulative Duration of the Intrusive Sound	Allowance Decibels
1. Cumulative period of 30 minutes per hour	0
2. Cumulative period of 15 minutes per hour	+ 5
3. Cumulative period of 5 minutes per hour	+10
4. Cumulative period of 1 minute per hour	+15
5. Level not to be exceeded for any time per hour	+20

Figure 3.7-3: City of Rancho Cordova Municipal Code. Section 6.68.070, Subsection B

Furthermore, the interior noise level in any residential dwelling unit located in a mixed-use building or development shall not exceed forty-five dBA for a cumulative period of more than five minutes in any hour, fifty dBA for a cumulative period of more than one minute in any hour, or fifty-five dBA for any period of time. There is a slight reprieve in that the allowable noise limit shall be increased by five-dBA increments to encompass the ambient noise level if the existing ambient noise level exceeds the standard.

Exemptions to the interior and exterior noise standards are outlined in Section 6.68.090 of the City's Municipal Code. A list of the exemptions is provided here:

A. School bands, school athletic and school entertainment events;
B. Outdoor gatherings, public dances, shows and sporting and entertainment events, provided said events are conducted pursuant to a license or permit by the city;
C. Activities conducted on parks, public playgrounds and school grounds, provided such parks, playgrounds and school grounds are owned and operated by a public entity or private school;
D. Any mechanical device, apparatus or equipment related to or connected with emergency activities or emergency work;

E. Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 6:00 a.m. on weekdays and Friday commencing at 8:00 p.m. through and including 7:00 a.m. on Saturday; Saturdays commencing at 8:00 p.m. through and including 7:00 a.m. on the next following Sunday and on each Sunday after the hour of 8:00 p.m.; provided, however, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 8:00 p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner;
F. Noise sources associated with agricultural operations, provided such operations do not take place between the hours of 8:00 p.m. and 6:00 a.m.;
G. All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of adverse weather conditions or when the use of mobile noise sources is necessary for pest control;
H. Noise sources associated with maintenance of residential area property, provided said activities take place between the hours of 6:00 a.m. and 8:00 p.m. on any day except Saturday or Sunday, or between the hours of 7:00 a.m. and 8:00 p.m. on Saturday or Sunday;
I. Any activity, to the extent provisions of Chapter 65 of Title 42 of the United States Code and Articles 3 and 3.5 of Chapter 4 of Part 1 of Division 9 of the Public Utilities Code of the state of California preempt local control of noise regulations and land use regulations related to noise control of airports and their surrounding geographical areas, any noise source associated with the construction, development, manufacture, maintenance, testing or operation of any aircraft engine, or of any weapons system or subsystems which are owned, operated or under the jurisdiction of the United States, or any other activity to the extent regulation thereof has been preempted by state or federal law or regulation;
J. Any noise sources associated with the maintenance and operation of aircraft or airports which are owned or operated by the United States. [Ord. 38-2007 § 1 (Exh. 1(E)); Ord. 21-2003 §§ 2, 4; Ord. 20-2003 §§ 2, 4; SCC 254 § 1 (part), 1976].

VIBRATION STANDARDS

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

The City of Rancho Cordova not have specific policies pertaining to vibration levels. However, vibration levels associated with construction activities and railroad operations are addressed as potential noise impacts associated with Project implementation.

Human and structural response to different vibration levels is influenced by several factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 3.7-4 indicates that the threshold for damage to structures ranges from 0.2 to 0.6 peak particle velocity in inches per second (in/sec p.p.v). One-half this minimum threshold or 0.1 in/sec p.p.v. is considered a safe criterion that would protect against architectural or structural damage. The general threshold at which human annoyance could occur is noted as 0.1 in/sec p.p.v.

TABLE 3.7-4: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

PEAK PARTICLE VELOCITY		*HUMAN REACTION*	*EFFECT ON BUILDINGS*
MM/SEC.	*IN./SEC.*		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of “architectural” damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of “architectural” damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize “architectural” damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage.

SOURCE: CALTRANS. TRANSPORTATION RELATED EARTHBORN VIBRATIONS. TAV-02-01-R9601 FEBRUARY 20, 2002.

3.7.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the Project will have a significant impact related to noise if it will result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project;
- A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without Project;
- For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels within two miles of a public airport or public use airport; or
- For a Project within the vicinity of a private airstrip, expose people residing or working in the Project area to excessive noise levels.

The Project site is not located within two miles of a public or private airport or airstrip. Therefore, airport and airport noise is not discussed further in this analysis.

Determination of a Significant Increase in Noise Levels

The noise standards applicable to the project include the relevant portions of the City of Rancho Cordova General Plan, the City of Rancho Cordova Municipal Code described in the Regulatory Framework Section above (Section 3.7.2), and the following standards. Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in traffic noise from the project is a factor in determining significance. Research into the human perception of changes in sound level indicates the following:

- A 3-dB change is barely perceptible,
- A 5-dB change is clearly perceptible, and
- A 10-dB change is perceived as being twice or half as loud.

A limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project-noise conditions. Table 3.7-5 is based upon recommendations made by the

Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been accepted that they are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the L_{dn}.

TABLE 3.7-5: SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE

AMBIENT NOISE LEVEL WITHOUT PROJECT, LDN	*INCREASE REQUIRED FOR SIGNIFICANT IMPACT*
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

SOURCE: FEDERAL INTERAGENCY COMMITTEE ON NOISE (FICON)

Based on the Table 3.7-5 data, an increase in the traffic noise level of 5 dB or more would be significant where the pre-project noise levels are less than 60 dB L_{dn}, or 3 dB or more where existing noise levels are between 60 to 65 dB Ldn. Extending this concept to higher noise levels, an increase in the traffic noise level of 1.5 dB or more may be significant where the pre-project traffic noise level exceeds 65 dB L_{dn}. The rationale for the Table 3.7-5 criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause annoyance.

IMPACTS AND MITIGATION MEASURES

Impact 3.7-1: The proposed Project has the potential to increase traffic noise levels at existing receptors. (Less than Significant)

PROPOSED PROJECT ANALYSIS

Tables 3.7-6 and 3.7-7 show the predicted traffic noise level increases on the local roadway network for Existing, Existing + Project, Cumulative No Project, and Cumulative + Project conditions. Appendix B of Appendix F provides the complete inputs and results of the FHWA traffic noise modeling.

TABLE 3.7-6: EXISTING AND EXISTING PLUS PROJECT TRAFFIC NOISE LEVELS

ROADWAY	SEGMENT	NOISE LEVELS (L_{DN}, dB) AT NEAREST SENSITIVE RECEPTORS				
		EXISTING	EXISTING + PROJECT	CHANGE	CRITERIA[1]	SIGNIFICANT?
Jackson Rd.	Bradshaw Rd. to Excelsior Rd.	67.4	67.4	0.0	+1.5 dB	No
Jackson Rd.	Excelsior Rd. to Eagles Nest Rd.	67.1	67.2	0.1	+1.5 dB	No
Jackson Rd.	Eagles Nest Rd. to Sunrise Blvd.	66.1	66.2	0.1	+1.5 dB	No
Jackson Rd.	Sunrise Blvd. to Grant Line Rd.	67.1	67.2	0.1	+1.5 dB	No
Excelsior Rd.	Kiefer Blvd. to Jackson Rd.	60.0	60.0	0.0	+3 dB	No
Kiefer Blvd.	Grant Line Rd. to Jackson Rd./SR-16	55.1	55.1	0.0	+5 dB or > 60 dB	No
International Dr.	Zinfandel Dr. to Sunrise Blvd.	65.2	66.1	0.9	+1.5 dB	No
Mather Blvd.	Femoyer St. to Douglas Rd.	58.1	58.5	0.4	+5 dB or > 60 dB	No
Douglas Rd.	Mather Blvd. to Sunrise Blvd.	66.3	66.5	0.2	+1.5 dB	No
Douglas Rd.	Sunrise Blvd. to Grant Line Rd.	61.0	61.2	0.2	+3 dB	No
White Rock Rd.	Zinfandel Dr. to Sunrise Blvd.	65.3	65.3	0.0	+1.5 dB	No
White Rock Rd.	Sunrise Blvd. to Grant Line Rd.	60.9	61.0	0.1	+3 dB	No
White Rock Rd.	Grant Line Rd. to Prairie City Rd.	67.3	67.4	0.1	+1.5 dB	No
Mather Field Rd.	Folsom Blvd. to US 50 WB Ramp	65.7	65.7	0.0	+1.5 dB	No
Mather Field Rd.	US 50 WB Ramp to US 50 EB Ramp	68.7	68.7	0.0	+1.5 dB	No
Mather Field Rd.	US 50 to International Dr.	69.5	69.5	0.0	+1.5 dB	No
Zinfandel Dr.	Folsom Blvd. to US 50 WB	57.0	57.1	0.1	+5 dB or > 60 dB	No
Zinfandel Dr.	US 50 to White Rock Rd.	66.6	66.8	0.2	+1.5 dB	No
Zinfandel Dr.	White Rock Rd. to International Rd.	65.8	66.1	0.3	+1.5 dB	No
Zinfandel Dr.	International Rd. to Douglas Rd.	59.6	59.6	0.0	+5 dB or > 60 dB	No
Sunrise Blvd.	US 50 WB Ramp to US 50 EB Ramp	64.3	64.5	0.2	+3 dB	No
Sunrise Blvd.	US 50 to Folsom Blvd.	67.1	67.3	0.2	+1.5 dB	No
Sunrise Blvd.	Folsom Blvd. to White Rock Rd.	69.4	69.8	0.4	+1.5 dB	No

Roadway	Segment	Noise Levels (L_{DN}, dB) at Nearest Sensitive Receptors				
		Existing	Existing + Project	Change	Criteria[1]	Significant?
Sunrise Blvd.	White Rock Rd. to Douglas Rd.	69.3	70.2	0.9	+1.5 dB	No
Sunrise Blvd.	Douglas Rd. to Jackson Rd.	64.6	66.1	1.5	+3 dB	No
Sunrise Blvd.	Jackson Rd. to Grant Line Rd.	66.8	67.1	0.3	+1.5 dB	No
Grant Line Rd.	White Rock Rd. to Douglas Rd.	69.8	69.9	0.1	+1.5 dB	No
Grant Line Rd.	Douglas Rd. to Jackson Rd.	64.7	64.7	0.0	+3 dB	No
Grant Line Rd.	Jackson Rd. to Sunrise Blvd.	64.3	64.3	0.0	+3 dB	No

[1] *Where existing noise levels are less than 60 dB an increase of 5 dB would be a significant increase. Additionally, any increase causing noise levels to exceed the City's Normally Acceptable 60 dB Ldn noise level standard at an existing outdoor activity area of a residential use would also be significant. Where existing noise levels exceed 60 dB but are less than 65 dB, an increase of 3 dB or more would be significant. Where existing noise levels exceed 65 dB, an increase of 1.5 dB or more would be significant.*

Source: FHWA-RD-77-108 with inputs from Kimley Horn and Saxelby Acoustics. 2019.

Table 3.7-7: Cumulative and Cumulative + Project Traffic Noise Levels

Roadway	Segment	Noise Levels (L_{DN}, dB) at Nearest Sensitive Receptors				
		Cumulative	Cumulative + Project	Change	Criteria[1]	Significant?
Jackson Rd.	Bradshaw Rd. to Excelsior Rd.	70.0	70.0	0.0	+1.5 dB	No
Jackson Rd.	Excelsior Rd. to Eagles Nest Rd.	70.0	70.0	0.0	+1.5 dB	No
Jackson Rd.	Eagles Nest Rd. to Sunrise Blvd.	68.7	68.7	0.0	+1.5 dB	No
Jackson Rd.	Sunrise Blvd. to Grant Line Rd.	69.1	69.1	0.0	+1.5 dB	No
Excelsior Rd.	Kiefer Blvd. to Jackson Rd.	62.9	62.9	0.0	+3 dB	No
Kiefer Blvd.	Grant Line Rd. to Jackson Rd./SR-16	58.8	59.0	0.2	+5 dB or > 60 dB	No
International Dr.	Zinfandel Dr. to Sunrise Blvd.	68.8	68.8	0.0	+1.5 dB	No
Mather Blvd.	Femoyer St. to Douglas Rd.	63.9	64.2	0.3	+3 dB	No
Douglas Rd.	Mather Blvd. to Sunrise Blvd.	71.1	71.4	0.3	+1.5 dB	No
Douglas Rd.	Sunrise Blvd. to Grant Line Rd.	66.1	66.8	0.7	+1.5 dB	No
White Rock Rd.	Zinfandel Dr. to Sunrise Blvd.	67.6	67.7	0.1	+1.5 dB	No
White Rock Rd.	Sunrise Blvd. to Grant Line Rd.	67.7	67.7	0.0	+1.5 dB	No
White Rock Rd.	Grant Line Rd. to Prairie City Rd.	71.5	71.7	0.2	+1.5 dB	No
Mather Field Rd.	Folsom Blvd. to US 50 WB Ramp	67.0	67.0	0.0	+1.5 dB	No
Mather Field Rd.	US 50 WB Ramp to US 50 EB Ramp	69.6	69.7	0.1	+1.5 dB	No
Mather Field Rd.	US 50 to International Dr.	70.8	70.8	0.0	+1.5 dB	No
Zinfandel Dr.	Folsom Blvd. to US 50 WB	57.2	57.3	0.1	+5 dB or > 60 dB	No
Zinfandel Dr.	US 50 to White Rock Rd.	68.2	68.2	0.0	+1.5 dB	No

Roadway	Segment	Noise Levels (L_{DN}, dB) at Nearest Sensitive Receptors				
		Cumulative	Cumulative + Project	Change	Criteria[1]	Significant?
Zinfandel Dr.	White Rock Rd. to International Rd.	67.7	67.8	0.1	+1.5 dB	No
Zinfandel Dr.	International Rd. to Douglas Rd.	61.6	61.8	0.2	+3 dB	No
Sunrise Blvd.	US 50 WB Ramp to US 50 EB Ramp	64.6	64.6	0.0	+3 dB	No
Sunrise Blvd.	US 50 to Folsom Blvd.	67.4	67.5	0.1	+1.5 dB	No
Sunrise Blvd.	Folsom Blvd. to White Rock Rd.	69.4	69.5	0.1	+1.5 dB	No
Sunrise Blvd.	White Rock Rd. to Douglas Rd.	71.3	71.5	0.2	+1.5 dB	No
Sunrise Blvd.	Douglas Rd. to Jackson Rd.	67.6	67.7	0.1	+1.5 dB	No
Sunrise Blvd.	Jackson Rd. to Grant Line Rd.	69.1	69.1	0.0	+1.5 dB	No
Grant Line Rd.	White Rock Rd. to Douglas Rd.	73.5	73.7	0.2	+1.5 dB	No
Grant Line Rd.	Douglas Rd. to Jackson Rd.	70.1	70.3	0.2	+1.5 dB	No
Grant Line Rd.	Jackson Rd. to Sunrise Blvd.	66.7	66.8	0.1	+1.5 dB	No
Kiefer Blvd.	Eagles Nest Rd. to Sunrise Blvd.	58.6	58.6	0.0	+5 dB or > 60 dB	No
Kiefer Blvd.	Sunrise Blvd. to Rancho Cordova Pkwy.	62.8	62.8	0.0	+3 dB	No
Chrysanthy Blvd.	Sunrise Blvd. to Rancho Cordova Pkwy.	56.1	57.1	1.0	+5 dB or > 60 dB	No
Rancho Cordova Pkwy.	Chrysanthy Blvd. to Kiefer Blvd.	60.8	61.1	0.3	+3 dB	No

[1] Where existing noise levels are less than 60 dB an increase of 5 dB would be a significant increase. Additionally, any increase causing noise levels to exceed the City's Normally Acceptable 60 dB Ldn noise level standard at an existing outdoor activity area of a residential use would also be significant. Where existing noise levels exceed 60 dB but are less than 65 dB, an increase of 3 dB or more would be significant. Where existing noise levels exceed 65 dB, an increase of 1.5 dB or more would be significant.

Source: FHWA-RD-77-108 with inputs from Kimley Horn and Saxelby Acoustics. 2019.

As shown in Tables 3.7-6 through 3.7-7 some noise-sensitive receptors located along the project-area roadways are currently exposed to exterior traffic noise levels exceeding the City of Rancho Cordova 60 dB L_{dn} exterior noise level standard for residential uses. These receptors would continue to experience elevated exterior noise levels with implementation of the proposed project. For example, sensitive receptors under Existing conditions located adjacent to Sunrise Boulevard between Douglas Road and Jackson Road experience an exterior noise level of 64.6 dB L_{dn}. Under Existing + Project conditions, exterior traffic noise levels are predicted to be approximately 66.1 dB L_{dn}. Exterior noise levels in both scenarios exceed the City's exterior noise level standard of 60 dB L_{dn}. However, the project's contribution of 1.5 dB would not exceed the FICON criteria of 3 dB where existing noise levels exceed 65 dB. Therefore, this would be a **less than significant** impact.

Impact 3.7-2: The proposed Project has the potential to increase noise levels associated with construction activities. (Less than Significant with Mitigation)

During the construction of the Project including roads, water, and sewer lines and related infrastructure, noise from construction activities would add to the noise environment in the Project vicinity. Activities involved in construction would generate maximum noise levels, as indicated in Table 3.7-8, ranging from 76 to 90 dB at a distance of 50 feet. Construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours.

TABLE 3.7-8: CONSTRUCTION EQUIPMENT NOISE

TYPE OF EQUIPMENT	MAXIMUM LEVEL, DB	
	25 FEET	50 FEET
Backhoe	84	78
Compactor	89	83
Compressor (air)	84	78
Concrete Saw	96	90
Dozer	88	82
Dump Truck	82	76
Excavator	87	81
Generator	87	81
Jackhammer	94	89
Pneumatic Tools	91	85

SOURCE: ROADWAY CONSTRUCTION NOISE MODEL USER'S GUIDE. FEDERAL HIGHWAY ADMINISTRATION. FHWA-HEP-05-054. JANUARY 2006.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A significant Project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

Construction activities would be temporary in nature and are exempt from noise regulation during the hours of 7:00 AM to 8:00 PM on weekdays, as outlined in the City's Municipal Code for noise standard exemptions.

Implementation of the following mitigation measures will ensure that these potential impacts are reduced to a **less-than-significant** level.

MITIGATION MEASURE(S)

Mitigation Measure 3.7-1: *Construction activities shall adhere to the requirements of the City of Rancho Cordova Municipal Code with respect to hours of operation. This requirement shall be noted in the improvements plans prior to approval by the City's Public Works Department.*

Mitigation Measure 3.7-2: *All equipment shall be fitted with factory equipped mufflers, and in good working order. This requirement shall be noted in the improvements plans prior to approval by the City's Public Works Department.*

Impact 3.7-3: The proposed Project has the potential to increase noise vibration associated with construction activities. (Less than Significant with Mitigation)

The primary vibration-generating activities associated with the proposed Project would happen during construction when activities such as grading, utilities placement, and road construction occur. Sensitive receptors which could be impacted by construction-related vibrations, especially vibratory compactors/rollers, are located approximately 25 feet or further from the Project area.

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural damage. Table 3.7-9 shows the typical vibration levels produced by construction equipment.

TABLE 3.7-9: VIBRATION LEVELS FOR VARYING CONSTRUCTION EQUIPMENT

TYPE OF EQUIPMENT	*PEAK PARTICLE VELOCITY @ 25 FEET (INCHES/SECOND)*	*PEAK PARTICLE VELOCITY @ 100 FEET (INCHES/SECOND)*
Large Bulldozer	0.089	0.011
Loaded Trucks	0.076	0.010
Small Bulldozer	0.003	0.000
Auger/drill Rigs	0.089	0.011
Jackhammer	0.035	0.004
Vibratory Hammer	0.070	0.009
Vibratory Compactor/roller	0.210	0.026

SOURCE: FEDERAL TRANSIT ADMINISTRATION, TRANSIT NOISE AND VIBRATION IMPACT ASSESSMENT GUIDELINES, MAY 2006

With the exception of vibratory compactors, the Table 3.7-9 data indicate that construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at a distance of 25 feet. Use of vibratory compactors within 26 feet of the adjacent buildings could cause vibrations in excess of 0.2 in/sec. Therefore, this is a **potentially significant** impact.

Implementation of the following mitigation measures will ensure that these potential impacts are reduced to a **less-than-significant** level.

MITIGATION MEASURE(S)

Mitigation Measure 3.7-3: *Any compaction required less than 26 feet from the adjacent residential structures to the north should be accomplished by using static drum rollers which use weight instead of vibrations to achieve soil compaction. As an alternative to this requirement, pre-construction crack documentation and construction vibration monitoring could be conducted to ensure that construction vibrations do not cause damage to any adjacent structures.*

Impact 3.7-4: The proposed Project has the potential to expose new sensitive receptors to excessive transportation noise. (Less than Significant with Mitigation)

The FHWA traffic noise prediction model was used to predict Cumulative + Project traffic noise levels at the proposed residential land uses associated with the project. Table 3.7-10 shows the predicted traffic noise levels at the proposed residential uses adjacent to the major Project-area arterial roadways. Table 3.7-10 also indicates the property line noise barrier heights required to achieve compliance with an exterior noise level standard of 60 dB L_{dn}.

The complete inputs and results to the FHWA traffic noise prediction model and barrier calculations are contained in the Noise Study Appendix B (see Appendix F of this EIR). The modeled noise barriers assume flat site conditions where roadway elevations, base of wall elevations, and building pad elevations are approximately equivalent.

To describe future noise levels due to traffic, FHWA Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. Direct inputs into the model included traffic volumes provided by Kimley Horn. The FHWA model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict L_{dn}/CNEL values, it is necessary to determine the day/night distribution of traffic and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

TABLE 3.7-10: CUMULATIVE + PROJECT TRANSPORTATION NOISE LEVELS AT PROPOSED RESIDENTIAL USES

SEGMENT	APPROXIMATE RESIDENTIAL SETBACK, FEET[1]	ADT	PREDICTED TRAFFIC NOISE LEVELS, DB L_{DN}[2]					
			NO WALL	6' WALL	7' WALL	8' WALL	9' WALL	10' WALL
CHRYSANTHY BOULEVARD								
Rancho Cordova Pkwy. to Americanos Blvd.	90	14651	64	58	57	56	55	54
Rancho Cordova Parkway								
Douglas Rd. to Chrysanthy Blvd.	100	22140	66	61	60	59	58	57
Chrysanthy Blvd. to Keifer Blvd.	525	8965	52	46	45	44	44	43

NOTES: ADT = AVERAGE DAILY TRIPS

[1] SETBACK DISTANCES ARE MEASURED IN FEET FROM THE CENTERLINES OF THE ROADWAYS TO THE CENTER OF RESIDENTIAL BACKYARDS.

[2] THE MODELED NOISE BARRIERS ASSUME FLAT SITE CONDITIONS WHERE ROADWAY ELEVATIONS, BASE OF WALL ELEVATIONS, AND BUILDING PAD ELEVATIONS ARE APPROXIMATELY EQUIVALENT. SOUND WALL HEIGHT MAY BE ACHIEVE D THROUGH THE USE A WALL AND EARTHEN BERM TO ACHIEVE THE TOTAL HEIGHT (I.E. 6-FOOT WALL ON 2-FOOT BERM IS EQUIVALENT TO AN 8-FOOT TALL WALL).

SOURCE: FHWA-RD-77-108 WITH INPUTS FROM KIMLEY HORN AND SAXELBY ACOUSTICS. 2019.

Table 3.7-10 data indicate that noise barriers 6-7 feet in height would generally be sufficient to achieve compliance with the City of Rancho Cordova 60 dB L_{dn} exterior noise level standard for the proposed residential uses.

INTERIOR NOISE IMPACTS

Modern construction typically provides a 25-dB exterior-to-interior noise level reduction with windows closed. Therefore, sensitive receptors exposed to exterior noise of 70 dB L_{dn}, or less, will typically comply with the City of Rancho Cordova 45 dB L_{dn} interior noise level standard. Additional noise reduction measures, such as acoustically-rated windows, are generally required for exterior noise levels exceeding 70 dB L_{dn}.

It should be noted that exterior noise levels are typically 2 to 3 dB higher at second floor locations. Additionally, noise barriers do not reduce exterior noise levels at second floor locations. The proposed residential uses are predicted to be exposed to unmitigated first floor exterior transportation noise levels ranging between 52 to 66 dB L_{dn}. Therefore, second floor facades are predicted to be exposed to exterior noise levels of up to 55 to 69 dB L_{dn}.

Based upon a 25-dB exterior-to-interior noise level reduction, interior noise levels are predicted to range between 30 to 44 dB L_{dn}. Accordingly, predicted interior noise levels along the first row of residential uses closest to Chrysanthy Boulevard and Rancho Cordova Parkway would comply with the City's 45 dB L_{dn} interior noise level standard. Therefore, additional interior noise control measures would not be required for these residential uses.

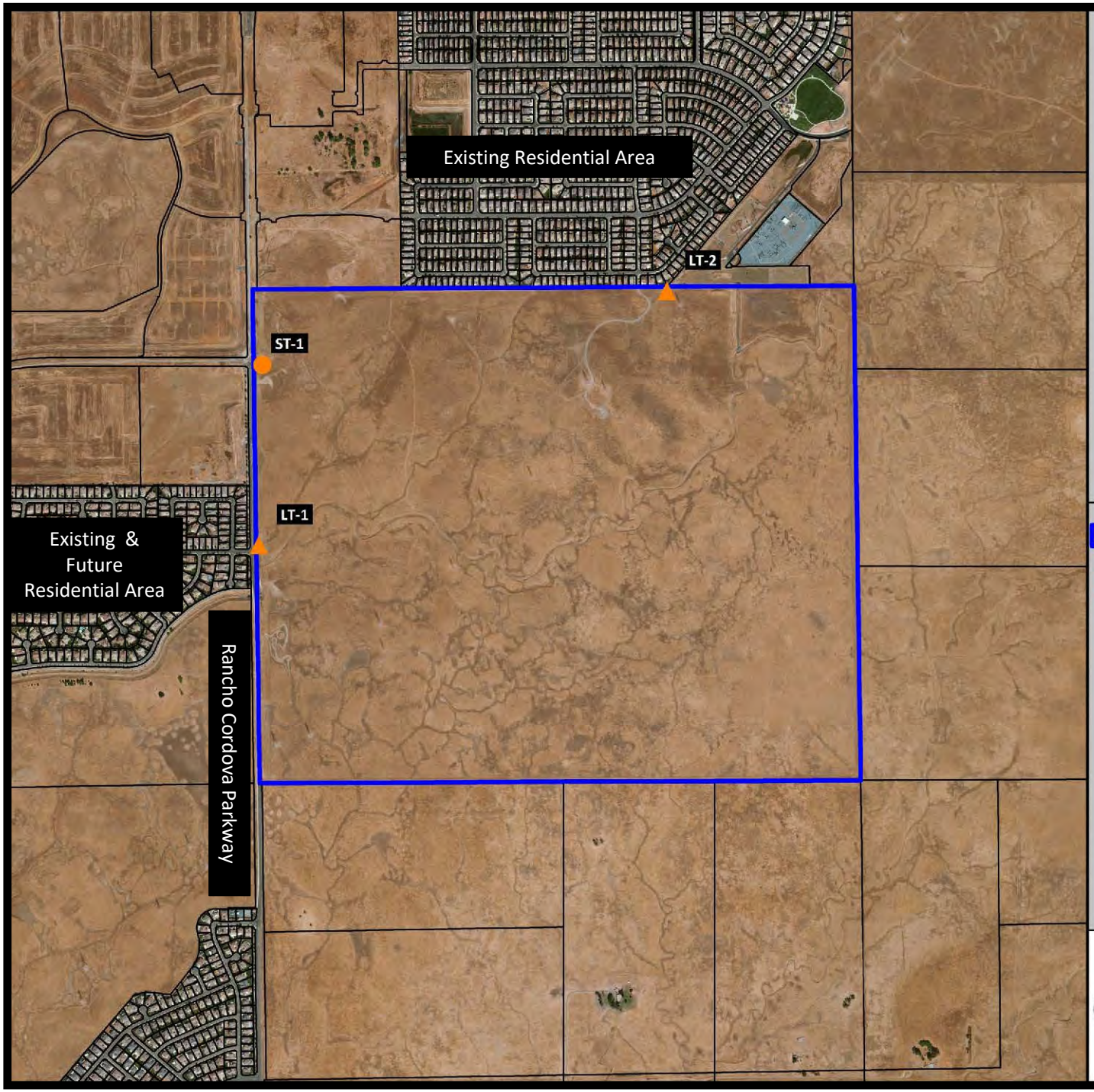
This analysis assumes that mechanical ventilation will be provided to allow residents to keep doors and windows closed, as desired for acoustical isolation. With implementation of the following interior and exterior mitigation measures, the proposed Project would be a **potentially significant** impact relative to this environmental topic.

Implementation of the following mitigation measures will ensure that these potential impacts are reduced to a **less-than-significant** level.

MITIGATION MEASURE(S)

Mitigation Measure 3.7-4: *6- to 7-foot tall sound walls and/or landscaped berm combinations shall be constructed along the primary Project-area roadways, adjacent to proposed residential uses, in order to achieve the City's exterior noise standards. See Table 3.7-10 of Section 3.7 of the Draft EIR for specific noise barrier heights along each roadway. Noise barrier walls shall be constructed of concrete panels, concrete masonry units, earthen berms, or any combination of these materials. Wood is not recommended due to eventual warping and degradation of acoustical performance. These requirements shall be included in the improvements plans prior to their approval by the City's Public Works Department.*

This page left intentionally blank.



The Ranch EIR

Placer County, California

Figure 3.7-4

Noise Measurement Sites

Legend

- Project Site
- Noise Measurement - Long Term
- Noise Measurement - Short Term

125 m 375 m 625 m

Projection: State Plane (California Zone 2) / NAD83 / feet
Rev. Date: 10/02/2018

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

This page left intentionally blank.

Appendix A: Continuous and Short-Term Ambient Noise Measurement Results

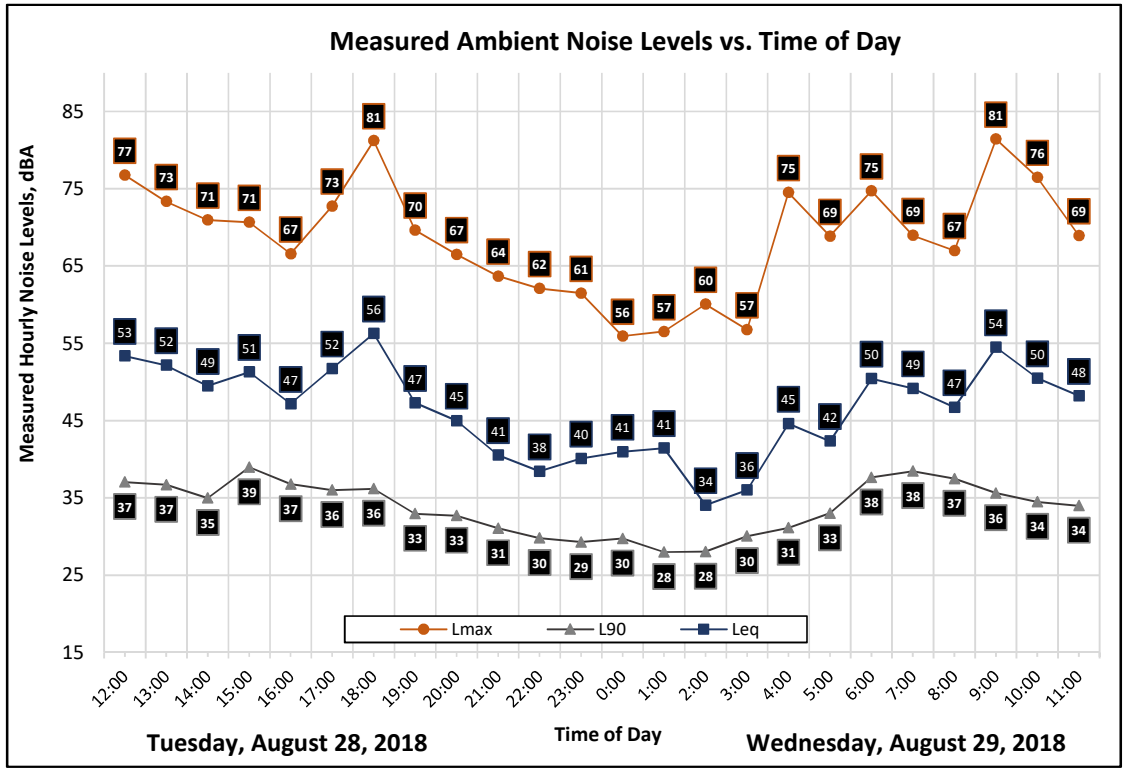
Appendix A-1 : Continuous Noise Monitoring Results

Site: LT-1
Project: The Ranch EIR
Location: West Boundary of Project Site
Coordinates: 38.5463205°, -121.2241594°

Meter: LDL 812-1
Calibrator: B&K 4230

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Tuesday, August 28, 2018	12:00	53	77	42	37
Tuesday, August 28, 2018	13:00	52	73	41	37
Tuesday, August 28, 2018	14:00	49	71	40	35
Tuesday, August 28, 2018	15:00	51	71	44	39
Tuesday, August 28, 2018	16:00	47	67	41	37
Tuesday, August 28, 2018	17:00	52	73	41	36
Tuesday, August 28, 2018	18:00	56	81	42	36
Tuesday, August 28, 2018	19:00	47	70	39	33
Tuesday, August 28, 2018	20:00	45	67	37	33
Tuesday, August 28, 2018	21:00	41	64	33	31
Tuesday, August 28, 2018	22:00	38	62	32	30
Tuesday, August 28, 2018	23:00	40	61	32	29
Wednesday, August 29, 2018	0:00	41	56	36	30
Wednesday, August 29, 2018	1:00	41	57	31	28
Wednesday, August 29, 2018	2:00	34	60	30	28
Wednesday, August 29, 2018	3:00	36	57	32	30
Wednesday, August 29, 2018	4:00	45	75	32	31
Wednesday, August 29, 2018	5:00	42	69	36	33
Wednesday, August 29, 2018	6:00	50	75	41	38
Wednesday, August 29, 2018	7:00	49	69	42	38
Wednesday, August 29, 2018	8:00	47	67	42	37
Wednesday, August 29, 2018	9:00	54	81	40	36
Wednesday, August 29, 2018	10:00	50	76	39	34
Wednesday, August 29, 2018	11:00	48	69	38	34

Statistics	Leq	Lmax	L50	L90
Day Average	51	72	40	36
Night Average	44	63	34	31
Day Low	41	64	33	31
Day High	56	81	44	39
Night Low	34	56	30	28
Night High	50	75	41	38
Ldn	52	Day %		90
CNEL	52	Night %		10



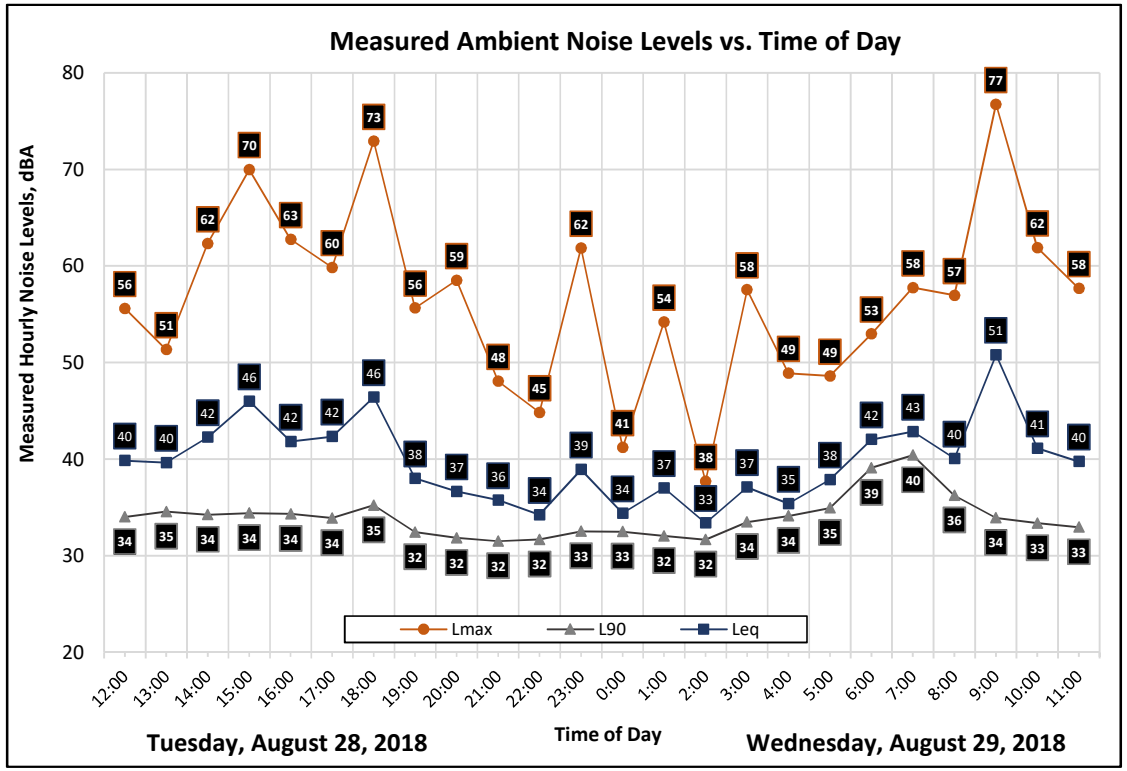
Appendix A-2 : Continuous Noise Monitoring Results

Site: LT-2
Project: The Ranch EIR
Location: North Boundary of Project Site
Coordinates: 38.5518723°, -121.2114082°

Meter: LDL 820-1
Calibrator: B&K 4230

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Tuesday, August 28, 2018	12:00	40	56	37	34
Tuesday, August 28, 2018	13:00	40	51	38	35
Tuesday, August 28, 2018	14:00	42	62	38	34
Tuesday, August 28, 2018	15:00	46	70	37	34
Tuesday, August 28, 2018	16:00	42	63	38	34
Tuesday, August 28, 2018	17:00	42	60	37	34
Tuesday, August 28, 2018	18:00	46	73	39	35
Tuesday, August 28, 2018	19:00	38	56	35	32
Tuesday, August 28, 2018	20:00	37	59	35	32
Tuesday, August 28, 2018	21:00	36	48	35	32
Tuesday, August 28, 2018	22:00	34	45	34	32
Tuesday, August 28, 2018	23:00	39	62	34	33
Wednesday, August 29, 2018	0:00	34	41	34	33
Wednesday, August 29, 2018	1:00	37	54	33	32
Wednesday, August 29, 2018	2:00	33	38	33	32
Wednesday, August 29, 2018	3:00	37	58	35	34
Wednesday, August 29, 2018	4:00	35	49	35	34
Wednesday, August 29, 2018	5:00	38	49	37	35
Wednesday, August 29, 2018	6:00	42	53	41	39
Wednesday, August 29, 2018	7:00	43	58	42	40
Wednesday, August 29, 2018	8:00	40	57	39	36
Wednesday, August 29, 2018	9:00	51	77	38	34
Wednesday, August 29, 2018	10:00	41	62	36	33
Wednesday, August 29, 2018	11:00	40	58	36	33

Statistics	Leq	Lmax	L50	L90
Day Average	44	61	37	34
Night Average	38	50	35	34
Day Low	36	48	35	32
Day High	51	77	42	40
Night Low	33	38	33	32
Night High	42	62	41	39
Ldn	45	Day %		87
CNEL	46	Night %		13



Appendix A-3 : Short Term Noise Monitoring Results

Site: ST-1
Project: 180804 The Ranch EIR
Location: West Boundary of Project Site
Coordinates: 35.5503027 -121.2238101°

Meter: LDL 831-1
Calibrator: B&K 4230

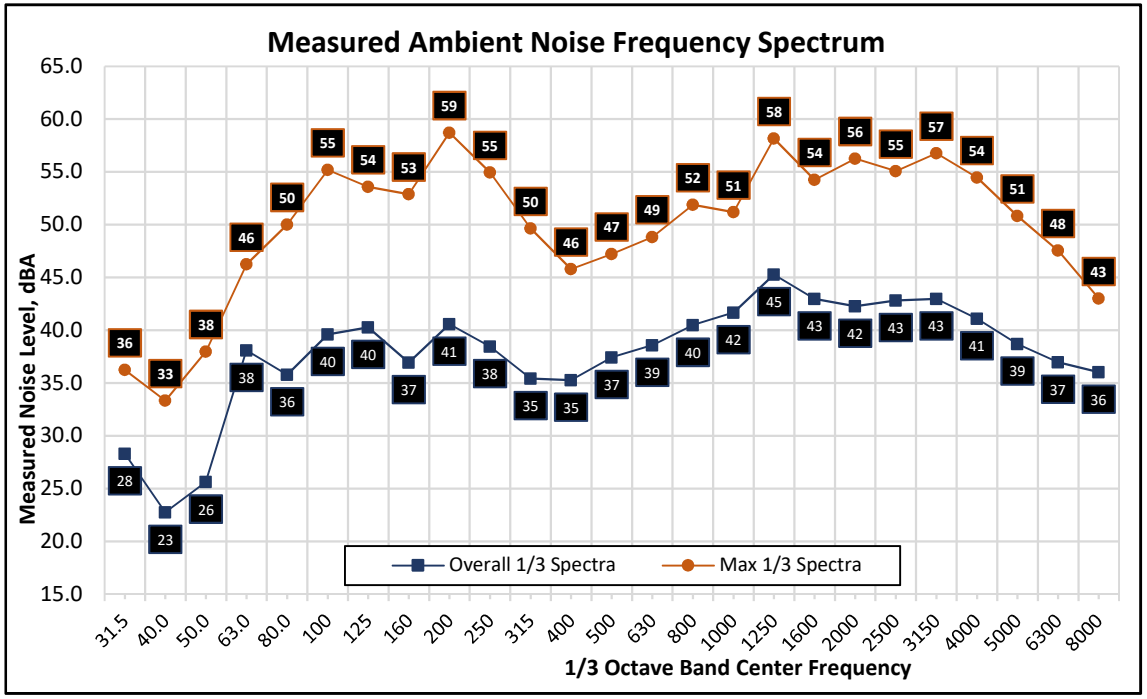
Start: 2018-08-28 10:58:47
Stop: 2018-08-28 11:08:47
SLM: Model 831
Serial: 1800

Measurement Results, dBA

Duration:	0:10
L_{eq}:	53
L_{max}:	64
L_{min}:	45
L_{50}:	49
L_{90}:	47

Notes

Construction at housing development to the west is the primary noise source. Nail gun, hammering, and heavy trucks idling contributed to ambient noise level, with impulsive noise sources measured at approximately 55 dB.



Appendix B: Traffic Noise Modeling Inputs and Results

Appendix B-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 180804
Description: The Ranch EIR - Existing Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Jackson Rd	12,341	83	0	17	3.0%	1.0%	55	85	0	263	122	57	67.4
2	Jackson Rd	11,760	83	0	17	3.0%	1.0%	55	85	0	254	118	55	67.1
3	Jackson Rd	11,806	83	0	17	3.0%	1.0%	55	100	0	255	118	55	66.1
4	Jackson Rd	14,980	83	0	17	3.0%	1.0%	55	100	0	299	139	64	67.1
5	Excelsior Rd	4,552	83	0	17	3.0%	1.0%	55	135	0	135	63	29	60.0
6	Kiefer Blvd	941	83	0	17	3.0%	1.0%	55	100	0	47	22	10	55.1
7	International Dr	11,246	83	0	17	3.0%	1.0%	45	80	0	178	82	38	65.2
8	Mather Blvd	5,540	83	0	17	3.0%	1.0%	35	100	0	75	35	16	58.1
9	Douglas Rd	12,404	83	0	17	3.0%	1.0%	55	100	0	264	122	57	66.3
10	Douglas Rd	7,510	83	0	17	3.0%	1.0%	55	75	-5	189	88	41	61.0
11	White Rock Rd	15,943	83	0	17	3.0%	1.0%	45	100	0	224	104	48	65.3
12	White Rock Rd	3,533	83	0	17	3.0%	1.0%	55	100	0	114	53	25	60.9
13	White Rock Rd	15,436	83	0	17	3.0%	1.0%	55	100	0	305	142	66	67.3
14	Mather Field Rd	22,543	83	0	17	3.0%	1.0%	45	55	-5	282	131	61	65.7
15	Mather Field Rd	35,028	83	0	17	3.0%	1.0%	45	100	0	379	176	82	68.7
16	Mather Field Rd	42,228	83	0	17	3.0%	1.0%	45	100	0	429	199	92	69.5
17	Zinfandel Dr	22,380	83	0	17	3.0%	1.0%	35	140	-5	190	88	41	57.0
18	Zinfandel Dr	50,515	83	0	17	3.0%	1.0%	40	145	0	401	186	86	66.6
19	Zinfandel Dr	23,685	83	0	17	3.0%	1.0%	40	100	0	242	112	52	65.8
20	Zinfandel Dr	13,705	83	0	17	3.0%	1.0%	45	100	-5	203	94	44	59.6
21	Sunrise Blvd	67,276	83	0	17	3.0%	1.0%	45	140	-5	585	272	126	64.3
22	Sunrise Blvd	53,504	83	0	17	3.0%	1.0%	45	170	0	502	233	108	67.1
23	Sunrise Blvd	41,238	83	0	17	3.0%	1.0%	45	100	0	422	196	91	69.4
24	Sunrise Blvd	30,941	83	0	17	3.0%	1.0%	50	100	0	414	192	89	69.3
25	Sunrise Blvd	22,635	83	0	17	3.0%	1.0%	55	90	-5	394	183	85	64.6
26	Sunrise Blvd	11,748	83	0	17	3.0%	1.0%	55	90	0	254	118	55	66.8
27	Grant Line Rd	12,804	83	0	17	3.0%	1.0%	55	60	0	269	125	58	69.8
28	Grant Line Rd	8,524	83	0	17	3.0%	1.0%	55	100	0	205	95	44	64.7
29	Grant Line Rd	7,745	83	0	17	3.0%	1.0%	55	100	0	193	89	41	64.3

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix B-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 180804
Description: The Ranch EIR - Existing + Project Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Jackson Rd	12,443	83	0	17	3.0%	1.0%	55	85	0	264	123	57	67.4
2	Jackson Rd	11,965	83	0	17	3.0%	1.0%	55	85	0	257	119	55	67.2
3	Jackson Rd	12,011	83	0	17	3.0%	1.0%	55	100	0	258	120	56	66.2
4	Jackson Rd	15,082	83	0	17	3.0%	1.0%	55	100	0	300	139	65	67.2
5	Excelsior Rd	4,552	83	0	17	3.0%	1.0%	55	135	0	135	63	29	60.0
6	Kiefer Blvd	941	83	0	17	3.0%	1.0%	55	100	0	47	22	10	55.1
7	International Dr	13,909	83	0	17	3.0%	1.0%	45	80	0	205	95	44	66.1
8	Mather Blvd	6,052	83	0	17	3.0%	1.0%	35	100	0	79	37	17	58.5
9	Douglas Rd	13,019	83	0	17	3.0%	1.0%	55	100	0	272	126	59	66.5
10	Douglas Rd	7,920	83	0	17	3.0%	1.0%	55	75	-5	196	91	42	61.2
11	White Rock Rd	16,148	83	0	17	3.0%	1.0%	45	100	0	226	105	49	65.3
12	White Rock Rd	3,635	83	0	17	3.0%	1.0%	55	100	0	116	54	25	61.0
13	White Rock Rd	15,743	83	0	17	3.0%	1.0%	55	100	0	309	143	67	67.4
14	Mather Field Rd	22,645	83	0	17	3.0%	1.0%	45	55	-5	283	131	61	65.7
15	Mather Field Rd	35,130	83	0	17	3.0%	1.0%	45	100	0	380	176	82	68.7
16	Mather Field Rd	42,433	83	0	17	3.0%	1.0%	45	100	0	430	200	93	69.5
17	Zinfandel Dr	22,687	83	0	17	3.0%	1.0%	35	140	-5	192	89	41	57.1
18	Zinfandel Dr	52,563	83	0	17	3.0%	1.0%	40	145	0	412	191	89	66.8
19	Zinfandel Dr	25,733	83	0	17	3.0%	1.0%	40	100	0	256	119	55	66.1
20	Zinfandel Dr	13,807	83	0	17	3.0%	1.0%	45	100	-5	204	95	44	59.6
21	Sunrise Blvd	70,041	83	0	17	3.0%	1.0%	45	140	-5	601	279	130	64.5
22	Sunrise Blvd	56,986	83	0	17	3.0%	1.0%	45	170	0	524	243	113	67.3
23	Sunrise Blvd	45,540	83	0	17	3.0%	1.0%	45	100	0	451	209	97	69.8
24	Sunrise Blvd	38,725	83	0	17	3.0%	1.0%	50	100	0	481	223	104	70.2
25	Sunrise Blvd	31,546	83	0	17	3.0%	1.0%	55	90	-5	491	228	106	66.1
26	Sunrise Blvd	12,567	83	0	17	3.0%	1.0%	55	90	0	266	123	57	67.1
27	Grant Line Rd	13,111	83	0	17	3.0%	1.0%	55	60	0	274	127	59	69.9
28	Grant Line Rd	8,524	83	0	17	3.0%	1.0%	55	100	0	205	95	44	64.7
29	Grant Line Rd	7,745	83	0	17	3.0%	1.0%	55	100	0	193	89	41	64.3

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix B-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 180804
Description: The Ranch EIR - Cumulative No Project Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Jackson Rd	22,600	83	0	17	3.0%	1.0%	55	85	0	393	183	85	70.0
2	Jackson Rd	22,740	83	0	17	3.0%	1.0%	55	85	0	395	183	85	70.0
3	Jackson Rd	21,500	83	0	17	3.0%	1.0%	55	100	0	380	177	82	68.7
4	Jackson Rd	23,690	83	0	17	3.0%	1.0%	55	100	0	406	188	87	69.1
5	Excelsior Rd	8,950	83	0	17	3.0%	1.0%	55	135	0	212	98	46	62.9
6	Kiefer Blvd	2,180	83	0	17	3.0%	1.0%	55	100	0	83	38	18	58.8
7	International Dr	25,690	83	0	17	3.0%	1.0%	45	80	0	308	143	66	68.8
8	Mather Blvd	20,870	83	0	17	3.0%	1.0%	35	100	0	181	84	39	63.9
9	Douglas Rd	37,150	83	0	17	3.0%	1.0%	55	100	0	548	254	118	71.1
10	Douglas Rd	24,290	83	0	17	3.0%	1.0%	55	75	-5	413	192	89	66.1
11	White Rock Rd	27,540	83	0	17	3.0%	1.0%	45	100	0	323	150	70	67.6
12	White Rock Rd	16,960	83	0	17	3.0%	1.0%	55	100	0	325	151	70	67.7
13	White Rock Rd	41,330	83	0	17	3.0%	1.0%	55	100	0	588	273	127	71.5
14	Mather Field Rd	30,420	83	0	17	3.0%	1.0%	45	55	-5	345	160	74	67.0
15	Mather Field Rd	43,380	83	0	17	3.0%	1.0%	45	100	0	437	203	94	69.6
16	Mather Field Rd	56,560	83	0	17	3.0%	1.0%	45	100	0	521	242	112	70.8
17	Zinfandel Dr	23,730	83	0	17	3.0%	1.0%	35	140	-5	198	92	43	57.2
18	Zinfandel Dr	72,230	83	0	17	3.0%	1.0%	40	145	0	509	236	110	68.2
19	Zinfandel Dr	37,080	83	0	17	3.0%	1.0%	40	100	0	327	152	70	67.7
20	Zinfandel Dr	21,600	83	0	17	3.0%	1.0%	45	100	-5	274	127	59	61.6
21	Sunrise Blvd	71,160	83	0	17	3.0%	1.0%	45	140	-5	608	282	131	64.6
22	Sunrise Blvd	58,150	83	0	17	3.0%	1.0%	45	170	0	531	247	114	67.4
23	Sunrise Blvd	41,350	83	0	17	3.0%	1.0%	45	100	0	423	196	91	69.4
24	Sunrise Blvd	49,190	83	0	17	3.0%	1.0%	50	100	0	564	262	121	71.3
25	Sunrise Blvd	45,470	83	0	17	3.0%	1.0%	55	90	-5	627	291	135	67.6
26	Sunrise Blvd	20,170	83	0	17	3.0%	1.0%	55	90	0	365	169	79	69.1
27	Grant Line Rd	30,330	83	0	17	3.0%	1.0%	55	60	0	479	222	103	73.5
28	Grant Line Rd	29,380	83	0	17	3.0%	1.0%	55	100	0	468	217	101	70.1
29	Grant Line Rd	13,480	83	0	17	3.0%	1.0%	55	100	0	279	129	60	66.7

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix B-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 180804
Description: The Ranch EIR - Cumulative No Project Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
30	Kiefer Blvd	2,080	83	0	17	3.0%	1.0%	55	100	0	80	37	17	58.6
31	Kiefer Blvd	15,140	83	0	17	3.0%	1.0%	45	65	-5	217	101	47	62.8
32	Kiefer Blvd	7,790	83	0	17	3.0%	1.0%	45	100	0	139	65	30	62.1
33	Kiefer Blvd	4,170	83	0	17	3.0%	1.0%	45	100	0	92	43	20	59.4
34	Chrysanthy Blvd	5,740	83	0	17	3.0%	1.0%	40	80	-5	94	44	20	56.1
35	Chrysanthy Blvd	6,150	83	0	17	3.0%	1.0%	40	90	0	99	46	21	60.6
36	Chrysanthy Blvd	7,070	83	0	17	3.0%	1.0%	40	100	0	108	50	23	60.5
37	Rancho Cordova Pkwy	46,310	83	0	17	3.0%	1.0%	45	100	0	456	212	98	69.9
38	Rancho Cordova Pkwy	42,680	83	0	17	3.0%	1.0%	45	100	0	432	201	93	69.5
39	Rancho Cordova Pkwy	17,310	83	0	17	3.0%	1.0%	45	100	0	237	110	51	65.6
40	Rancho Cordova Pkwy	15,790	83	0	17	3.0%	1.0%	45	100	0	223	103	48	65.2
41	Rancho Cordova Pkwy	8,350	83	0	17	3.0%	1.0%	45	60	-5	146	68	31	60.8
42	Rancho Cordova Pkwy	7,190	83	0	17	3.0%	1.0%	50	100	0	156	73	34	62.9
43	Americanos Blvd	4,850	83	0	17	3.0%	1.0%	50	100	0	120	56	26	61.2
44	Americanos Blvd	1,970	83	0	17	3.0%	1.0%	50	100	0	66	31	14	57.3
45	Americanos Blvd	4,850	83	0	17	3.0%	1.0%	45	100	0	101	47	22	60.1
46	Americanos Blvd	2,800	83	0	17	3.0%	1.0%	45	100	0	70	33	15	57.7

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix B-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 180804
Description: The Ranch EIR - Cumulative + Project Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Jackson Rd	22,702	83	0	17	3.0%	1.0%	55	85	0	394	183	85	70.0
2	Jackson Rd	22,945	83	0	17	3.0%	1.0%	55	85	0	397	184	86	70.0
3	Jackson Rd	21,705	83	0	17	3.0%	1.0%	55	100	0	383	178	82	68.7
4	Jackson Rd	23,690	83	0	17	3.0%	1.0%	55	100	0	406	188	87	69.1
5	Excelsior Rd	8,950	83	0	17	3.0%	1.0%	55	135	0	212	98	46	62.9
6	Kiefer Blvd	2,282	83	0	17	3.0%	1.0%	55	100	0	85	40	18	59.0
7	International Dr	25,997	83	0	17	3.0%	1.0%	45	80	0	311	144	67	68.8
8	Mather Blvd	22,406	83	0	17	3.0%	1.0%	35	100	0	190	88	41	64.2
9	Douglas Rd	39,915	83	0	17	3.0%	1.0%	55	100	0	575	267	124	71.4
10	Douglas Rd	28,694	83	0	17	3.0%	1.0%	55	75	-5	461	214	99	66.8
11	White Rock Rd	27,847	83	0	17	3.0%	1.0%	45	100	0	325	151	70	67.7
12	White Rock Rd	16,960	83	0	17	3.0%	1.0%	55	100	0	325	151	70	67.7
13	White Rock Rd	42,559	83	0	17	3.0%	1.0%	55	100	0	600	278	129	71.7
14	Mather Field Rd	30,522	83	0	17	3.0%	1.0%	45	55	-5	346	160	74	67.0
15	Mather Field Rd	44,199	83	0	17	3.0%	1.0%	45	100	0	442	205	95	69.7
16	Mather Field Rd	57,379	83	0	17	3.0%	1.0%	45	100	0	526	244	113	70.8
17	Zinfandel Dr	23,935	83	0	17	3.0%	1.0%	35	140	-5	199	92	43	57.3
18	Zinfandel Dr	73,152	83	0	17	3.0%	1.0%	40	145	0	514	238	111	68.2
19	Zinfandel Dr	38,002	83	0	17	3.0%	1.0%	40	100	0	332	154	72	67.8
20	Zinfandel Dr	22,829	83	0	17	3.0%	1.0%	45	100	-5	285	132	61	61.8
21	Sunrise Blvd	71,979	83	0	17	3.0%	1.0%	45	140	-5	612	284	132	64.6
22	Sunrise Blvd	58,969	83	0	17	3.0%	1.0%	45	170	0	536	249	115	67.5
23	Sunrise Blvd	42,374	83	0	17	3.0%	1.0%	45	100	0	430	200	93	69.5
24	Sunrise Blvd	51,955	83	0	17	3.0%	1.0%	50	100	0	585	271	126	71.5
25	Sunrise Blvd	46,085	83	0	17	3.0%	1.0%	55	90	-5	632	294	136	67.7
26	Sunrise Blvd	20,272	83	0	17	3.0%	1.0%	55	90	0	366	170	79	69.1
27	Grant Line Rd	31,559	83	0	17	3.0%	1.0%	55	60	0	491	228	106	73.7
28	Grant Line Rd	30,814	83	0	17	3.0%	1.0%	55	100	0	484	224	104	70.3
29	Grant Line Rd	13,890	83	0	17	3.0%	1.0%	55	100	0	284	132	61	66.8

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix B-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 180804
Description: The Ranch EIR - Cumulative + Project Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
30	Kiefer Blvd	2,080	83	0	17	3.0%	1.0%	55	100	0	80	37	17	58.6
31	Kiefer Blvd	15,140	83	0	17	3.0%	1.0%	45	65	-5	217	101	47	62.8
32	Kiefer Blvd	7,790	83	0	17	3.0%	1.0%	45	100	0	139	65	30	62.1
33	Kiefer Blvd	4,170	83	0	17	3.0%	1.0%	45	100	0	92	43	20	59.4
34	Chrysanthy Blvd	7,276	83	0	17	3.0%	1.0%	40	80	-5	110	51	24	57.1
35	Chrysanthy Blvd	14,651	83	0	17	3.0%	1.0%	40	90	0	176	82	38	64.4
36	Chrysanthy Blvd	8,606	83	0	17	3.0%	1.0%	40	100	0	123	57	27	61.4
37	Rancho Cordova Pkwy	47,437	83	0	17	3.0%	1.0%	45	100	0	464	215	100	70.0
38	Rancho Cordova Pkwy	44,114	83	0	17	3.0%	1.0%	45	100	0	442	205	95	69.7
39	Rancho Cordova Pkwy	19,154	83	0	17	3.0%	1.0%	45	100	0	253	118	55	66.1
40	Rancho Cordova Pkwy	22,140	83	0	17	3.0%	1.0%	45	100	0	279	129	60	66.7
41	Rancho Cordova Pkwy	8,965	83	0	17	3.0%	1.0%	45	60	-5	153	71	33	61.1
42	Rancho Cordova Pkwy	7,600	83	0	17	3.0%	1.0%	50	100	0	162	75	35	63.2
43	Americanos Blvd	4,850	83	0	17	3.0%	1.0%	50	100	0	120	56	26	61.2
44	Americanos Blvd	1,970	83	0	17	3.0%	1.0%	50	100	0	66	31	14	57.3
45	Americanos Blvd	5,055	83	0	17	3.0%	1.0%	45	100	0	104	48	22	60.3
46	Americanos Blvd	2,800	83	0	17	3.0%	1.0%	45	100	0	70	33	15	57.7

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix B-7

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Barrier Calculation: Data Input Sheet

Project #: 180804
Description The Ranch EIR
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Level, dBA
1	Chrysanthy Blvd	Rancho Cordova Pkwy to Americanos Blvd - 1st Flr.	14,651	83	17	3	1	40	90		64
2	Chrysanthy Blvd	Rancho Cordova Pkwy to Americanos Blvd - 2nd Flr.	14,651	83	17	3	1	40	90	3	67
3	Rancho Cordova Pkwy	Douglas Rd to Chrysanthy Blvd - 1st Flr.	22,140	83	17	3	1	45	100		66
4	Rancho Cordova Pkwy	Douglas Rd to Chrysanthy Blvd - 2nd Flr.	22,140	83	17	3	1	45	100	3	69
5	Rancho Cordova Pkwy	Chrysanthy Blvd to Keifer Blvd - 1st Flr.	8,965	83	17	3	1	45	525		52
6	Rancho Cordova Pkwy	Chrysanthy Blvd to Keifer Blvd - 2nd Flr.	8,965	83	17	3	1	45	525	3	55

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix B-8
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Barrier Effectiveness Prediction Worksheet

Project Information:

Job Number: 180804
Description The Ranch EIR
Roadway Name: Chrysanthy Blvd
Location(s): 1

Noise Level Data:

Year: 2019
Auto L_{dn}, dB: 63
Medium Truck L_{dn}, dB: 57
Heavy Truck L_{dn}, dB: 54

Site Geometry:

Receiver Description: Rancho Cordova Pkwy to Americanos Blvd - 1st Flr.
Centerline to Barrier Distance (C_1): 35
Barrier to Receiver Distance (C_2): 25
Automobile Elevation: 2
Medium Truck Elevation: 4
Heavy Truck Elevation: 10
Pad/Ground Elevation at Receiver: 0
Receiver Elevation[1]: 5
Base of Barrier Elevation: 0
Starting Barrier Height 6

Barrier Effectiveness:

		---------- L_{dn}, dB ----------				Barrier Breaks Line of Sight to…		
Top of Barrier Elevation (ft)	Barrier Height[2] (ft)	Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
6	6	56	51	49	58	Yes	Yes	No
7	7	55	50	49	57	Yes	Yes	No
8	8	54	49	48	56	Yes	Yes	Yes
9	9	53	47	47	55	Yes	Yes	Yes
10	10	52	46	46	54	Yes	Yes	Yes
11	11	51	46	45	53	Yes	Yes	Yes
12	12	50	45	44	52	Yes	Yes	Yes
13	13	49	44	43	51	Yes	Yes	Yes
14	14	49	43	42	50	Yes	Yes	Yes

Notes: [1] Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s).

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix B-9
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Barrier Effectiveness Prediction Worksheet

Project Information:

Job Number: 180804
Description The Ranch EIR
Roadway Name: Rancho Cordova Pkwy
Location(s): 3

Noise Level Data:

Year: 2019
Auto L_{dn}, dB: 65
Medium Truck L_{dn}, dB: 58
Heavy Truck L_{dn}, dB: 55

Site Geometry:

Receiver Description: Douglas Rd to Chrysanthy Blvd - 1st Flr.
Centerline to Barrier Distance (C_1): 60
Barrier to Receiver Distance (C_2): 40
Automobile Elevation: 2
Medium Truck Elevation: 4
Heavy Truck Elevation: 10
Pad/Ground Elevation at Receiver: 0
Receiver Elevation[1]: 5
Base of Barrier Elevation: 0
Starting Barrier Height 6

Barrier Effectiveness:

		---------- L_{dn}, dB ----------				Barrier Breaks Line of Sight to…		
Top of Barrier Elevation (ft)	Barrier Height[2] (ft)	Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
6	6	59	53	51	61	Yes	Yes	No
7	7	58	52	50	60	Yes	Yes	No
8	8	58	52	50	59	Yes	Yes	Yes
9	9	57	51	49	58	Yes	Yes	Yes
10	10	56	50	48	57	Yes	Yes	Yes
11	11	55	49	48	56	Yes	Yes	Yes
12	12	54	48	47	56	Yes	Yes	Yes
13	13	54	47	46	55	Yes	Yes	Yes
14	14	53	47	45	54	Yes	Yes	Yes

Notes: [1] Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s).

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix B-10
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Barrier Effectiveness Prediction Worksheet

Project Information:

Job Number: 180804
Description The Ranch EIR
Roadway Name: Rancho Cordova Pkwy
Location(s): 5

Noise Level Data:

Year: 2019
Auto L_{dn}, dB: 51
Medium Truck L_{dn}, dB: 44
Heavy Truck L_{dn}, dB: 40

Site Geometry:

Receiver Description: Chrysanthy Blvd to Keifer Blvd - 1st Flr.
Centerline to Barrier Distance (C_1): 45
Barrier to Receiver Distance (C_2): 480
Automobile Elevation: 2
Medium Truck Elevation: 4
Heavy Truck Elevation: 10
Pad/Ground Elevation at Receiver: 0
Receiver Elevation[1]: 5
Base of Barrier Elevation: 0
Starting Barrier Height 6

Barrier Effectiveness:

		---------- L_{dn}, dB ----------				Barrier Breaks Line of Sight to…		
Top of Barrier Elevation (ft)	Barrier Height[2] (ft)	Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
6	6	44	38	38	46	Yes	Yes	No
7	7	43	38	36	45	Yes	Yes	No
8	8	43	37	36	44	Yes	Yes	No
9	9	42	36	35	44	Yes	Yes	No
10	10	41	36	35	43	Yes	Yes	Yes
11	11	41	35	35	43	Yes	Yes	Yes
12	12	40	34	35	42	Yes	Yes	Yes
13	13	40	34	34	41	Yes	Yes	Yes
14	14	39	33	33	41	Yes	Yes	Yes

Notes: [1] Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s).

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

APPENDIX I

Transportation Appendices

CONTENTS

Appendix I.1: Traffic Impact Analysis

Appendix I.2: Memorandum RE: Jaeger Ranch Traffic Impact Study, Draft Other Considerations

Appendix I.3: Memorandum RE: Jaeger Ranch Supplemental Traffic Analyses, Draft Traffic Impact Analysis Services

Appendix I.4: Memorandum RE: Jaeger Ranch Supplemental Traffic Analyses, Draft Trip Generation Memorandum

APPENDIX I.1

Traffic Impact Analysis

Traffic Impact Analysis

Jaeger Ranch
City of Rancho Cordova, California

DRAFT
August 28, 2018

Prepared for:

K. Hovnanian® Homes of California, Inc.

Prepared by:

Kimley»Horn

555 Capitol Mall, Suite 300
Sacramento, California 95814

Phone: (916) 858-5800

EXECUTIVE SUMMARY

This report documents the results of a traffic impact analysis completed for Jaeger Ranch project (the "proposed project" or "project"). The vacant project site is located along Rancho Cordova Parkway/Jaeger Road, south of Douglas Road in Rancho Cordova, California. This study was performed in accordance with the County of Sacramento's traffic study guidelines and standards established by the Circulation Element of the City of Rancho Cordova's General Plan.

The proposed project will include 666 single-family detached residential units, 120 multi-family residential units, 637 Active Adult Residential (AAR) units, and approximately 46,000 square-feet of commercial uses. Access to the project site will be provided by Chrysanthy Boulevard, which, as a part of the project, will be extended from Rancho Cordova Parkway/Jaeger Road to the eastern extent of the project. The project is not expected to construct Chrysanthy Boulevard to its eventual connection with Grant Line Road. Chrysanthy Boulevard extends through the project and serves as a primary internal facility. Rancho Cordova Parkway provides additional access to the site, from south of Chrysanthy Boulevard. The project is conditioned to widen Rancho Cordova Parkway along the project extents from two (2) to four (4) lanes. In addition, the project will construct a pedestrian tunnel crossing along Chrysanthy Boulevard within the project site, two (2) pedestrian push button crossing within the project site, and one (1) pedestrian push button crossing along Rancho Cordova Parkway adjacent to the project.

This analysis includes evaluation of the following transportation facilities:

- 40 Intersections (13 for Cumulative Conditions only)
  - 31 within Rancho Cordova (13 for Cumulative Conditions only)
  - 9 within Sacramento County's jurisdiction
- 46 Roadway Segments (17 for Cumulative Conditions only)
  - 38 within Rancho Cordova (16 for Cumulative Conditions only)
  - 8 within Sacramento County's jurisdiction (1 for Cumulative Conditions only)

Based on the County's requirements, this traffic impact analysis was conducted for the study facilities for the following scenarios:

A. Existing (2017) Conditions
B. Existing (2017) plus Proposed Project Conditions
C. Cumulative (2040) Conditions
D. Cumulative (2040) plus Proposed Project Conditions

Significant findings of this study include:

- The proposed project is estimated to generate 10,266 new daily trips, with 721 new trips occurring during the AM peak-hour, and 934 new trips occurring during the PM peak-hour.
- The addition of the proposed project to the Existing (2017) Conditions results in a significant impact at four (4) study intersections and one (1) roadway segment. With the application of mitigation measures recommended herein, the impacts to intersections can be mitigated to be *less than significant*. The proposed project results in one significant impact to the roadway segments for Existing (2017) Conditions, as defined by the City of Rancho Cordova. This roadway segment is already built to its final extents per the City's General Plan.
- The addition of the proposed project to Cumulative (2040) Conditions results in a significant impact at three (3) intersections. Two of the impacts to intersections would be mitigated to less than significant. One location does not have a feasible mitigation. The proposed project results in a significant impact at two (2) roadway segments for Cumulative (2040) Conditions.

TABLE OF CONTENTS

INTRODUCTION 1

PROJECT DESCRIPTION 1

PROJECT AREA ROADWAYS 7

TRANSPORTATION IMPACT STUDY METHODOLOGY 7
- Level of Service Definitions 7
- Roadway Segment Analysis 8

EXISTING (2017) CONDTIONS 9

ASSESSMENT OF PROPOSED PROJECT 12
- Proposed Project Trip Generation and Assignment 12

EXISTING (2017) PLUS PROPOSED PROJECT CONDTIONS 15

CUMULATIVE CONDITIONS 19

CUMULATIVE PLUS PROPOSED PROJECT CONDITIONS 27

IMPACTS AND MITIGATION 36
- Regulatory Setting and Thresholds of Significance 36
- Impacts and Mitigation 37

CONCLUSIONS 41

APPENDICES
- *Traffic Count Data Sheets* ..... *Appendix A*
- *Analysis Worksheets for Existing (2017) Conditions* ..... *Appendix B*
- *Analysis Worksheets for Existing (2017) plus Proposed Project Conditions* ..... *Appendix C*
- *Analysis Worksheets for Cumulative Conditions* ..... *Appendix D*
- *Analysis Worksheets for Cumulative plus Proposed Project Conditions* ..... *Appendix E*
- *Analysis Worksheets for Mitigated Conditions* ..... *Appendix F*
- *Analysis Worksheets for Signal Warrants* ..... *Appendix G*

LIST OF TABLES

Table 1 – Intersection Level of Service Criteria 8
Table 2 – Roadway Segment Level of Service Criteria 8
Table 3 – Existing (2017) Intersection Levels of Service 9
Table 4 – Existing (2017) Segment Level of Service 10
Table 5 – Proposed Project Trip Generation 12
Table 6 – Existing (2017) plus Proposed Project Intersection Levels of Service 16
Table 7- Existing (2017) Plus Project Segment Levels of Service 17
Table 8 – Cumulative (2040) Intersection Levels of Service 20
Table 9 – Cumulative (2040) Roadway Segment Level of Service 21
Table 10 – Cumulative plus Proposed Project Intersection Levels of Service 28
Table 11 – Intersection Levels of Service – Existing (2017) plus Proposed Project Mitigated Conditions ... 39
Table 12 – Intersection Levels of Service – Cumulative plus Proposed Project Mitigated Conditions 40

LIST OF FIGURES

Figure 1 – Project Site Vicinity Map 4
Figure 2 – Proposed Project Site Plan 5
Figure 3 – Existing Study Intersections, Traffic Control, Lane Geometries, ... 6
Figure 4 – Existing (2017) Peak-Hour Traffic Volumes 11
Figure 5 – Proposed Project Trip Distribution 13
Figure 6 – Proposed Project Trip Assignment 14
Figure 7 – Existing (2017) plus Proposed Project Peak-Hour Traffic Volumes 18
Figure 8 – Cumulative (2040) Study Facilities 22
Figure 9 – Cumulative (2040) Study Intersections, Traffic Control, and Lane Geometries 23
Figure 10 – Cumulative (2040) Peak-Hour Traffic Volumes 25
Figure 11 – Cumulative (2040) Project Trip Distribution 31
Figure 12– Cumulative (2040) Project Trip Assignment 32
Figure 13 – Cumulative (2040) plus Proposed Project Peak-Hour Traffic Volumes 34

INTRODUCTION

This report documents the results of a traffic impact analysis completed for Jaeger Ranch residential project (the "proposed project" or "project"). The vacant project site is located along Rancho Cordova Parkway/Jaeger Road, south of Douglas Road in Rancho Cordova, California. The purpose of this impact analysis is to identify potential environmental impacts to transportation facilities as required by the California Environmental Quality Act (CEQA). This study was performed in accordance with the County of Sacramento's traffic study guidelines[1] and standards established by the Circulation Element of the City of Rancho Cordova's General Plan [2].

PROJECT DESCRIPTION

The proposed project will include 666 single-family detached residential units, 120 multi-family residential units, 637 Active Adult Residential (AAR) units, and approximately 46,000 square feet of commercial uses. Primary access to the project site will be provided by Chrysanthy Boulevard, which will be extended from Rancho Cordova Parkway/Jaeger Road to the eastern extent of the project. Chrysanthy Boulevard extends through the project and serves as a primary external access roadway. The project is not expected to construct Chrysanthy Boulevard to its eventual connection with Grant Line Road.

Rancho Cordova Parkway provides additional access to the site, from south of Chrysanthy Boulevard. The project is conditioned to widen Rancho Cordova Parkway along the project extents from two (2) to four (4) lanes. Rancho Cordova parkway currently is unpaved north of Chrysanthy Boulevard, but is expected to be constructed to City standards in the future. In addition, the project will construct a pedestrian tunnel crossing along Chrysanthy Boulevard within the project site, two (2) pedestrian push button crossing within the project site, and one (1) pedestrian push button crossing along Rancho Cordova Parkway adjacent to the project. The project location, study intersections and study segments are depicted in **Figure 1.** The proposed project site plan is shown in **Figure 2**. **Figure 3** illustrates the existing study intersections facilities, traffic control, and lane configurations.

Based on the County's requirements, this traffic impact analysis was conducted for the study facilities for the following scenarios:

A. Existing (2017) Conditions
B. Existing (2017) plus Proposed Project Conditions
C. Cumulative (2040) Conditions
D. Cumulative (2040) plus Proposed Project Conditions

The following transportation facilities are included in this evaluation, including the additional study facilities for the Cumulative (2040) scenario:

<u>Existing (2017) Intersections:</u>

1. Jackson Rd/SR-16 @ Bradshaw Rd
2. Jackson Rd/SR-16 @ Excelsior Rd
3. Jackson Rd/SR-16 @ Eagles Nest Rd
4. Jackson Rd/SR-16 @ Sunrise Blvd
5. Jackson Rd/SR-16 @ Grant Line Rd
6. Rancho Cordova Pkwy @ Chrysanthy Blvd
7. Florin Rd @ Sunrise Blvd
8. Grant Line Rd @ Kiefer Blvd
9. Grant Line Rd @ Sunrise Blvd

[1] *Traffic Impact Analysis Guidelines, July 2004*, County of Sacramento.
[2] *City of Rancho Cordova General Plan: Circulation Element, May 2015,* City of Rancho Cordova

10. Douglas Rd @ Zinfandel Dr
11. Douglas Rd @ Sunrise Blvd
12. Douglas Rd @ Grant Line Rd
13. Mather Field Rd @ Folsom Blvd
14. Mather Field Rd @ US-50 Westbound Ramps
15. Mather Field Rd @ US-50 Eastbound Ramps
16. Mather Field Rd @ International Dr
17. Zinfandel Dr @ International Dr
18. Zinfandel Dr @ White Rock Rd
19. Zinfandel Dr @ US-50 Eastbound Ramps
20. Zinfandel Dr @ US-50 Westbound Ramps
21. Sunrise Blvd @ White Rock Rd
22. Sunrise Blvd @ Folsom Blvd
23. Sunrise Blvd @ US-50 Eastbound Ramps
24. Sunrise Blvd @ US-50 Westbound Ramps
25. Sunrise Blvd @ Zinfandel Dr
26. White Rock Rd @ Grant Line Rd
27. White Rock Rd @ Prairie City Rd

Additional Cumulative (2040) Intersections

28. Rancho Cordova Pkwy @ Folsom Blvd
29. Rancho Cordova Pkwy @ White Rock Rd
30. Rancho Cordova Pkwy @ Rio Del Oro Pkwy
31. Rancho Cordova Pkwy @ Douglas Rd
32. Rancho Cordova Pkwy @ Kiefer Blvd
33. Rancho Cordova Pkwy @ Grant Line Rd
34. Americanos Blvd @ International Dr
35. Americanos Blvd @ Centennial Dr
36. Americanos Blvd @ Douglas Rd
37. Americanos Blvd @ Chrysanthy Blvd
38. Americanos Blvd @ Kiefer Blvd
39. Chrysanthy Blvd @ Sunrise Blvd
40. Chrysanthy Blvd @ Grant Line Rd

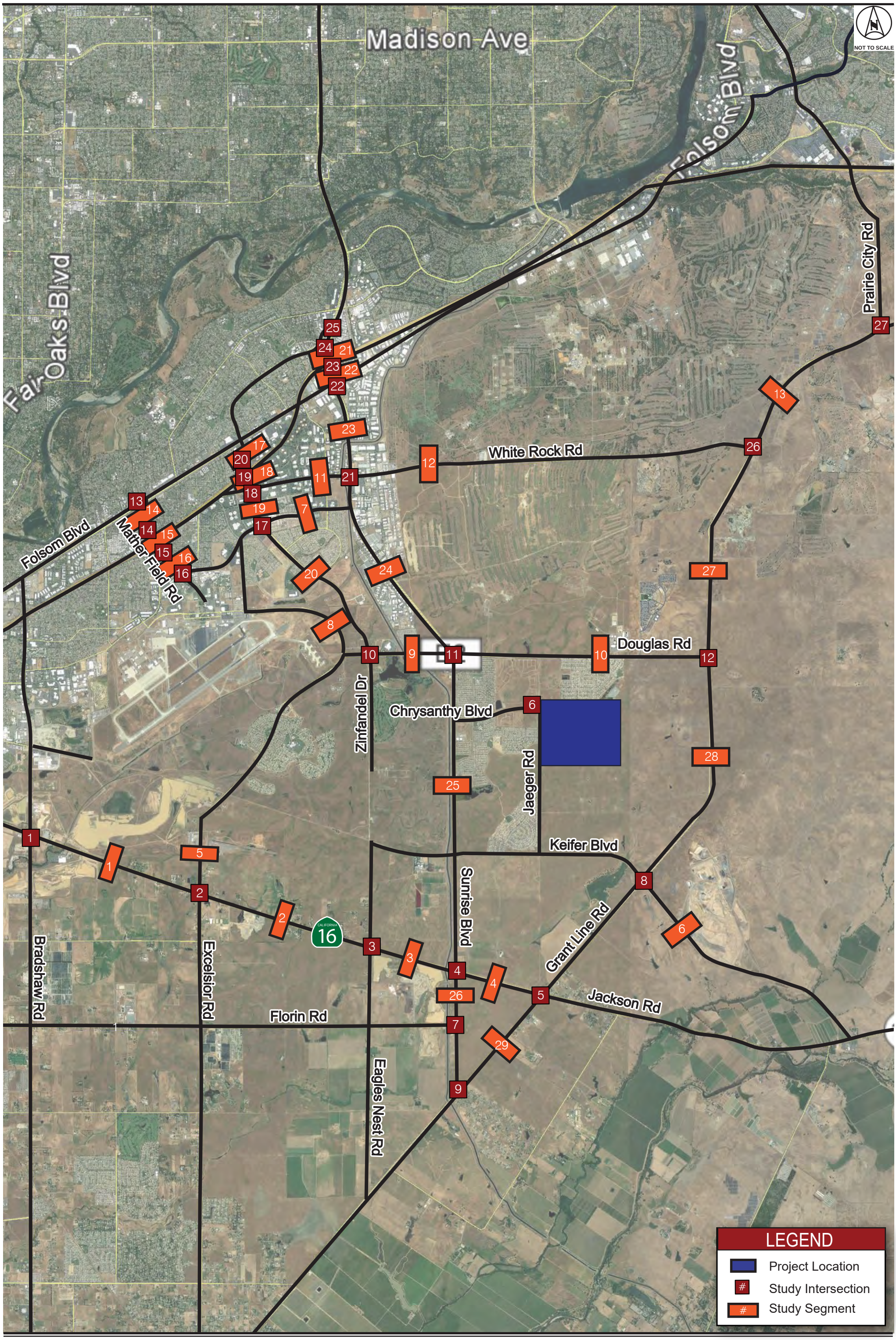
Roadway Segments

1. Jackson Rd/SR-16 between Bradshaw Rd and Excelsior Rd
2. Jackson Rd/SR-16 between Excelsior Rd and Eagles Nest Rd
3. Jackson Rd/SR-16 between Eagles Net Rd and Sunrise Blvd
4. Jackson Rd/SR-16 between Sunrise Blvd and Grant Line Rd
5. Excelsior Rd between Jackson Rd/SR-16 and Kiefer Blvd
6. Kiefer Blvd between Grant Line Rd and Jackson Rd/SR-16
7. International Dr between Zinfandel Dr and Sunrise Blvd
8. Mather Blvd between Femoyer St and Douglas Rd
9. Douglas Rd between Mather Blvd and Sunrise Blvd
10. Douglas Rd between Sunrise Blvd and Grant Line Rd
11. White Rock Rd between Zinfandel Dr and Sunrise Blvd
12. White Rock Rd between Sunrise Blvd and Grant Line Rd
13. White Rock Rd between Grant Line Rd and Prairie City Rd
14. Mather Field Rd between Folsom Blvd and US-50 Westbound Ramps
15. Mather Field Rd between US-50 Westbound Ramps and US-50 Eastbound Ramps

16. Mather Field Rd between US-50 Eastbound Ramps and International Dr
17. Zinfandel Dr between Folsom Blvd and US-50 Westbound Ramps
18. Zinfandel Dr between US-50 Eastbound Ramps and White Rock Rd
19. Zinfandel Dr between White Rock Rd and International Dr
20. Zinfandel Dr between International Dr and Douglas Rd
21. Sunrise Blvd between US-50 Westbound Ramps and US-50 Eastbound Ramps
22. Sunrise Blvd between US-50 Eastbound Ramps to Folsom Blvd
23. Sunrise Blvd between Folsom Blvd and White Rock Rd
24. Sunrise Blvd between White Rock Rd and Douglas Rd
25. Sunrise Blvd between Douglas Rd and Jackson Rd/SR-16
26. Sunrise Blvd between Jackson Rd/SR-16 and Grant Line Rd
27. Grant Line Rd between White Rock Rd and Douglas Rd
28. Grant Line Rd between Douglas Rd and Jackson Rd/SR-16
29. Grant Line Rd between Jackson Rd/SR-16 and Sunrise Blvd

Additional Cumulative (2040) Roadway Segments

30. Kiefer Blvd between Eagles Nest Rd and Sunrise Blvd
31. Kiefer Blvd between Sunrise Blvd and Rancho Cordova Pkwy
32. Kiefer Blvd between Rancho Cordova Blvd and Americanos Blvd
33. Kiefer Blvd between Americanos Blvd and Grant Line Rd
34. Chrysanthy Blvd between Sunrise Blvd and Rancho Cordova Pkwy
35. Chrysanthy Blvd between Rancho Cordova Pkwy and Americanos Blvd (Within Project)
36. Chrysanthy Blvd between Americanos Blvd and Grant Line Rd
37. Rancho Cordova Pkwy between Folsom Blvd and White Rock Rd
38. Rancho Cordova Pkwy between White Rock Rd and Rio Del Oro Pkwy
39. Rancho Cordova Pkwy between Rio Del Oro Pkwy and Douglas Rd
40. Rancho Cordova Pkwy between Douglas Rd and Chrysanthy Blvd
41. Rancho Cordova Pkwy between Chrysanthy Blvd and Kiefer Blvd
42. Rancho Cordova Pkwy between Kiefer Blvd and Grant Line Rd
43. Americanos Blvd between International Dr and Centennial Dr
44. Americanos Blvd between Centennial Dr and Douglas Rd
45. Americanos Blvd between Douglas Rd and Chrysanthy Blvd
46. Americanos Blvd between Chrysanthy Blvd and Kiefer Blvd

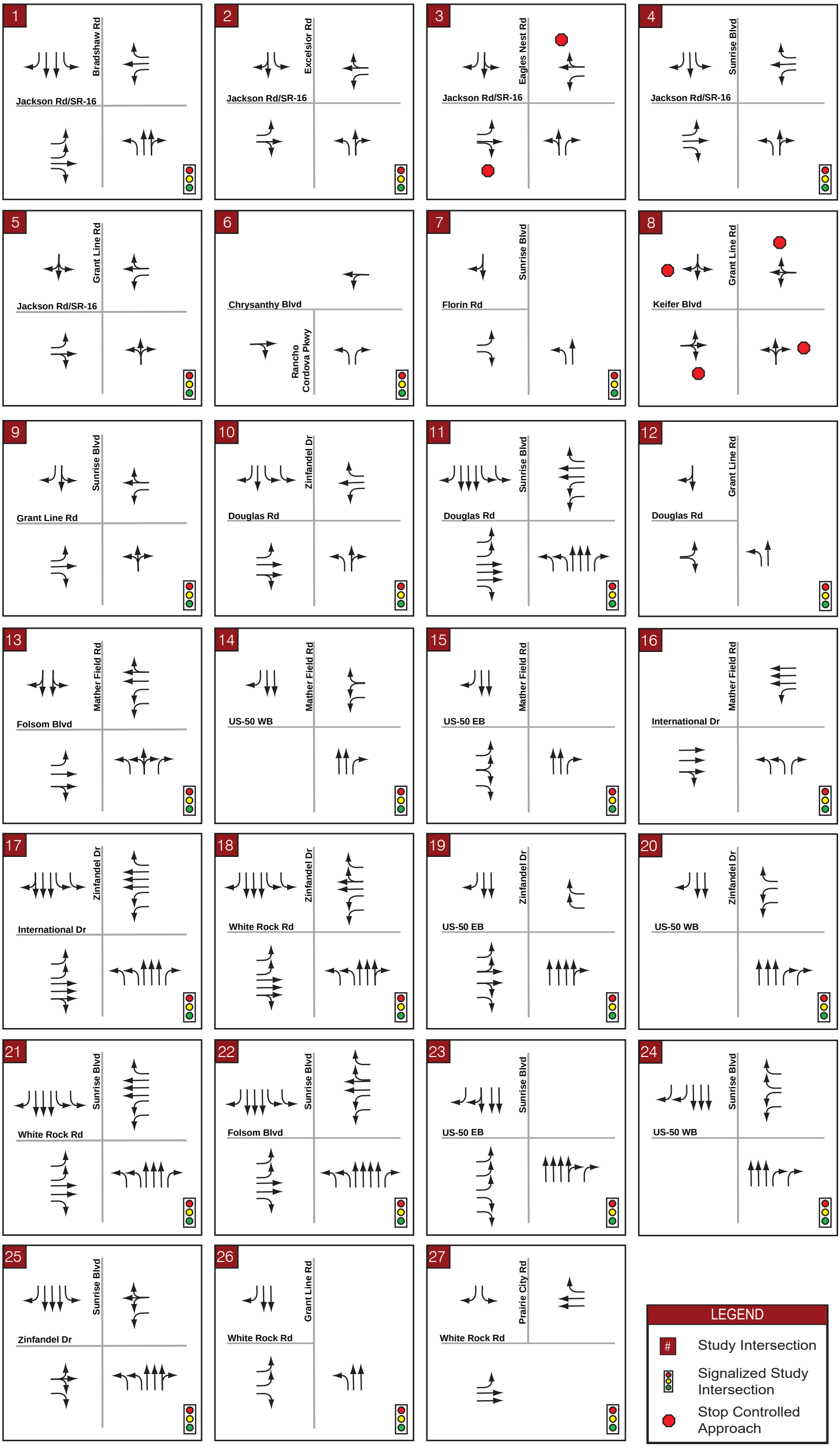


Kimley»Horn

Figure 1
Existing (2017) Project Vicinity Map

Kimley»Horn

Figure 2
Proposed Project Site Plan



Kimley»Horn

Figure 3
Existing (2017) Study Intersections, Traffic Control, and Lane Geometries

PROJECT AREA ROADWAYS

The following are descriptions of the primary roadways in the vicinity of the project.

United States Route 50 (US-50) is an east-west interstate facility located approximately 5-miles from the proposed project. US-50 connects Rancho Cordova to Sacramento to the west and El Dorado County to the east. Primary access to the project site from US-50 is provided at the Sunrise Boulevard, Zinfandel Drive and Mather Field Road interchanges. Near Zinfandel Drive, US-50 carries approximately 170,000 vehicles per day[3] with five lanes in each direction.

Jackson Road (SR 16) is an expressway connecting Amador County and Sacramento County, along the southern edge of Rancho Cordova's city limits. Jackson Road connects with US 50 west of the project site. South of the project site, between Sunrise Boulevard and Grant Line Road, Jackson Road carries approximately 13,000 vehicles per day.

Sunrise Boulevard is a north-south arterial, connecting the project site to north Rancho Cordova and Placer County.

Zinfandel Drive is a north-south arterial, connecting the project site to US-50, as well as the commercial, industrial and residential areas northwest of the project site.

Chrysanthy Boulevard is a local roadway adjacent to, and through the project site. The addition of the proposed project is understood to construct the segment of Chrysanthy Boulevard from Rancho Cordova Parkway/Jaeger Road to the eastern extent of the project site. Traffic lights will be constructed at intersections within the project as deemed necessary. The project is not conditioned to construct Chrysanthy Boulevard to its eventual connection with Grant Line Road.

Rancho Cordova Parkway/Jaeger Road is a local roadway adjacent to the western edge of the project site. The project is conditioned to widen Rancho Cordova Parkway along the project extents from two (2) to four (4) lanes.

TRANSPORTATION IMPACT STUDY METHODOLOGY

This study was performed in accordance with the County of Sacramento's traffic study guidelines[4] and standards established by the Circulation Element of the City of Rancho Cordova's General Plan [5].

Level of Service Definitions

Analysis of transportation facility significant environmental impacts is based on the concept of Level of Service (LOS). The LOS of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity.

Intersection Analysis

Levels of Service for this study were determined using methods defined in the *Highway Capacity Manual (HCM) 2010* and appropriate traffic analysis software. The HCM includes procedures for analyzing side-street stop controlled (SSSC), all-way stop controlled (AWSC), and signalized intersections. The SSSC procedure defines LOS as a function of average control delay for each minor street approach movement. The AWSC and signalized intersection procedure defines LOS as a function of average control delay for the intersection as a whole. Table 1 presents intersection LOS definitions as defined in the HCM.

[3] Caltrans Traffic Counts, 2015. http://www.dot.ca.gov/trafficops/census/
[4] *Traffic Impact Analysis Guidelines, July 2004*, County of Sacramento.
[5] *City of Rancho Cordova General Plan: Circulation Element, May 2015,* City of Rancho Cordova

Table 1 – Intersection Level of Service Criteria

Level of Service (LOS)	Unsignalized	Signalized
	Average Control Delay* (sec/veh)	Average Control Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

Source: Highway Capacity Manual, 2010
* Applied to the worst lane/lane group(s) for SSSC

Roadway Segment Analysis

The analysis of roadway segments involves the comparison of daily segment volumes to the LOS criteria provided in the County's traffic impact analysis guidelines[1]. The criteria provide maximum volumes for given service levels for various facility types. Table 2 replicates the County's roadway segment LOS criteria.

Table 2 – Roadway Segment Level of Service Criteria

Facility Type	# Lanes	Maximum Volume for Given Service Level				
		A	B	C	D	E
Residential	2	600	1,200	2,000	3,000	4,500
Residential Collector w/ Frontage	2	1,600	3,200	4,800	6,400	8,000
Residential Collector w/o Frontage	2	6,000	7,000	8,000	9,000	10,000
Arterial, Low Access Control	2	9,000	10,500	12,000	13,500	15,000
	4	18,000	21,000	24,000	27,000	30,000
	6	27,000	31,500	36,000	40,500	45,000
Arterial, Moderate Access Control	2	10,800	12,600	14,400	16,200	18,000
	4	21,600	25,200	28,800	32,400	36,000
	6	32,400	37,800	43,200	48,600	54,000
Arterial, High Access Control	2	12,000	14,000	16,000	18,000	20,000
	4	24,000	28,000	32,000	36,000	40,000
	6	36,000	42,000	48,000	54,000	60,000
Rural, 2-lane highway	2	2,400	4,800	7,900	13,500	22,900
Rural, 2-lane road, 24'-36' of pavement, paved shoulders	2	2,200	4,300	7,100	12,200	20,000
Rural, 2-lane road, 24'-36' of pavement, no shoulders	2	1,800	3,600	5,900	10,100	17,000

Source: Traffic Impact Analysis Guidelines, Table 2, County of Sacramento Department of Transportation, July 2004.

Based on the County's requirements[4], this LOS analysis was conducted for the study facilities for the following scenarios:

A. Existing (2017) Conditions
B. Existing (2017) plus Proposed Project Conditions
C. Cumulative (2040) Conditions
D. Cumulative (2040) plus Proposed Project Conditions

The following sections present the technical analysis results for the four primary scenarios.

EXISTING (2017) CONDTIONS

To establish existing conditions, new traffic counts were collected for the study intersections and roadway segments. Twenty-seven (27) new weekday AM (7-9 a.m.) and PM (4-6 p.m.) peak-period intersection turning movement traffic counts were collected on September 28, 2017. Twenty-nine (29) new roadway segment counts were conducted on September 28, 2017.

Existing (2017) peak-hour turn movement volumes are presented in Figure 4, and the traffic count data sheets are provided in Appendix A. Analysis worksheets for this scenario are provided in Appendix B.

Intersections

Table 3 presents the peak-hour intersection operating conditions for this analysis scenario. As indicated in Table 3, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours.

Table 3 – Existing (2017) Intersection Levels of Service

#	Intersection	Traffic Control	Existing			
			AM Peak Hour		PM Peak Hour	
			Delay (Seconds)	LOS	Delay (Seconds)	LOS
1	Jackson Rd/SR-16 @ Bradshaw Rd	Signal	**122.2**	**F**	**79.1**	**F**
2	Jackson Rd/SR-16 @ Excelsior Rd	Signal	74.1	E	51.8	D
3	Jackson Rd/SR-16 @ Eagles Nest Rd	SSSC	**17.2 (89.1 NB)**	**F**	**20.1 (253.1 NB)**	**F**
4	Jackson Rd/SR-16 @ Sunrise Rd	Signal	66.0	E	44.3	D
5	Jackson Rd/SR-16 @ Grant Line Rd	Signal	**113.8**	**F**	**136.4**	**F**
6	Rancho Cordova Pkwy @ Chrysanthy Blvd	Signal	Does Not Exist			
7	Florin Rd @ Sunrise Blvd	Signal	9.5	A	10.6	B
8	Grant Line Rd @ Kiefer Blvd	AWSC	15.2	C	27.2	D
9	Grant Line Rd @ Sunrise Blvd	Signal	**113.1**	**F**	52.1	D
10	Douglas Rd @ Zinfandel Dr	Signal	44.3	D	19.1	B
11	Douglas Rd @ Sunrise Blvd	Signal	28.4	C	41.5	D
12	Douglas Rd @ Grant Line Rd	Signal	12.0	B	15.6	B
13	Mather Field Rd @ Folsom Blvd	Signal	27.5	C	51.7	D
14	Mather Field Rd @ US-50 Westbound Ramps	Signal	**142.9**	**F**	22.1	C
15	Mather Field Rd @ US-50 Eastbound Ramps	Signal	53.5	D	24.3	C
16	Mather Field Rd @ International Dr	Signal	10.9	B	23.9	C
17	Zinfandel Dr @ International Dr	Signal	22.4	C	32.9	C
18	Zinfandel Dr @ White Rock Rd	Signal	33.4	C	39.1	D
19	Zinfandel Dr @ US-50 Eastbound Ramps	Signal	**85.1**	**F**	23.2	C
20	Zinfandel Dr @ US-50 Westbound Ramps	Signal	29.7	C	18.1	B
21	Sunrise Blvd @ White Rock Rd	Signal	35.7	D	**56.5**	**E**
22	Sunrise Blvd @ Folsom Blvd	Signal	36.6	D	41.5	D
23	Sunrise Blvd @ US-50 Eastbound Ramps	Signal	23.9	C	23.0	C
24	Sunrise Blvd @ US-50 Westbound Ramps	Signal	15.3	B	17.8	B
25	Sunrise Blvd @ Zinfandel Dr	Signal	**112.8**	**F**	**58.6**	**E**
26	White Rock Rd @ Grant Line Rd	Signal	6.1	A	13.4	B
27	White Rock Rd @ Prairie City Rd	Signal	61.5	E	59.4	E

Note: **Bold** represents unacceptable operations.

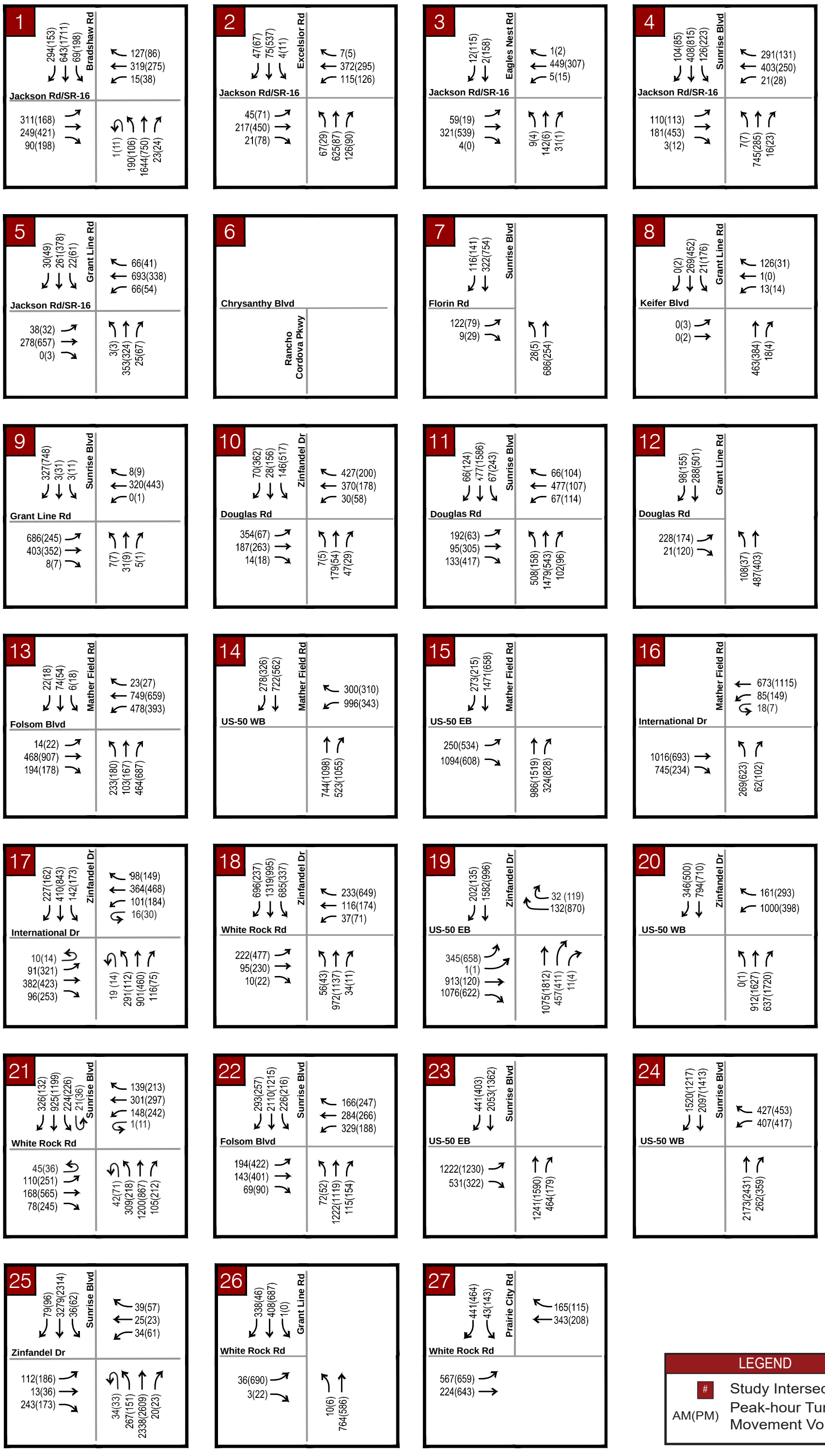
Roadway Segments

Table 4 presents the peak-hour intersection operating conditions for this analysis scenario. As indicated in Table 4, the study roadway segments operate from LOS A to LOS F.

Table 4 – Existing (2017) Roadway Segment Level of Service

ID	Roadway	Segment		Existing				
		From	To	Travel Lanes	Facility Type	Daily Volume	Volume / Capacity Ratio	Level of Service
1	Jackson Rd	Bradshaw Rd	Excelsior Rd	2	Arterial M	12,341	0.69	B
2	Jackson Rd	Excelsior Rd	Eagles Nest Rd	2	Rural Hwy	11,760	0.51	D
3	Jackson Rd	Eagles Nest Rd	Sunrise Blvd	2	Rural Hwy	11,806	0.52	D
4	Jackson Rd	Sunrise Blvd	Grant Line Rd	2	Rural Hwy	14,980	**0.65**	**E**
5	Excelsior Rd	Kiefer Blvd	Jackson Rd	2	Arterial M	4,552	0.25	A
6	Kiefer Blvd	Grant Line Rd	Jackson Rd/SR-16	2	Rural S	941	0.05	A
7	International Dr	Zinfandel Dr	Sunrise Blvd	6	Arterial M	11,246	0.21	A
8	Mather Blvd	Femoyer St	Douglas Rd	2	Arterial M	5,540	0.31	A
9	Douglas Rd	Mather Blvd	Sunrise Blvd	2	Arterial M	12,404	0.69	B
10	Douglas Rd	Sunrise Blvd	Grant Line Rd	2	Arterial M	7,510	0.42	A
11	White Rock Rd	Zinfandel Dr	Sunrise Blvd	6	Arterial M	15,943	0.30	A
12	White Rock Rd	Sunrise Blvd	Grant Line Rd	2	Rural NS	3,533	0.21	B
13	White Rock Rd	Grant Line Rd	Prairie City Rd	4	Arterial M	15,436	0.43	A
14	Mather Field Rd	Folsom Blvd	US 50 WB Ramp	4	Arterial M	22,543	0.63	B
15	Mather Field Rd	US 50 WB Ramp	US 50 EB Ramp	4	Arterial M	35,028	**0.97**	**E**
16	Mather Field Rd	US 50	International Dr	6	Arterial M	42,228	0.78	C
17	Zinfandel Dr	Folsom Blvd	US 50 WB	4	Arterial M	22,380	0.62	B
18	Zinfandel Dr	US 50	White Rock Rd	6	Arterial M	50,515	**0.94**	**E**
19	Zinfandel Dr	White Rock Rd	International Rd	6	Arterial M	23,685	0.44	A
20	Zinfandel Dr	International Rd	Douglas Rd	4	Arterial M	13,705	0.38	A
21	Sunrise Blvd	US 50 WB Ramp	US 50 EB Ramp	6	Arterial M	67,276	**1.25**	**F**
22	Sunrise Blvd	US 50	Folsom Blvd	6	Arterial M	53,504	**0.99**	**E**
23	Sunrise Blvd	Folsom Blvd	White Rock Rd	6	Arterial M	41,238	0.76	C
24	Sunrise Blvd	White Rock Rd	Douglas Rd	6	Arterial M	30,941	0.57	A
25	Sunrise Blvd	Douglas Rd	Jackson Rd	4	Arterial M	22,635	0.63	B
26	Sunrise Blvd	Jackson Rd	Grant Line Rd	2	Rural S	11,748	0.59	D
27	Grant Line Rd	White Rock Rd	Douglas Rd	2	Rural NS	12,804	**0.75**	**E**
28	Grant Line Rd	Douglas Rd	Jackson Rd	2	Rural S	8,524	0.43	D
29	Grant Line Rd	Jackson Rd	Sunrise Blvd	2	Rural S	7,745	0.39	D

Note: **Bold** represents unacceptable operations.



Kimley»Horn

Figure 4
Existing (2017) Peak Hour Traffic Volumes

ASSESSMENT OF PROPOSED PROJECT

Proposed Project Trip Generation and Assignment

The number of trips anticipated to be generated by the proposed project are approximated using data included in *Trip Generation, 9th Edition,* published by the Institute of Transportation Engineers (ITE).

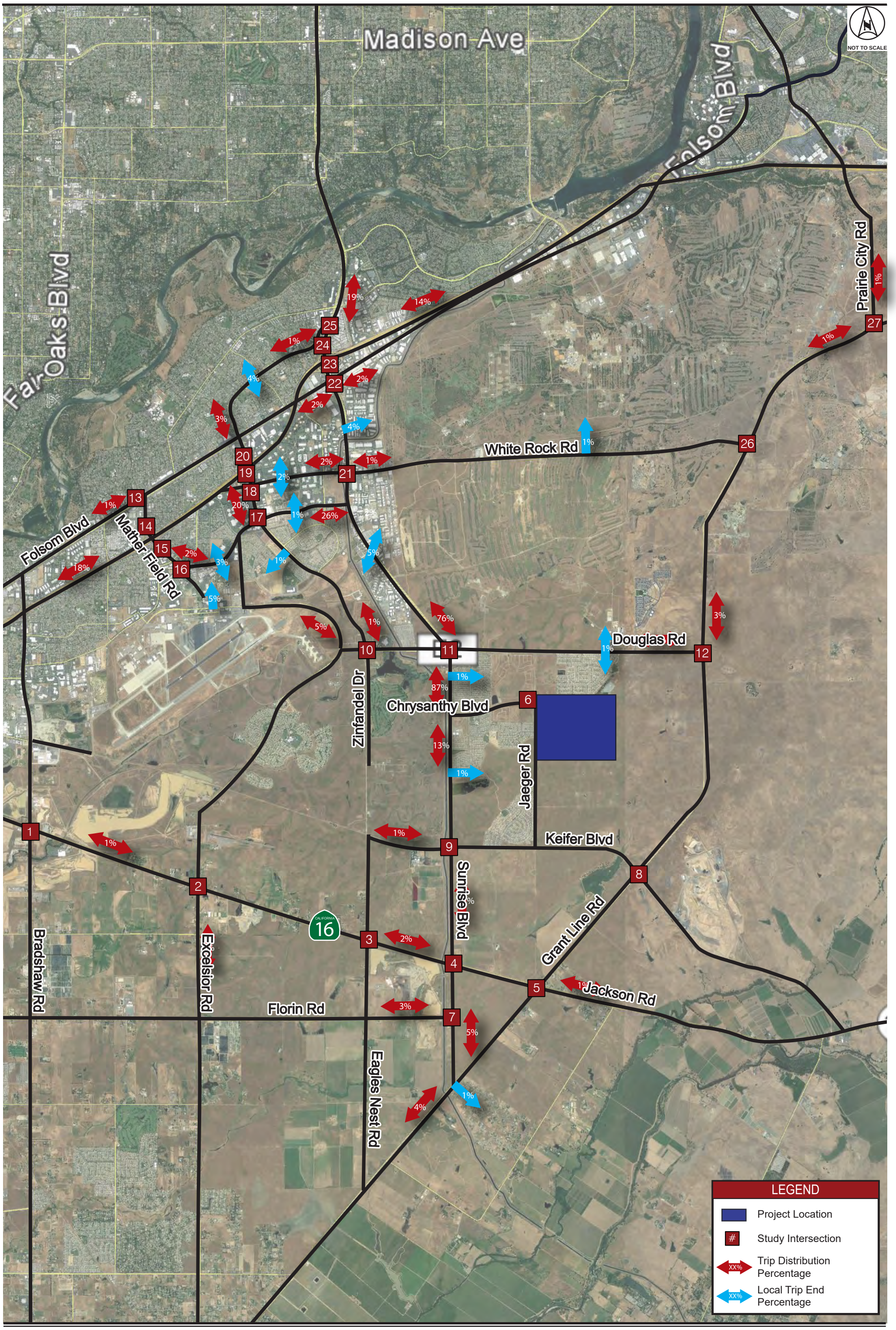
According to the proposed project site plan, 666 market rate single family detached units (SFR), 120 multi-family multifamily housing units and 637 AAR units are proposed for the site. Active Adult Residential (AAR) refers to detached senior housing units. This land use type is understood to have trip characteristics that generate fewer daily trips when compared to non-age restrictive land use types. In fact, as described in *Trip Generation*, the daily trip rate for AAR is 61 percent less than the daily trip rate for SFR. In addition, the AM and PM peak-hour trip rates for AAR are 71 percent and 73 percent less than the AM peak-hour and PM peak-hour trip rates for SFR, respectively.

To represent this development, ITE Land Use Codes 210 (Single Family Detached Housing), 220 (Apartment), 251 (Senior Adult Housing - Detached) and 820 (Shopping Center) were applied. As shown in Table 5, the proposed project is estimated to generate 10,266 new daily trips, with 721 new trips occurring during the AM peak-hour, and 934 new trips occurring during the PM peak-hour. Internal capture rates of 3.23 percent and 10.04 percent were applied to the AM and PM peak-hours, respectively. For the commercial uses, a pass-by reduction of 34% was applied for the PM peak-hour, in accordance with the ITE Trip Generation Handbook, 9th Edition.

Table 5 – Proposed Project Trip Generation

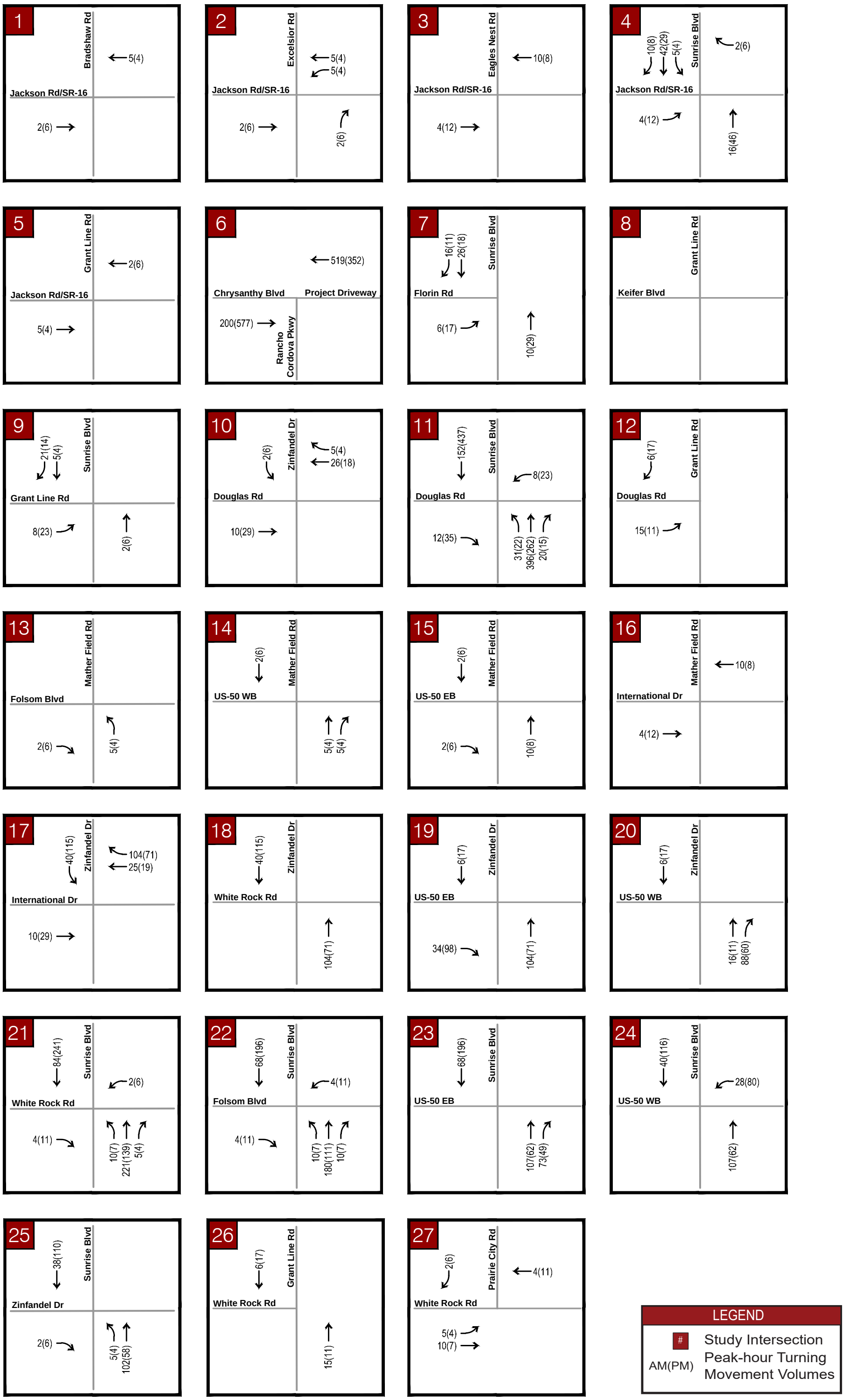
Land Use (ITE Code)	Size (DU/KSF)	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Single Family Detached Housing (210)	666	6,146	496	123	373	648	409	239
Apartment (220)	120	602	57	10	47	56	37	19
Senior Adult Housing - Detached (251)	637	2,150	136	47	89	154	94	60
Shopping Center (820)	45.806	1,368	32	21	11	76	40	36
Total		**10,266**	**721**	**201**	**520**	**934**	**580**	**354**

The project trip distribution percentages are provided in Figure 5. The assignments of project trips are depicted in Figure 6.



Kimley»Horn

Figure 5
Existing (2017) Project Trip Distribution



Kimley»Horn

Figure 6
Existing (2017) Project Trip Assignment

EXISTING (2017) PLUS PROPOSED PROJECT CONDTIONS

As previously discussed, the number of trips anticipated to be generated by the proposed project was derived using the *Trip Generation Manual, 9th Edition,* published by the Institute for Traffic Engineering (ITE). These trips were assigned to the roadway network based on existing traffic volumes, output from the SACSIM travel demand model, and professional judgment. Using these volumes, levels of service were determined at the study facilities. Existing (2017) plus Proposed Project peak-hour turn movement volumes are presented in Figure 7. Levels of service were then determined at the study facilities. Analysis worksheets for this scenario are provided in Appendix C.

Table 6 presents the intersection operating conditions for this analysis scenario. As indicated in Table 6, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours.

Table 7 presents the roadway segment operating conditions for this analysis scenario. As indicated in Table 7, the study roadway segments operate from LOS A to LOS F.

Table 6 – Existing (2017) plus Proposed Project Intersection Levels of Service

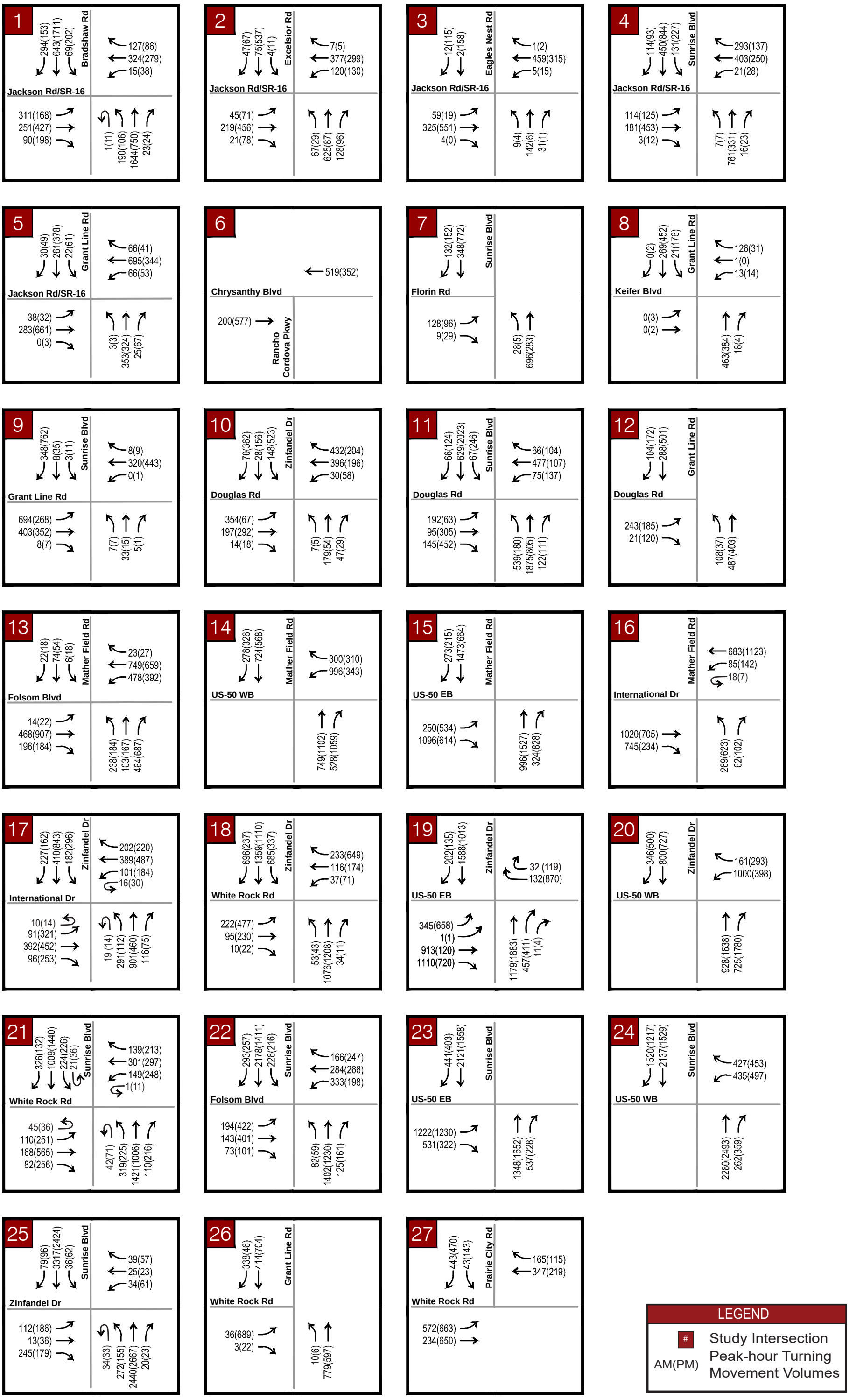
#	Intersection	Traffic Control	Existing				Existing Plus Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1	Jackson Rd/SR-16 @ Bradshaw Rd	Signal	**122.2**	**F**	**79.1**	**F**	123.3	F	80.1	F
2	Jackson Rd/SR-16 @ Excelsior Rd	Signal	74.1	E	51.8	D	76.3	E	53	D
3	Jackson Rd/SR-16 @ Eagles Nest Rd	SSSC	**17.2 (89.1 NB)**	**F**	**20.1 (253.1 NB)**	**F**	**18.1 (95.3 NB)**	**F**	**18.9 (*ECL NB)**	**F**
4	Jackson Rd/SR-16 @ Sunrise Rd	Signal	66	E	44.3	D	68.9	E	47.2	D
5	Jackson Rd/SR-16 @ Grant Line Rd	Signal	**113.8**	**F**	**136.4**	**F**	114.1	F	136.9	F
6	Rancho Cordova Pkwy @ Chrysanthy Blvd	Signal	Does Not Exist				1.4	A	1.2	A
7	Florin Rd @ Sunrise Blvd	Signal	9.5	A	10.6	B	9.8	A	11.1	B
8	Grant Line Rd @ Kiefer Blvd	AWSC	15.2	C	27.2	D	15.2	C	27.2	D
9	Grant Line Rd @ Sunrise Blvd	Signal	**113.1**	**F**	52.1	D	**122.2**	**F**	55.0	D
10	Douglas Rd @ Zinfandel Dr	Signal	44.3	D	19.1	B	44.8	D	19.3	B
11	Douglas Rd @ Sunrise Blvd	Signal	28.4	C	41.5	D	34.4	C	**59.3**	**E**
12	Douglas Rd @ Grant Line Rd	Signal	12.0	B	15.6	B	12.4	B	16.4	B
13	Mather Field Rd @ Folsom Blvd	Signal	27.5	C	51.7	D	27.6	C	51.8	D
14	Mather Field Rd @ US-50 Westbound Ramps	Signal	**142.9**	**F**	22.1	C	**142.5**	**F**	22	C
15	Mather Field Rd @ US-50 Eastbound Ramps	Signal	53.5	D	24.3	C	53.6	D	24.4	C
16	Mather Field Rd @ International Dr	Signal	10.9	B	23.9	C	10.8	B	23.9	C
17	Zinfandel Dr @ International Dr	Signal	22.4	C	32.9	C	23.7	C	35.2	D
18	Zinfandel Dr @ White Rock Rd	Signal	33.4	C	39.1	D	33.9	C	40.7	D
19	Zinfandel Dr @ US-50 Eastbound Ramps	Signal	**85.1**	**F**	23.2	C	**87.0**	**F**	24.7	C
20	Zinfandel Dr @ US-50 Westbound Ramps	Signal	29.7	C	18.1	B	29.6	C	18.0	B
21	Sunrise Blvd @ White Rock Rd	Signal	35.7	D	56.5	E	36.4	D	**61.1**	**E**
22	Sunrise Blvd @ Folsom Blvd	Signal	36.6	D	41.5	D	38	D	42.2	D
23	Sunrise Blvd @ US-50 Eastbound Ramps	Signal	23.9	C	23.0	C	23.7	C	22.7	C
24	Sunrise Blvd @ US-50 Westbound Ramps	Signal	15.3	B	17.8	B	15.5	B	18.5	B
25	Sunrise Blvd @ Zinfandel Dr	Signal	**112.8**	**F**	**58.6**	**E**	**117.2**	**F**	**68.0**	**E**
26	White Rock Rd @ Grant Line Rd	Signal	6.1	A	13.4	B	6.1	A	13.5	B
27	White Rock Rd @ Prairie City Rd	Signal	**61.5**	**E**	**59.4**	**E**	63.2	E	61.8	E

Note: **Bold** represents unacceptable operations. Shaded represents a significant impact.* ECL (Exceeds Calculable Limit)

Table 7- Existing (2017) Plus Project Roadway Segment Levels of Service

ID	Roadway	Segment		Existing					Existing + Jaeger Ranch Project					LOS Threshold
		From	To	Travel Lanes	Facility Type	Daily Volume	Volume / Capacity Ratio	Level of Service	Travel Lanes	Facility Type	Daily Volume	Volume / Capacity Ratio	Level of Service	
1	Jackson Rd	Bradshaw Rd	Excelsior Rd	2	Arterial M	12,341	0.69	B	2	Arterial M	12,443	0.69	B	E
2	Jackson Rd	Excelsior Rd	Eagles Nest Rd	2	Rural Hwy	11,760	0.51	D	2	Rural Hwy	11,965	0.52	D	E
3	Jackson Rd	Eagles Nest Rd	Sunrise Blvd	2	Rural Hwy	11,806	0.52	D	2	Rural Hwy	12,011	0.52	D	E
4	Jackson Rd	Sunrise Blvd	Grant Line Rd	2	Rural Hwy	14,980	**0.65**	**E**	2	Rural Hwy	15,082	**0.66**	**E**	D
5	Excelsior Rd	Kiefer Blvd	Jackson Rd	2	Arterial M	4,552	0.25	A	2	Arterial M	4,552	0.25	A	E
6	Kiefer Blvd	Grant Line Rd	Jackson Rd/SR-16	2	Rural S	941	0.05	A	2	Rural S	941	0.05	A	E
7	International Dr	Zinfandel Dr	Sunrise Blvd	6	Arterial M	11,246	0.21	A	6	Arterial M	13,909	0.26	A	D
8	Mather Blvd	Femoyer St	Douglas Rd	2	Arterial M	5,540	0.31	A	2	Arterial M	6,052	0.34	A	D
9	Douglas Rd	Mather Blvd	Sunrise Blvd	2	Arterial M	12,404	0.69	B	2	Arterial M	13,019	0.72	C	D
10	Douglas Rd	Sunrise Blvd	Grant Line Rd	2	Arterial M	7,510	0.42	A	2	Arterial M	7,920	0.44	A	D
11	White Rock Rd	Zinfandel Dr	Sunrise Blvd	6	Arterial M	15,943	0.30	A	6	Arterial M	16,148	0.30	A	D
12	White Rock Rd	Sunrise Blvd	Grant Line Rd	2	Rural NS	3,533	0.21	B	2	Rural NS	3,635	0.21	C	D
13	White Rock Rd	Grant Line Rd	Prairie City Rd	4	Arterial M	15,436	0.43	A	4	Arterial M	15,743	0.44	A	E
14	Mather Field Rd	Folsom Blvd	US 50 WB Ramp	4	Arterial M	22,543	0.63	B	4	Arterial M	22,645	0.63	B	D
15	Mather Field Rd	US 50 WB Ramp	US 50 EB Ramp	4	Arterial M	35,028	**0.97**	**E**	4	Arterial M	35,130	**0.98**	**E**	D
16	Mather Field Rd	US 50	International Dr	6	Arterial M	42,228	0.78	C	6	Arterial M	42,433	0.79	C	D
17	Zinfandel Dr	Folsom Blvd	US 50 WB	4	Arterial M	22,380	0.62	B	4	Arterial M	22,687	0.63	B	D
18	Zinfandel Dr	US 50	White Rock Rd	6	Arterial M	50,515	**0.94**	**E**	6	Arterial M	52,563	**0.97**	**E**	D
19	Zinfandel Dr	White Rock Rd	International Rd	6	Arterial M	23,685	0.44	A	6	Arterial M	25,733	0.48	A	D
20	Zinfandel Dr	International Rd	Douglas Rd	4	Arterial M	13,705	0.38	A	4	Arterial M	13,807	0.38	A	D
21	Sunrise Blvd	US 50 WB Ramp	US 50 EB Ramp	6	Arterial M	67,276	**1.25**	**F**	6	Arterial M	70,041	**1.30**	**F**	D
22	Sunrise Blvd	US 50	Folsom Blvd	6	Arterial M	53,504	**0.99**	**E**	**6**	**Arterial M**	**56,986**	**1.06**	**F**	**D**
23	Sunrise Blvd	Folsom Blvd	White Rock Rd	6	Arterial M	41,238	0.76	C	6	Arterial M	45,540	0.84	D	D
24	Sunrise Blvd	White Rock Rd	Douglas Rd	6	Arterial M	30,941	0.57	A	6	Arterial M	38,725	0.72	C	D
25	Sunrise Blvd	Douglas Rd	Jackson Rd	4	Arterial M	22,635	0.63	B	4	Arterial M	31,546	0.88	D	D
26	Sunrise Blvd	Jackson Rd	Grant Line Rd	2	Rural S	11,748	0.59	D	2	Rural S	12,567	0.63	E	E
27	Grant Line Rd	White Rock Rd	Douglas Rd	2	Rural NS	12,804	**0.75**	**E**	2	Rural NS	13,111	**0.77**	**E**	D
28	Grant Line Rd	Douglas Rd	Jackson Rd	2	Rural S	8,524	0.43	D	2	Rural S	8,524	0.43	D	D
29	Grant Line Rd	Jackson Rd	Sunrise Blvd	2	Rural S	7,745	0.39	D	2	Rural S	7,745	0.39	D	E

Note: **Bold** represents unacceptable operations. Shaded represents a significant impact.



Kimley»Horn

Figure 7
Existing (2017) plus Proposed Project Peak Hour Traffic Volumes

CUMULATIVE CONDITIONS

Future traffic estimates were prepared using the modified SACSIM travel demand model developed by the City of Rancho Cordova for the 2040 General Plan. The difference between the resulting traffic estimate and the 2012 baseline model results (the growth) was then added to Existing (2017) traffic volumes to establish Cumulative (2040) traffic estimates for this study. Using these volumes and network changes, levels of service were determined at the study facilities. Analysis worksheets for this scenario are provided in Appendix D. The future roadway network and additional study facilities for the Cumulative (2040) scenario are shown in Figure 8. Figure 9 depicts the assumed lane geometries for the Cumulative (2040) scenario. Cumulative peak-hour turning movement volumes are presented in Figure 10.

Table 8 presents the peak-hour intersection operating conditions for this analysis scenario. As indicated in Table 8, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours.

Table 9 presents the roadway segment operating conditions for this analysis scenario. As indicated in Table 9, the study roadway segments operate from LOS A to LOS F.

Table 8 – Cumulative (2040) Intersection Levels of Service

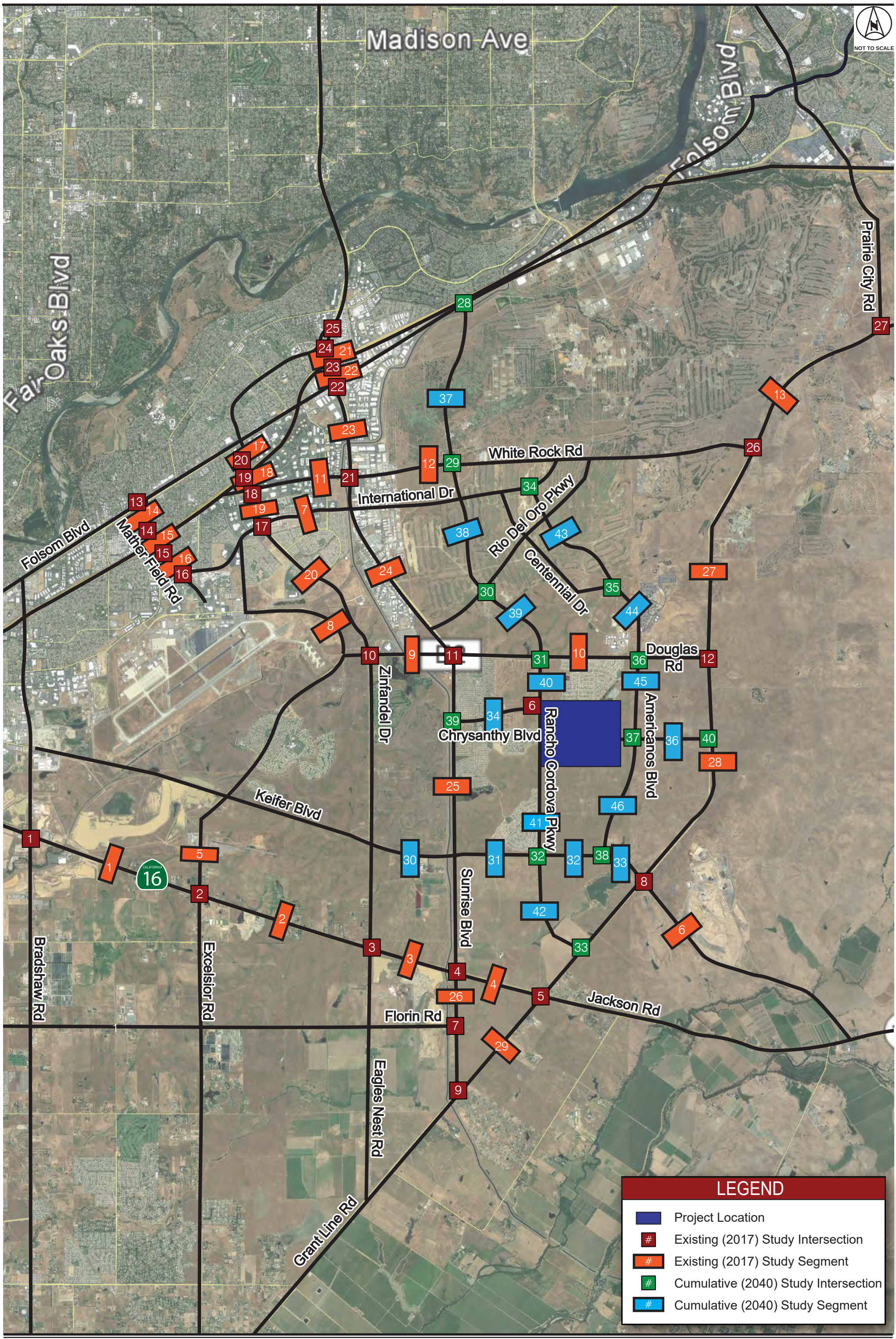
#	Intersection	Traffic Control	Cummulative No Project			
			AM Peak Hour		PM Peak Hour	
			Delay (Seconds)	LOS	Delay (Seconds)	LOS
1	Jackson Rd/SR-16 @ Bradshaw Rd	Signal	**146.9**	**F**	**194.9**	**F**
2	Jackson Rd/SR-16 @ Excelsior Rd	Signal	66.4	E	53.8	D
3	Jackson Rd/SR-16 @ Eagles Nest Rd	Signal	11.0	B	14.1	B
4	Jackson Rd/SR-16 @ Sunrise Rd	Signal	**104.6**	**F**	53.9	D
5	Jackson Rd/SR-16 @ Grant Line Rd	Signal	**114.7**	**F**	**62.7**	**E**
6	Rancho Cordova Pkwy @ Chrysanthy Blvd	Signal	11.8	B	10.6	B
7	Florin Rd @ Sunrise Blvd	Signal	9.8	A	12.6	B
8	Grant Line Rd @ Kiefer Blvd	Signal	20.8	C	18.5	B
9	Grant Line Rd @ Sunrise Blvd	Signal	**150.1**	**F**	**109.2**	**F**
10	Douglas Rd @ Zinfandel Dr	Signal	**145.2**	**F**	35.3	D
11	Douglas Rd @ Sunrise Blvd	Signal	**97.1**	**F**	**107.6**	**F**
12	Douglas Rd @ Grant Line Rd	Signal	14.3	B	22.1	C
13	Mather Field Rd @ Folsom Blvd	Signal	46.3	D	**142.2**	**F**
14	Mather Field Rd @ US-50 Westbound Ramps	Signal	30.1	C	12.4	B
15	Mather Field Rd @ US-50 Eastbound Ramps	Signal	28.5	C	6.1	A
16	Mather Field Rd @ International Dr	Signal	6.8	A	9.6	A
17	Zinfandel Dr @ International Dr	Signal	45.3	D	**68.2**	**E**
18	Zinfandel Dr @ White Rock Rd	Signal	41.7	D	**71.2**	**E**
19	Zinfandel Dr @ US-50 Eastbound Ramps	Signal	**79.4**	**E**	**166.4**	**F**
20	Zinfandel Dr @ US-50 Westbound Ramps	Signal	13.2	B	9.8	A
21	Sunrise Blvd @ White Rock Rd	Signal	**65.5**	**E**	**120.1**	**F**
22	Sunrise Blvd @ Folsom Blvd	Signal	41.2	D	**56.5**	**E**
23	Sunrise Blvd @ US-50 Eastbound Ramps	Signal	14.0	B	11.4	B
24	Sunrise Blvd @ US-50 Westbound Ramps	Signal	11.3	B	15.4	B
25	Sunrise Blvd @ Zinfandel	Signal	**209.8**	**F**	**93.9**	**F**
26	White Rock Rd @ Grant Line Rd	Signal	11.4	B	41.6	D
27	White Rock Rd @ Prairie City Rd	Signal	**140.3**	**F**	**157.0**	**F**
28	Rancho Cordova Pkwy @ Folsom Blvd	Signal	15.4	B	42.1	D
29	Rancho Cordova Pkwy @ White Rock Rd	Signal	32.6	C	27.0	C
30	Rancho Cordova Pkwy @ Rio Del Oro Pkwy	Signal	22.1	C	20.7	C
31	Rancho Cordova Pkwy @ Douglas Rd	Signal	16.9	B	16.4	B
32	Rancho Cordova Pkwy @ Kiefer Blvd	Signal	21.9	C	19.7	B
33	Rancho Cordova Pkwy @ Grant Line Rd	Signal	8.0	A	8.0	A
34	Americanos Blvd @ International Dr	Signal	6.7	A	5.8	A
35	Americanos Blvd @ Centennial Dr	Signal	18.7	B	16.5	B
36	Americanos Blvd @ Douglas Rd	Signal	22.2	C	19.6	B
37	Americanos Blvd @ Chrysanthy Blvd	Signal	19.2	B	19.3	B
38	Americanos Blvd @ Kiefer Blvd	Signal	8.0	A	8.0	A
39	Chrysanthy Blvd @ Sunrise Blvd	Signal	12.4	B	4.4	A
40	Chrysanthy Blvd @ Grant Line Rd	Signal	7.0	A	3.2	A

Note: **Bold** represents unacceptable operations.

Table 9 – Cumulative (2040) Roadway Segment Level of Service

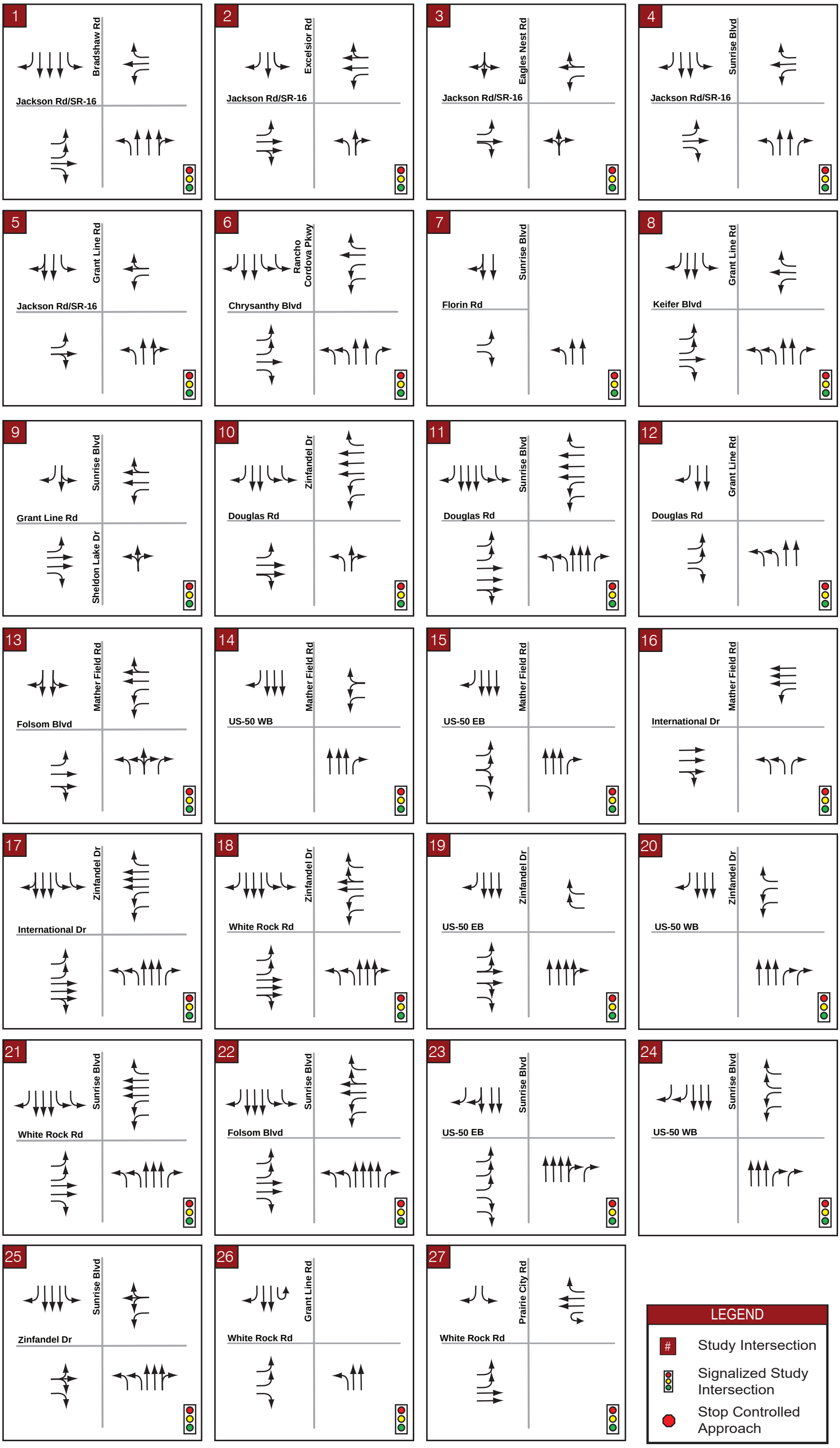
ID	Roadway	Segment		Cumulative No Project				
		From	To	Travel Lanes	Facility Type	Daily Volume	Volume / Capacity Ratio	Level of Service
1	Jackson Rd	Bradshaw Rd	Excelsior Rd	4	Arterial M	22,600	0.63	B
2	Jackson Rd	Excelsior Rd	Eagles Nest Rd	4	Arterial M	22,740	0.63	B
3	Jackson Rd	Eagles Nest Rd	Sunrise Blvd	2	Rural Hwy	21,500	0.94	E
4	Jackson Rd	Sunrise Blvd	Grant Line Rd	4	Arterial H	23,690	0.59	A
5	Excelsior Rd	Kiefer Blvd	Jackson Rd	2	Arterial M	8,950	0.50	A
6	Kiefer Blvd	Grant Line Rd	Jackson Rd/SR-16	2	Rural S	2,180	0.11	A
7	International Dr	Zinfandel Dr	Sunrise Blvd	6	Arterial M	25,690	0.48	A
8	Mather Blvd	Femoyer St	Douglas Rd	4	Arterial M	20,870	0.58	A
9	Douglas Rd	Mather Blvd	Sunrise Blvd	4	Arterial M	37,150	**1.03**	**F**
10	Douglas Rd	Sunrise Blvd	Grant Line Rd	6	Arterial M	24,290	0.45	A
11	White Rock Rd	Zinfandel Dr	Sunrise Blvd	6	Arterial M	27,540	0.51	A
12	White Rock Rd	Sunrise Blvd	Grant Line Rd	6	Arterial M	16,960	0.31	A
13	White Rock Rd	Grant Line Rd	Prairie City Rd	4	Expressway	41,330	0.57	A
14	Mather Field Rd	Folsom Blvd	US 50 WB Ramp	6	Arterial M	30,420	0.56	A
15	Mather Field Rd	US 50 WB Ramp	US 50 EB Ramp	6	Arterial M	43,380	0.80	D
16	Mather Field Rd	US 50	International Dr	6	Arterial M	56,560	**1.05**	**F**
17	Zinfandel Dr	Folsom Blvd	US 50 WB	6	Arterial M	23,730	0.44	A
18	Zinfandel Dr	US 50	White Rock Rd	6	Arterial M	72,230	**1.34**	**F**
19	Zinfandel Dr	White Rock Rd	International Rd	6	Arterial M	37,080	0.69	B
20	Zinfandel Dr	International Rd	Douglas Rd	4	Arterial M	21,600	0.60	A
21	Sunrise Blvd	US 50 WB Ramp	US 50 EB Ramp	6	Arterial M	71,160	**1.32**	**F**
22	Sunrise Blvd	US 50	Folsom Blvd	6	Arterial M	58,150	**1.08**	**F**
23	Sunrise Blvd	Folsom Blvd	White Rock Rd	6	Arterial M	41,350	0.77	C
24	Sunrise Blvd	White Rock Rd	Douglas Rd	6	Arterial M	49,190	**0.91**	**E**
25	Sunrise Blvd	Douglas Rd	Jackson Rd	4	Arterial M	45,470	**1.26**	**F**
26	Sunrise Blvd	Jackson Rd	Grant Line Rd	4	Arterial H	20,170	0.50	A
27	Grant Line Rd	White Rock Rd	Douglas Rd	4	Expressway	30,330	0.42	A
28	Grant Line Rd	Douglas Rd	Jackson Rd	4	Arterial H	29,380	0.73	C
29	Grant Line Rd	Jackson Rd	Sunrise Blvd	4	Arterial H	13,480	0.34	A
30	Kiefer Blvd	Eagles Nest Rd	Sunrise Blvd	2	Arterial M	2,080	0.12	A
31	Kiefer Blvd	Sunrise Blvd	Rancho Cordova Pkwy	4	Arterial M	15,140	0.42	A
32	Kiefer Blvd	Rancho Cordova Pkwy	Americanos Blvd	2	Arterial M	7,790	0.43	A
33	Kiefer Blvd	Americanos Blvd	Grant Line Rd	2	Arterial M	4,170	0.23	A
34	Chrysanthy Blvd	Sunrise Blvd	Rancho Cordova Pkwy	2	Arterial M	5,740	0.32	A
35	Chrysanthy Blvd	Rancho Cordova Pkwy	Americanos Blvd (within project)	2	Arterial M	6,150	0.34	A
36	Chrysanthy Blvd	Americanos Blvd	Grant Line Rd	2	Arterial M	7,070	0.39	A
37	Rancho Cordova Pkwy	Folsom Blvd	White Rock Rd	6	Arterial M	46,310	0.86	D
38	Rancho Cordova Pkwy	White Rock Rd	Rio Del Oro Pkwy	4	Arterial M	42,680	**1.19**	**F**
39	Rancho Cordova Pkwy	Rio Del Oro Pkwy	Douglas Rd	4	Arterial M	17,310	0.48	A
40	Rancho Cordova Pkwy	Douglas Rd	Chrysanthy Blvd	4	Arterial M	15,790	0.44	A
41	Rancho Cordova Pkwy	Chrysanthy Blvd	Keifer Blvd	2	Arterial M	8,350	0.46	A
42	Rancho Cordova Pkwy	Keifer Blvd	Grant Line Rd	2	Arterial M	7,190	0.40	A
43	Americanos Blvd	International Rd	Centennial Rd	2	Arterial M	4,850	0.27	A
44	Americanos Blvd	Centennial Rd	Douglas Rd	2	Arterial M	1,970	0.11	A
45	Americanos Blvd	Douglas Rd	Chrysanthy Blvd	2	Arterial M	4,850	0.27	A
46	Americanos Blvd	Chrysanthy Rd	Keifer Blvd	2	Arterial M	2,800	0.16	A

Note: **Bold** represents unacceptable operations.



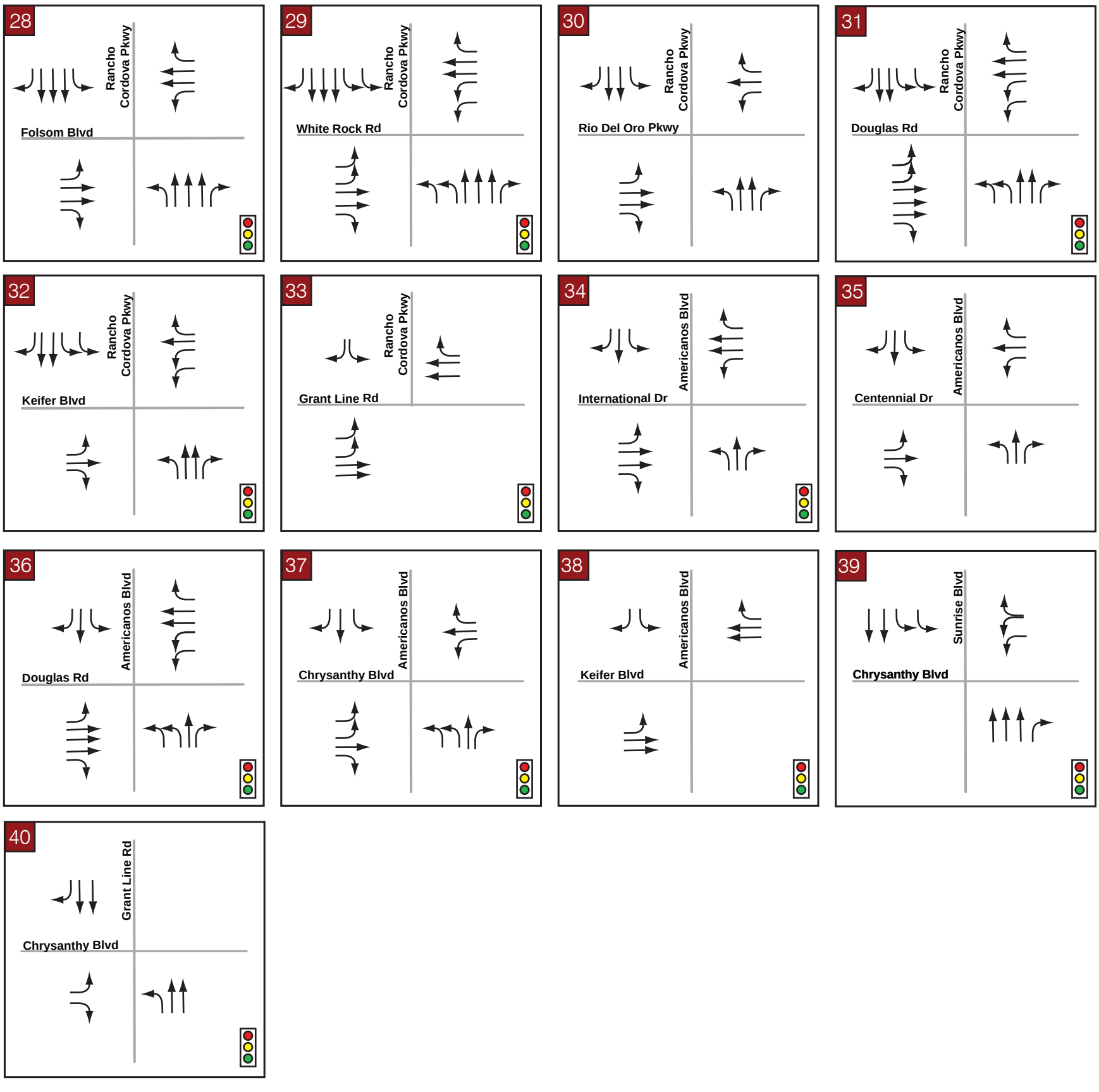
Kimley»Horn

Figure 8
Cumulative (2040) Study Intersections, Interchanges, and Count Locations



Kimley»Horn

Figure 9
Cumulative (2040) Study Intersections, Traffic Control, and Lane Geometries



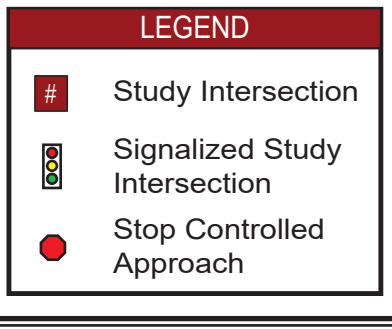
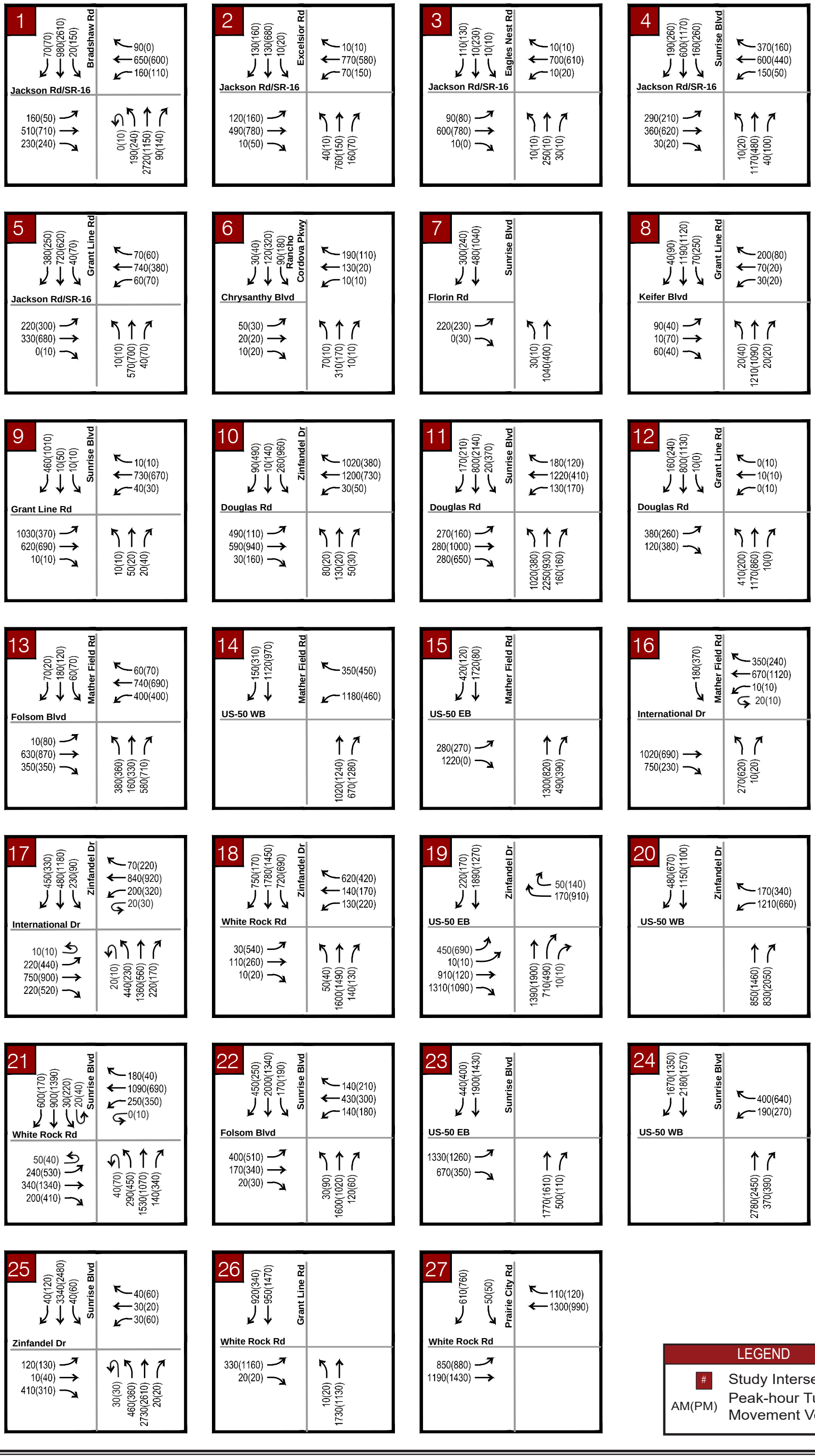
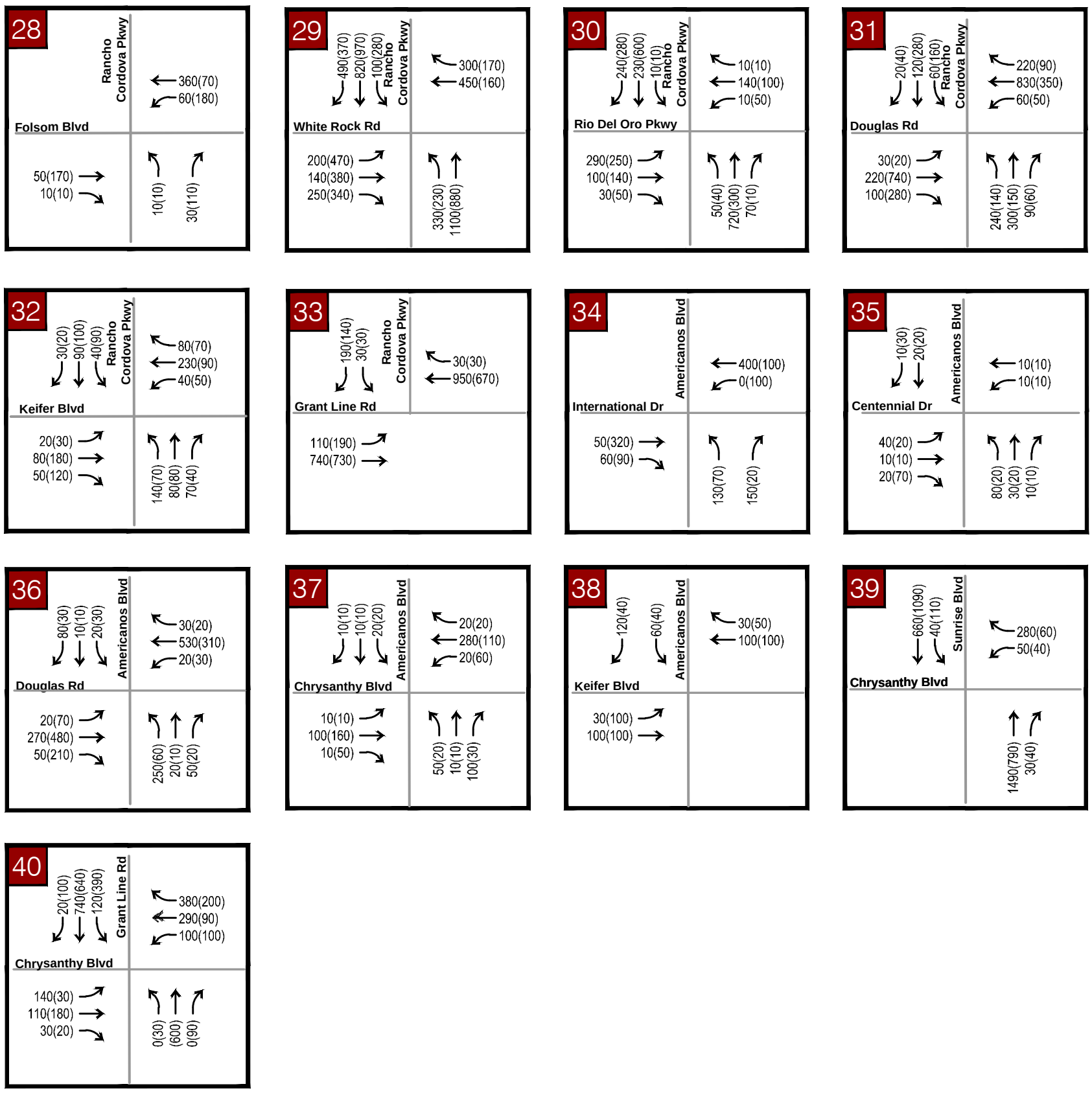


Figure 9b
Cumulative (2040) Study Intersections, Traffic Control, and Lane Geometries (Continued)



Kimley»Horn

Figure 10
Cumulative (2040) Peak Hour Traffic Volumes



LEGEND	
#	Study Intersection
AM(PM)	Peak-hour Turning Movement Volumes

Figure 10b
Cumulative (2040) Peak Hour Traffic Volumes (Continued)

CUMULATIVE PLUS PROPOSED PROJECT CONDITIONS

As previously discussed, the number of trips anticipated to be generated by the proposed project was derived using the *Trip Generation Manual, 9th Edition,* published by the Institute for Traffic Engineering (ITE). The project trips were assigned to the future roadway network based on modified SACSIM travel demand model, as provided by the City of Rancho Cordova. Using these volumes, levels of service were determined at the study facilities.

The Cumulative Scenario Project Trip distribution and trip assignment are shown in Figure 11 and Figure 12, respectively. Cumulative plus Proposed Project peak-hour turning movement volumes are presented in Figure 13. Analysis worksheets for this scenario are provided in Appendix E.

Table 10 presents the peak-hour intersection operating conditions for this analysis scenario. As indicated in Table 10, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours.

Table 11 presents the roadway segment operating conditions for this analysis scenario. As indicated in Table 11, the study roadway segments operate from LOS A to LOS F.

Table 10 – Cumulative plus Proposed Project Intersection Levels of Service

#	Intersection	Traffic Control	Cummulative No Project				Cummulative Plus Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1	Jackson Rd/SR-16 @ Bradshaw Rd	Signal	**146.9**	**F**	**194.9**	**F**	**147.5**	**F**	**195.7**	**F**
2	Jackson Rd/SR-16 @ Excelsior Rd	Signal	66.4	E	53.8	D	67.2	E	54.8	D
3	Jackson Rd/SR-16 @ Eagles Nest Rd	Signal	11.0	B	14.1	B	11.2	B	14.4	B
4	Jackson Rd/SR-16 @ Sunrise Rd	Signal	**104.6**	**F**	53.9	D	**105.4**	**F**	55	E
5	Jackson Rd/SR-16 @ Grant Line Rd	Signal	**114.7**	**F**	**62.7**	**E**	**118.1**	**F**	65.6	E
6	Rancho Cordova Pkwy @ Chrysanthy Blvd	Signal	11.8	B	10.6	B	19.3	B	14.8	B
7	Florin Rd @ Sunrise Blvd	Signal	9.8	A	12.6	B	9.8	A	12.9	B
8	Grant Line Rd @ Kiefer Blvd	Signal	20.8	C	18.5	B	21.2	C	18.9	B
9	Grant Line Rd @ Sunrise Blvd	Signal	**150.1**	**F**	**109.2**	**F**	**151.5**	**F**	**110.6**	**F**
10	Douglas Rd @ Zinfandel Dr	Signal	**145.2**	**F**	35.3	D	**159.4**	**F**	43.8	D
11	Douglas Rd @ Sunrise Blvd	Signal	**97.1**	**F**	**107.6**	**F**	**112.3**	**F**	**109.3**	**F**
12	Douglas Rd @ Grant Line Rd	Signal	14.3	B	22.1	C	14.5	B	23.9	C
13	Mather Field Rd @ Folsom Blvd	Signal	46.3	D	**142.2**	**F**	46.5	D	143	F
14	Mather Field Rd @ US-50 Westbound Ramps	Signal	30.1	C	12.4	B	30.1	C	12.5	B
15	Mather Field Rd @ US-50 Eastbound Ramps	Signal	28.5	C	6.1	A	29.3	C	6.2	A
16	Mather Field Rd @ International Dr	Signal	6.8	A	9.6	A	6.8	A	9.7	A
17	Zinfandel Dr @ International Dr	Signal	45.3	D	**68.2**	**E**	46.1	D	**71.9**	**E**
18	Zinfandel Dr @ White Rock Rd	Signal	41.7	D	**71.2**	**E**	43.2	D	**72.9**	**E**
19	Zinfandel Dr @ US-50 Eastbound Ramps	Signal	**79.4**	**E**	**166.4**	**F**	**83.1**	**F**	**170.2**	**F**
20	Zinfandel Dr @ US-50 Westbound Ramps	Signal	13.2	B	9.8	A	13.2	B	9.8	A
21	Sunrise Blvd @ White Rock Rd	Signal	**65.5**	**E**	**120.1**	**F**	66.6	E	125.2	F
22	Sunrise Blvd @ Folsom Blvd	Signal	41.2	D	**56.5**	**E**	41.6	D	56.6	E
23	Sunrise Blvd @ US-50 Eastbound Ramps	Signal	14.0	B	11.4	B	14.0	B	11.5	B
24	Sunrise Blvd @ US-50 Westbound Ramps	Signal	11.3	B	15.4	B	11.5	B	15.6	B
25	Sunrise Blvd @ Zinfandel	Signal	**209.8**	**F**	**93.9**	**F**	**214.3**	**F**	100.6	F
26	White Rock Rd @ Grant Line Rd	Signal	11.4	B	41.6	D	**11.7**	**B**	45.8	D
27	White Rock Rd @ Prairie City Rd	Signal	**140.3**	**F**	**157.0**	**F**	**144.1**	**F**	**169.7**	**F**
28	Rancho Cordova Pkwy @ Folsom Blvd	Signal	15.4	B	42.1	D	15.4	B	42.1	D
29	Rancho Cordova Pkwy @ White Rock Rd	Signal	32.6	C	27.0	C	32.5	C	27.3	C
30	Rancho Cordova Pkwy @ Rio Del Oro Pkwy	Signal	22.1	C	20.7	C	22.3	C	20.9	C
31	Rancho Cordova Pkwy @ Douglas Rd	Signal	16.9	B	16.4	B	20.3	C	37.5	D
32	Rancho Cordova Pkwy @ Kiefer Blvd	Signal	21.9	C	19.7	B	21.6	C	19.4	B
33	Rancho Cordova Pkwy @ Grant Line Rd	Signal	8.0	A	8.0	A	8.0	A	8.0	A
34	Americanos Blvd @ International Dr	Signal	6.7	A	5.8	A	6.7	A	5.8	A
35	Americanos Blvd @ Centennial Dr	Signal	18.7	B	16.5	B	18.7	B	16.5	B
36	Americanos Blvd @ Douglas Rd	Signal	22.2	C	19.6	B	22.2	C	19.6	B
37	Americanos Blvd @ Chrysanthy Blvd	Signal	19.2	B	19.3	B	19.9	B	19.4	B
38	Americanos Blvd @ Kiefer Blvd	Signal	8.0	A	8.0	A	8	A	8.0	A
39	Chrysanthy Blvd @ Sunrise Blvd	Signal	12.4	B	4.4	A	14	B	5.0	A
40	Chrysanthy Blvd @ Grant Line Rd	Signal	7.0	A	3.2	A	8.7	A	3.9	A

Note: **Bold** represents unacceptable operations. Shaded represents a significant impact.

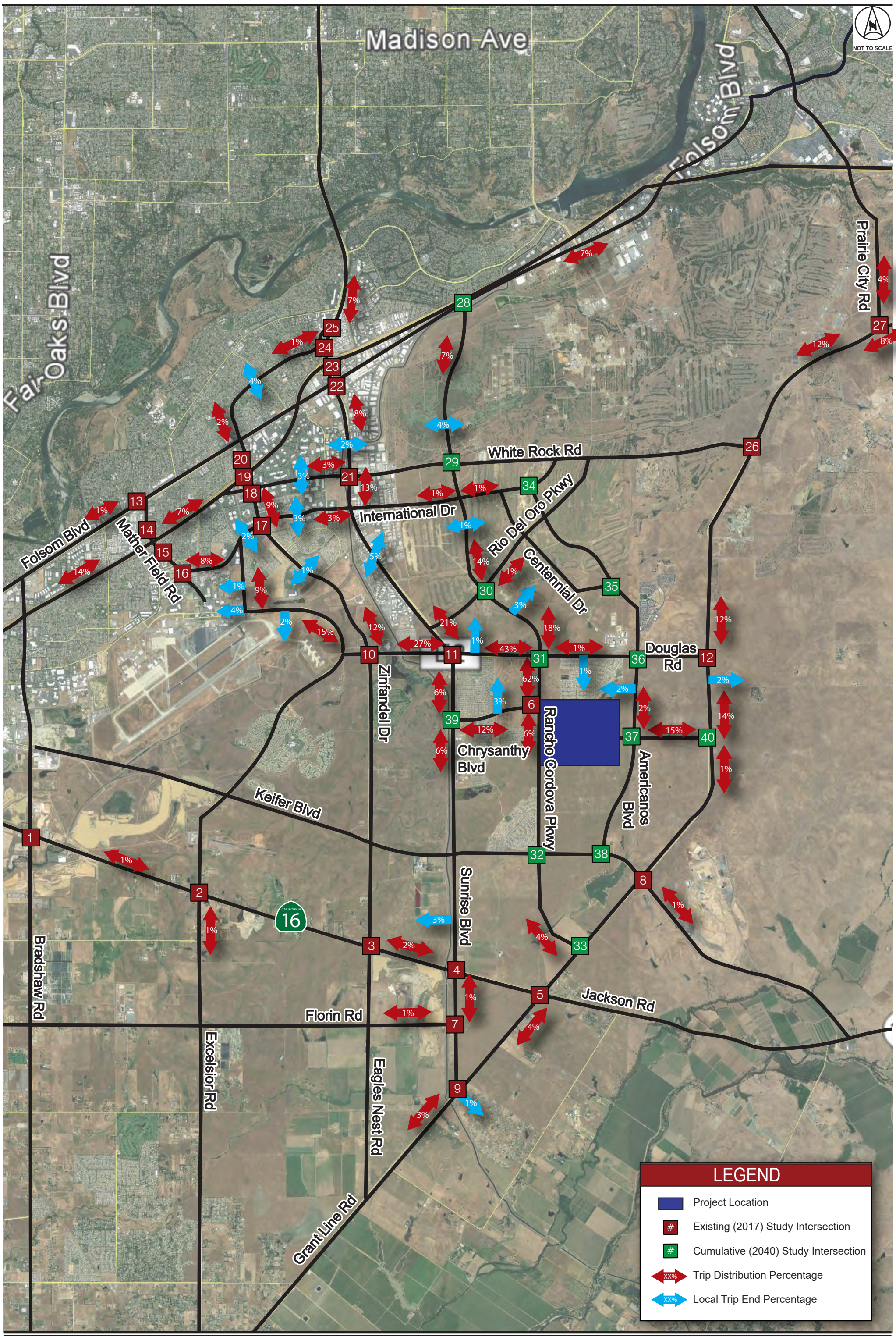
Table 11 – Cumulative plus Proposed Project Roadway Segment Levels of Service

ID	Roadway	Segment		Cumulative No Project					Cumulative + Jaeger Ranch Project					LOS Threshold
		From	To	Travel Lanes	Facility Type	Daily Volume	Volume / Capacity Ratio	Level of Service	Travel Lanes	Facility Type	Daily Volume	Volume / Capacity Ratio	Level of Service	
1	Jackson Rd	Bradshaw Rd	Excelsior Rd	4	Arterial M	22,600	0.63	B	4	Arterial M	22,702	0.63	B	E
2	Jackson Rd	Excelsior Rd	Eagles Nest Rd	4	Arterial M	22,740	0.63	B	4	Arterial M	22,945	0.64	B	E
3	Jackson Rd	Eagles Nest Rd	Sunrise Blvd	2	Rural Hwy	21,500	0.94	E	2	Rural Hwy	21,705	0.95	E	E
4	Jackson Rd	Sunrise Blvd	Grant Line Rd	4	Arterial H	23,690	0.59	A	4	Arterial H	23,690	0.59	A	D
5	Excelsior Rd	Kiefer Blvd	Jackson Rd	2	Arterial M	8,950	0.50	A	2	Arterial M	8,950	0.50	A	E
6	Kiefer Blvd	Grant Line Rd	Jackson Rd/SR-16	2	Rural S	2,180	0.11	A	2	Rural S	2,282	0.11	B	E
7	International Dr	Zinfandel Dr	Sunrise Blvd	6	Arterial M	25,690	0.48	A	6	Arterial M	25,997	0.48	A	D
8	Mather Blvd	Femoyer St	Douglas Rd	4	Arterial M	20,870	0.58	A	4	Arterial M	22,406	0.62	B	D
9	Douglas Rd	Mather Blvd	Sunrise Blvd	4	Arterial M	37,150	**1.03**	**F**	4	Arterial M	39,915	**1.11**	**F**	D
10	Douglas Rd	Sunrise Blvd	Grant Line Rd	6	Arterial M	24,290	0.45	A	6	Arterial M	28,694	0.53	A	D
11	White Rock Rd	Zinfandel Dr	Sunrise Blvd	6	Arterial M	27,540	0.51	A	6	Arterial M	27,847	0.52	A	D
12	White Rock Rd	Sunrise Blvd	Grant Line Rd	6	Arterial M	16,960	0.31	A	6	Arterial M	16,960	0.31	A	D
13	White Rock Rd	Grant Line Rd	Prairie City Rd	4	Expressway	41,330	0.57	A	4	Expressway	42,559	0.59	A	E
14	Mather Field Rd	Folsom Blvd	US 50 WB Ramp	6	Arterial M	30,420	0.56	A	6	Arterial M	30,522	0.57	A	D
15	Mather Field Rd	US 50 WB Ramp	US 50 EB Ramp	6	Arterial M	43,380	0.80	D	6	Arterial M	44,199	0.82	D	D
16	Mather Field Rd	US 50	International Dr	6	Arterial M	56,560	**1.05**	**F**	6	Arterial M	57,379	**1.06**	**F**	D
17	Zinfandel Dr	Folsom Blvd	US 50 WB	6	Arterial M	23,730	0.44	A	6	Arterial M	23,935	0.44	A	D
18	Zinfandel Dr	US 50	White Rock Rd	6	Arterial M	72,230	**1.34**	**F**	6	Arterial M	73,152	**1.35**	**F**	D
19	Zinfandel Dr	White Rock Rd	International Rd	6	Arterial M	37,080	0.69	B	6	Arterial M	38,002	0.70	C	D
20	Zinfandel Dr	International Rd	Douglas Rd	4	Arterial M	21,600	0.60	A	4	Arterial M	22,829	0.63	B	D
21	Sunrise Blvd	US 50 WB Ramp	US 50 EB Ramp	6	Arterial M	71,160	**1.32**	**F**	6	Arterial M	71,979	**1.33**	**F**	D
22	Sunrise Blvd	US 50	Folsom Blvd	6	Arterial M	58,150	**1.08**	**F**	6	Arterial M	58,969	**1.09**	**F**	D
23	Sunrise Blvd	Folsom Blvd	White Rock Rd	6	Arterial M	41,350	0.77	C	6	Arterial M	42,374	0.78	C	D
24	Sunrise Blvd	White Rock Rd	Douglas Rd	6	Arterial M	49,190	**0.91**	**E**	6	Arterial M	51,955	**0.96**	**E**	D
25	Sunrise Blvd	Douglas Rd	Jackson Rd	4	Arterial M	45,470	**1.26**	**F**	4	Arterial M	46,085	**1.28**	**F**	D
26	Sunrise Blvd	Jackson Rd	Grant Line Rd	4	Arterial H	20,170	0.50	A	4	Arterial H	20,272	0.51	A	E
27	Grant Line Rd	White Rock Rd	Douglas Rd	4	Expressway	30,330	0.42	A	4	Expressway	31,559	0.44	A	D
28	Grant Line Rd	Douglas Rd	Jackson Rd	4	Arterial H	29,380	0.73	C	4	Arterial H	30,814	0.77	C	D
29	Grant Line Rd	Jackson Rd	Sunrise Blvd	4	Arterial H	13,480	0.34	A	4	Arterial H	13,890	0.35	A	E

Table 11b – Cumulative plus Proposed Project Intersection Levels of Service (Continued)

ID	Roadway	Segment		Cumulative No Project					Cumulative + Jaeger Ranch Project					LOS Threshold
		From	To	Travel Lanes	Facility Type	Daily Volume	Volume / Capacity Ratio	Level of Service	Travel Lanes	Facility Type	Daily Volume	Volume / Capacity Ratio	Level of Service	
30	Kiefer Blvd	Eagles Nest Rd	Sunrise Blvd	2	Arterial M	2,080	0.12	A	2	Arterial M	2,080	0.12	A	E
31	Kiefer Blvd	Sunrise Blvd	Rancho Cordova Pkwy	4	Arterial M	15,140	0.42	A	4	Arterial M	15,140	0.42	A	D
32	Kiefer Blvd	Rancho Cordova Pkwy	Americanos Blvd	2	Arterial M	7,790	0.43	A	2	Arterial M	7,790	0.43	A	D
33	Kiefer Blvd	Americanos Blvd	Grant Line Rd	2	Arterial M	4,170	0.23	A	2	Arterial M	4,170	0.23	A	D
34	Chrysanthy Blvd	Sunrise Blvd	Rancho Cordova Pkwy	2	Arterial M	5,740	0.32	A	2	Arterial M	7,276	0.40	A	D
35	Chrysanthy Blvd	Rancho Cordova Pkwy	Americanos Blvd (within project)	2	Arterial M	6,150	0.34	A	2	Arterial M	14,651	0.81	D	D
36	Chrysanthy Blvd	Americanos Blvd	Grant Line Rd	2	Arterial M	7,070	0.39	A	2	Arterial M	8,606	0.48	A	D
37	Rancho Cordova Pkwy	Folsom Blvd	White Rock Rd	6	Arterial M	46,310	0.86	D	6	Arterial M	47,437	0.88	D	D
38	Rancho Cordova Pkwy	White Rock Rd	Rio Del Oro Pkwy	4	Arterial M	42,680	**1.19**	**F**	4	Arterial M	44,114	**1.23**	**F**	D
39	Rancho Cordova Pkwy	Rio Del Oro Pkwy	Douglas Rd	4	Arterial M	17,310	0.48	A	4	Arterial M	19,154	0.53	A	D
40	Rancho Cordova Pkwy	Douglas Rd	Chrysanthy Blvd	4	Arterial M	15,790	0.44	A	4	Arterial M	22,140	0.62	B	D
41	Rancho Cordova Pkwy	Chrysanthy Blvd	Keifer Blvd	2	Arterial M	8,350	0.46	A	4	Arterial M	8,965	0.25	A	D
42	Rancho Cordova Pkwy	Keifer Blvd	Grant Line Rd	2	Arterial M	7,190	0.40	A	2	Arterial M	7,600	0.42	A	D
43	Americanos Blvd	International Rd	Centennial Rd	2	Arterial M	4,850	0.27	A	2	Arterial M	4,850	0.27	A	D
44	Americanos Blvd	Centennial Rd	Douglas Rd	2	Arterial M	1,970	0.11	A	2	Arterial M	1,970	0.11	A	D
45	Americanos Blvd	Douglas Rd	Chrysanthy Blvd	2	Arterial M	4,850	0.27	A	2	Arterial M	5,055	0.28	A	D
46	Americanos Blvd	Chrysanthy Rd	Keifer Blvd	2	Arterial M	2,800	0.16	A	2	Arterial M	2,800	0.16	A	D

Note: **Bold** represents unacceptable operations.



Kimley»Horn

Figure 11
Cumulative (2040) Project Trip Distribution

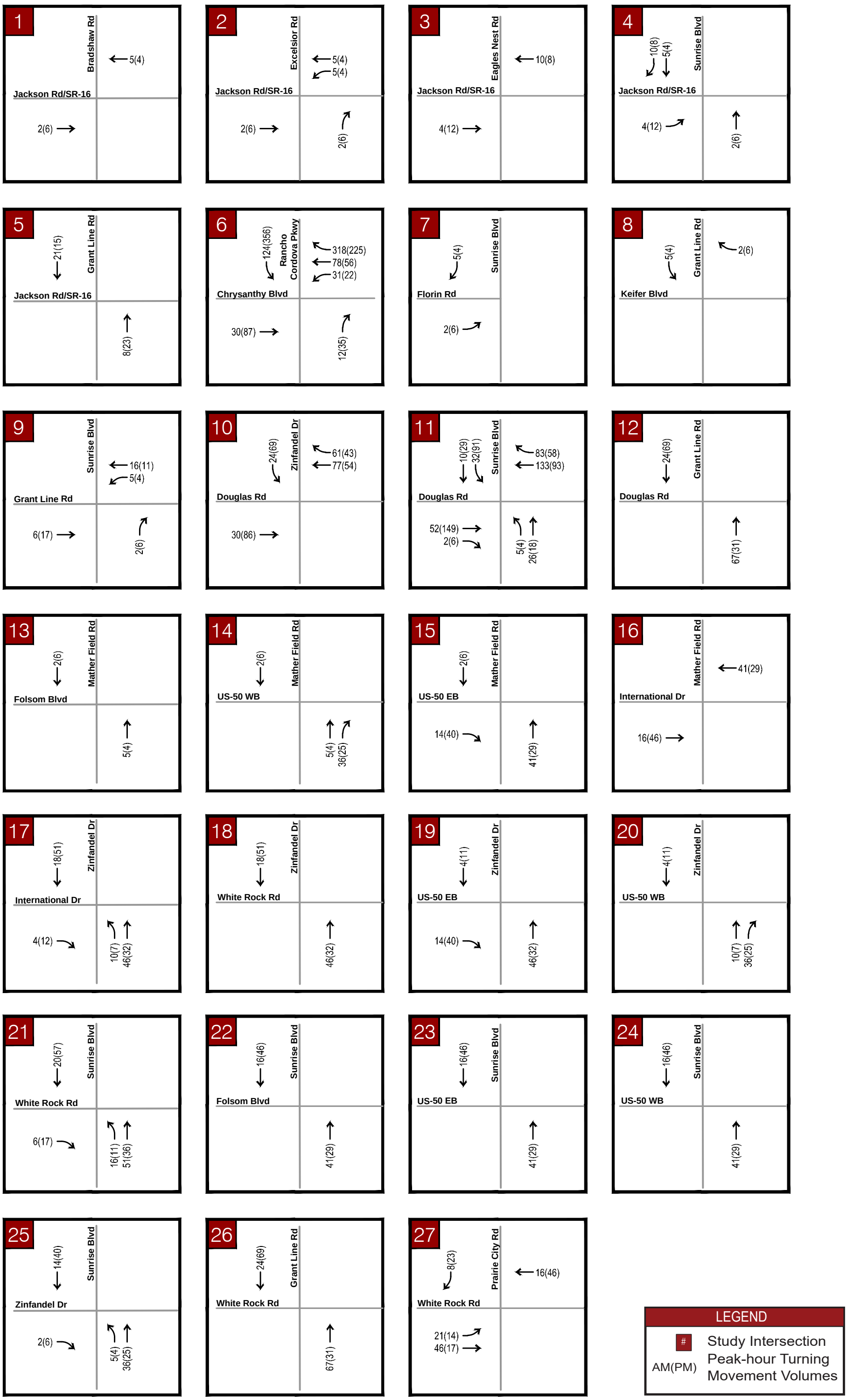
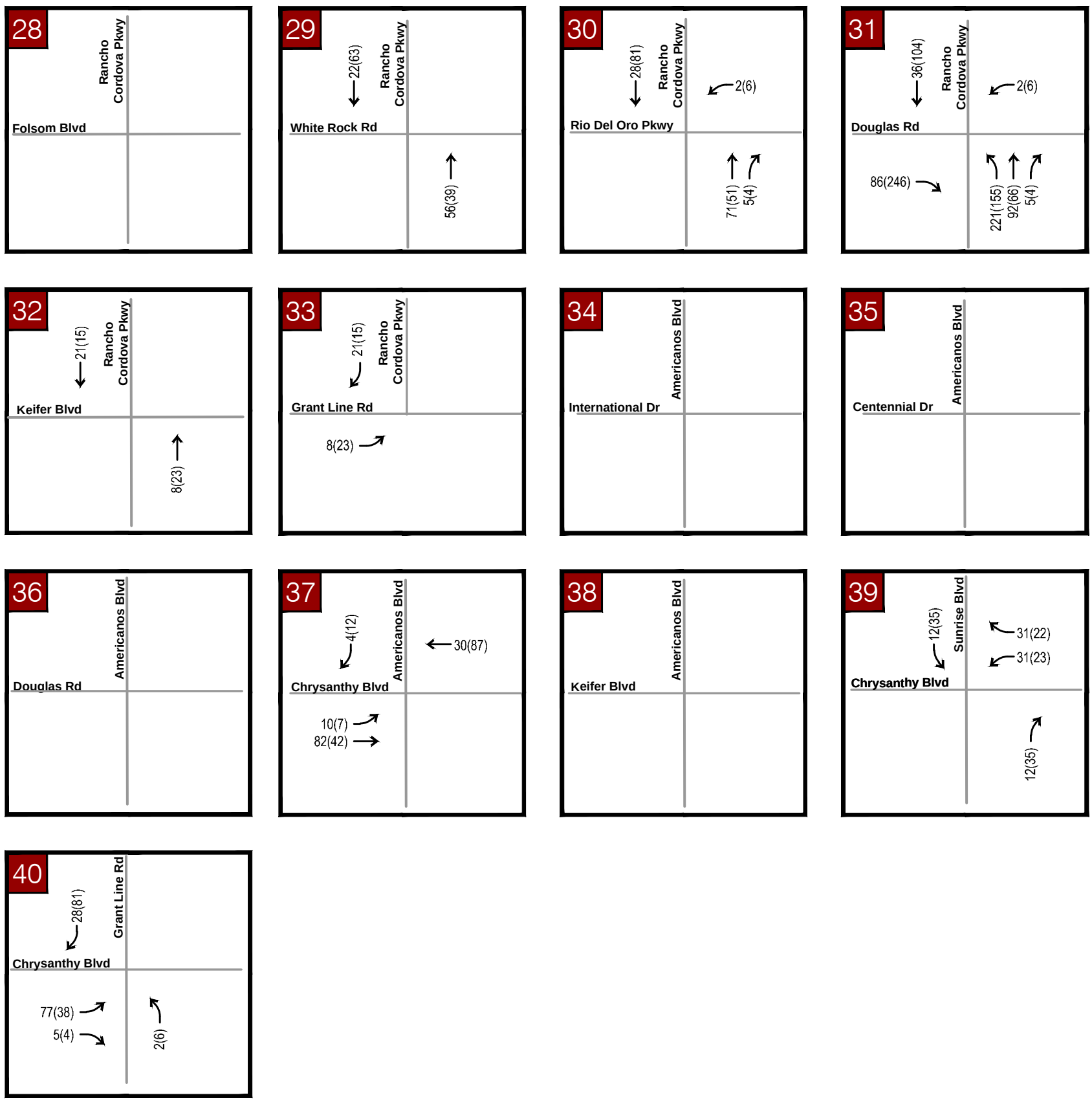


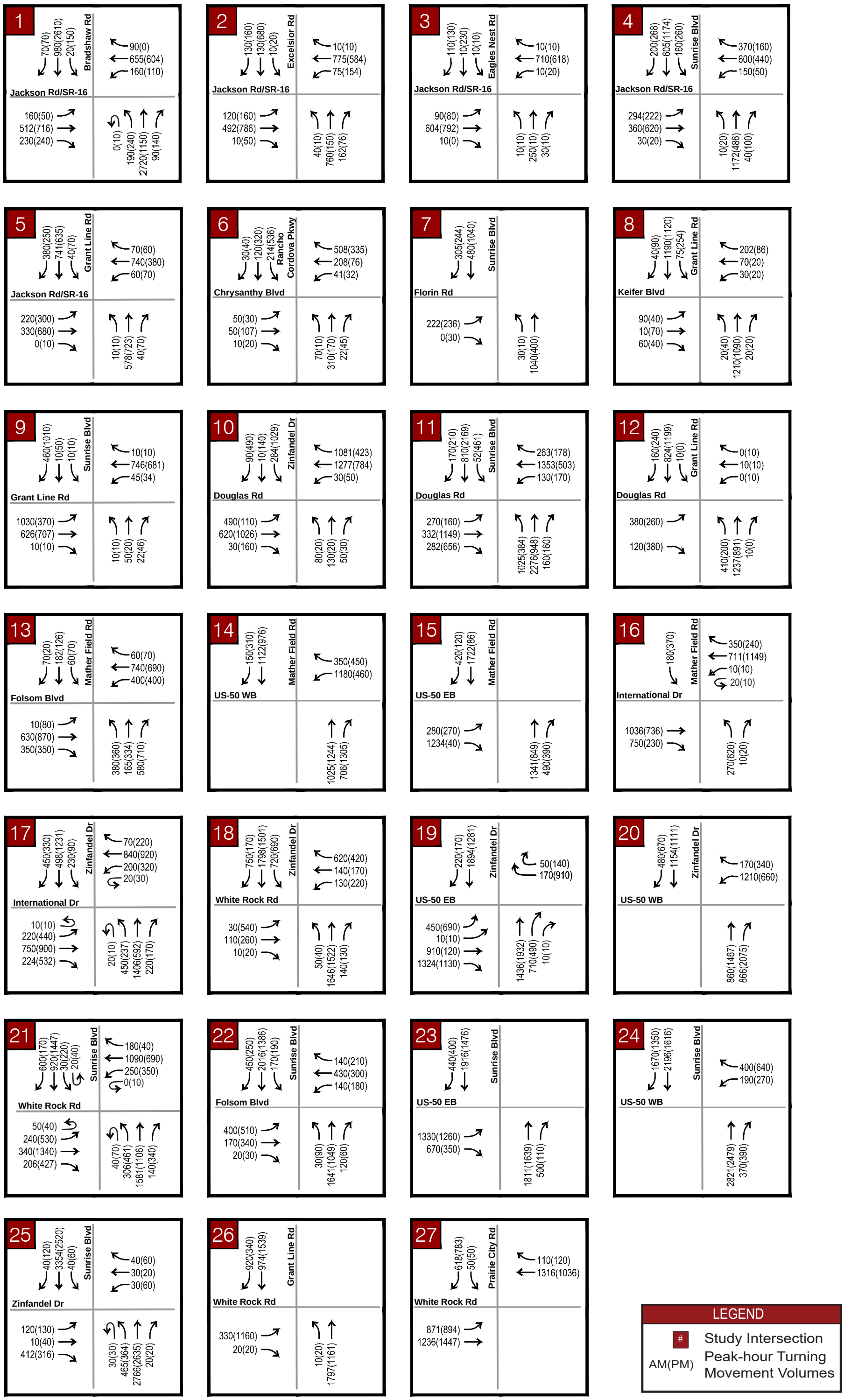
Figure 12
Cumulative (2040) Project Trip Assignment



LEGEND	
#	Study Intersection
AM(PM)	Peak-hour Turning Movement Volumes

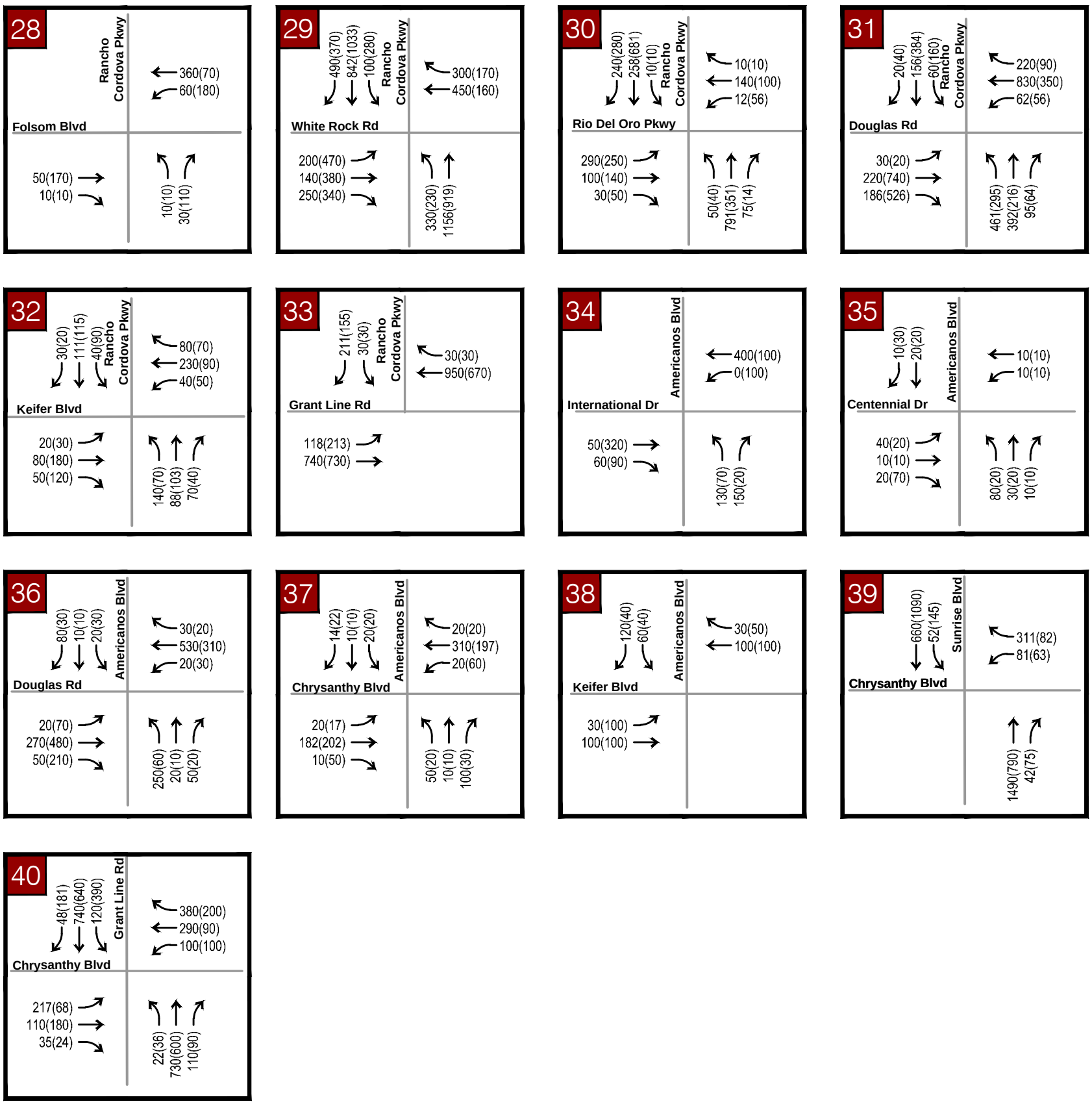
Kimley»Horn

Figure 12b
Cumulative (2040) Project Trip Assignment (Continued)



Kimley»Horn

Figure 13
Cumulative (2040) Plus Project Traffic Volumes



LEGEND	
#	Study Intersection
AM(PM)	Peak-hour Turning Movement Volumes

Kimley»Horn

Figure 13b
Cumulative (2040) Plus Project Traffic Volumes (Continued)

IMPACTS AND MITIGATION

Regulatory Setting and Thresholds of Significance

Sacramento County

The Circulation Element of the latest County of Sacramento General Plan[6] includes the following relevant provisions:

> *CI-9. Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or mitigation measures that would achieve LOS D on rural roadways or LOS E on urban roadways. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.*
>
> *CI-35. The applicant/developer of land development projects shall be responsible to install bicycle and pedestrian facilities in accordance with Sacramento County Improvement Standards and may be responsible to participate in the fair share funding of regional multi-use trails identified in the Sacramento County Bicycle Master Plan.*

Sacramento County's traffic study guidelines[1] provide guidelines for the implementation of the General Plan provisions: "The County defines the minimum acceptable operation level for its roadways and intersections to be LOS D for rural areas and LOS E for urban areas. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural."

All of the Sacramento County study facilities are within the Urban Services Boundary. Therefore, LOS E is the minimum acceptable LOS for all County facilities.

Thresholds of Significance

Roadways/Signalized Intersections: A project is considered to have a significant effect if it would:

- result in a roadway or a signalized intersection operating at an acceptable LOS to deteriorate to an unacceptable LOS; or
- increase the V/C ratio by more than 0.05 at a roadway or at a signalized intersection that is operating at an unacceptable LOS without the project.

Unsignalized Intersections: A project is considered to have a significant effect if it would:

- result in an unsignalized intersection movement/approach operating at an acceptable LOS to deteriorate to an unacceptable LOS, and also cause the intersection to meet a traffic signal warrant; or
- for an unsignalized intersection that meets a signal warrant, increase the delay by more than 5 seconds at a movement/approach that is operating at an unacceptable LOS without the project.

[6] *Sacramento County General Plan of 2005-2030,* Sacramento County Community Planning & Development Department, November 9, 2011.

City of Rancho Cordova

The Circulation Element of the City of Rancho Cordova's General Plan 2030 includes the following relevant provisions:

> *Policy C.1.2 - Seek to maintain operations on all roadways and intersections at Level of Service D or better at all times, including peak travel times, unless maintaining this Level of Service would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. Congestion in excess of Level of Service D may be accepted in these cases, provided that provisions are made to improve traffic flow and/or promote non-vehicular transportation as part of a development project or a City-initiated project. Please see Policy C.1.3 for additional policy guidance related to this issue.*
>
> *Examples of system improvements which may be accepted when Level of Service D cannot be maintained include the following, where the improvement or funding is in excess of standard City requirements:*
> *• Development of on- or off-street bicycle or pedestrian circulation (not including sidewalks that are constructed as part of roadway improvements);*
> *• Providing or funding public transportation facilities or services;*
> *• Other features as determined appropriate by the City.*
>
> *Policy C.1.3 - Recognize that regional traffic beyond the City's control, as well as circulation system decisions made prior to incorporation or by other agencies, will make it infeasible to achieve the City's desired Level of Service on all roadways. Subject development projects which affect these roadways to the provisions of Policy C.1.2 to provide offsetting improvements to the vehicular and/or non-vehicular transportation system.*

Impacts and Mitigation

Existing (2017) plus Proposed Project Conditions

As reflected in Table 6 and Table 7, the addition of the proposed project results in five (5) significant impacts. Analysis worksheets for the mitigations for this scenario are provided in Appendix F. The following is a discussion of each impact and its associated mitigation.

Intersection Impacts:

I1. Intersection #3, Jackson Road @Eagles Nest Road
As shown in Table 6, this intersection operates at unacceptable LOS F during the AM and PM peak-hours without the project, and the project adds more than 5 seconds of delay to the northbound left turn movement during the AM and PM peak-hours. ***This is a significant impact***.

I2. Intersection #9, Grant Line Road @ Sunrise Boulevard
As shown in Table 6, this intersection operates at unacceptable LOS F during the AM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection. ***This is a significant impact***.

I3. Intersection #11, Douglas Road @ Sunrise Boulevard
As shown in Table 6, this intersection operates at LOS D during the PM peak-hour without the project, and the project results in LOS E. ***This is a significant impact***.

I4. Intersection #25, Sunrise Boulevard @ Zinfandel Drive
As shown in Table 6, this intersection operates at unacceptable LOS E during the PM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection. ***This is a significant impact***.

Roadway Segment Impacts:

I5. Roadway Segment #22, Sunrise Boulevard between US-50 and Folsom Boulevard
As shown in Table 7, this roadway segment operates at unacceptable LOS E without the project and the project increases the volume-to-capacity ratio by more than 0.05. ***This is a significant impact.***

Mitigations:

M1. Intersection #3, Jackson Road and Eagles Nest Road
The significant impact at this intersection during the AM and PM peak-hours can be mitigated by converting the intersection from side street stop controlled to signalized. As shown in Table 12, with this mitigation the intersection operates at LOS B during the AM and PM peak-hours. Therefore, ***this impact is less than significant***. However, the identified improvement falls under the jurisdiction of the County; therefore, neither the City nor the project applicant would have control over their timing or implementation. Thus, this impact would remain ***significant and unavoidable***. If the County allows the improvement to move forward, the impact would be classified as significant in the short term but eventually would be reduced to a less-than-significant level in the long term.

M2. Intersection #9, Grant Line Road @ Sunrise Boulevard
The significant impact at this intersection during the AM peak-hour can be mitigated by changing the southbound approach to include a right turn lane and an all-purpose lane. This mitigation includes restriping the southbound approach to move the bicycle lane from its existing location between the two travel lanes to the right shoulder and add hatching for the right turns, consistent with the Optional Through Right and Right-Turn-Only lane configuration included in Figure 9C-4a (CA) of the CaMUTCD[7]. As shown in Table 12, this mitigation measure results in the intersection operating at LOS D or better during the AM and PM peak-hours. Therefore, ***this impact is less than significant***. However, the identified improvement falls under the jurisdiction of the County; therefore, neither the City nor the project applicant would have control over their timing or implementation. Thus, this impact would remain ***significant and unavoidable***. If the County allows the improvement to move forward, the impact would be classified as significant in the short term but eventually would be reduced to a less-than-significant level in the long term.

M3. Intersection #11, Douglas Road @ Sunrise Boulevard
The significant impact at this intersection during the PM peak-hour can be mitigated through signal timing optimization and the addition of a right-turn overlap signal phase for the eastbound right-turn, overlapping with the northbound left-turn movement. As shown in Table 12, this mitigation measure results in the intersection operating at LOS D or better during the AM and PM peak-hours. Therefore, ***this impact is less than significant***.

[7] California MUTCD 2014 Edition. Chapter 9C-Markings: Part 9 Traffic Control for Bicycle Facilities. November 2014

M4. Intersection #25, Sunrise Boulevard @ Zinfandel Drive
The significant impact at this intersection during the PM peak-hour can be mitigated by restriping the eastbound and westbound approaches to include a left turn lane and through-right lane. As shown in Table 12, this mitigation measure results in the intersection operating at LOS D or better during the AM and PM peak-hours. Therefore, ***this impact is less than significant***

M5. Roadway Segment #22, Sunrise Boulevard between US-50 and Folsom Boulevard
This roadway segment is an existing deficiency and is currently has the maximum number of lanes for the General Plan designation. Therefore, there is no feasible construction mitigation and until an alternative mitigation is identified, ***this impact is significant and unavoidable.***

Table 12 – Intersection Levels of Service – Existing (2017) plus Proposed Project Mitigated Conditions

#	Intersection	Existing Plus Project				Existing Plus Project Mitigated			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
3	Jackson Rd/SR-16 @ Eagles Nest Rd	**18.1 (95.3 NB)**	**F**	**18.9 (*ECL NB)**	**F**	19.5	B	15.7	B
9	Grant Line Rd @ Sunrise Blvd	**122.2**	**F**	55	D	37.6	D	25.4	C
11	Douglas Rd @ Sunrise Blvd	34.4	C	**59.3**	**E**	34.0	C	48.9	D
25	Sunrise Blvd @ Zinfandel Dr	117.2	F	**68**	**E**	88.7	F	50.9	D

Cumulative plus Proposed Project Conditions

As reflected in Table 10 and Table 11, the addition of the proposed project results in five (5) significant impacts. Analysis worksheets for the mitigations for this scenario are provided in Appendix F. The following is a discussion of each impact and its associated mitigation.

Intersection Impacts:

I6. Intersection #10, Douglas Road @ Zinfandel Drive
As shown in Table 10, this intersection operates at unacceptable LOS F during the AM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection during the AM peak-hour. ***This is a significant impact***.

I7. Intersection #11, Douglas Road @ Sunrise Boulevard
As shown in Table 10, this intersection operates at unacceptable LOS F during the AM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection during the AM peak-hour. ***This is a significant impact***.

I8. Intersection #27, White Rock Road @Prairie City Road
As shown in Table 10, this intersection operates at unacceptable LOS F during the AM and PM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection during the PM peak-hour. ***This is a significant impact***.

Roadway Segment Impacts:

I9. Roadway Segment #24, Sunrise Boulevard between White Rock Road and Douglas Road
As shown in Table 11, this roadway segment operates at unacceptable LOS E during without the project, and the project increases the volume to capacity ration by more than 0.05. ***This is a significant impact***.

Mitigations:

M6. Intersection #10, Douglas Road @ Zinfandel Drive

The significant impact at this intersection during the AM peak-hour can mitigated by the conversion of the westbound right turn from permitted to a free right turn with a receiving lane. As shown in Table 13, this mitigation measure results in the intersection operating at LOS D during the AM and PM peak-hours. Therefore, ***this impact is less than significant***. However, the identified improvement falls under the jurisdiction of the County; therefore, neither the City nor the project applicant would have control over their timing or implementation. Thus, this impact would remain ***significant and unavoidable***. If the County allows the improvement to move forward, the impact would be classified as significant in the short term but eventually would be reduced to a less-than-significant level in the long term.

M7. Intersection #11, Douglas Road @ Sunrise Boulevard

The significant impact at this intersection during the AM peak-hour cannot be feasibly mitigated. The intersection of Douglas Road and Sunrise Boulevard is fully built out according to the City's General Plan. As shown in Table 13, signal timing optimization is not enough to mitigate the project impacts to acceptable conditions. Therefore, ***this impact is significant and unavoidable***. However, as described in the Rio Del Oro Specific Plan DEIR/DEIS[8], there is potential to improve conditions through additional connectivity along Sunrise Boulevard and further build out of the City's General Plan network.

M8. Intersection #27, White Rock Road @ Prairie City Road

The significant impact at this intersection during the PM peak-hour can be mitigated with the addition of a second southbound right-turn lane and the addition of a right-turn overlap signal phase for the southbound right-turn. As shown in Table 13, this mitigation measure results in the intersection operating at LOS D during the AM and PM peak-hours. Therefore, ***this impact is less than significant***.

M9. Roadway Segment #24, Sunrise Boulevard between White Rock Road and Douglas Road

This roadway segment operates unacceptably without the project and is currently has the maximum number of lanes for the General Plan designation. Therefore, there is no feasible construction mitigation and the City will need to designate an alternative mitigation. Until that alternative mitigation is identified, ***this impact is significant and unavoidable.*** However, as described in the Rio Del Oro Specific Plan DEIR/DEIS[8], there is potential to improve conditions through additional connectivity along Sunrise Boulevard and further build out of the City's General Plan network.

Table 13 – Intersection Levels of Service – Cumulative plus Proposed Project Mitigated Conditions

#	Intersection	Cummulative Plus Project				Cummulative Plus Project Mitigated			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
10	Douglas Rd @ Zinfandel Dr	**159.4**	**F**	43.8	D	50.0	D	43.0	D
11	Douglas Rd @ Sunrise Blvd	**112.3**	**F**	**109.3**	**F**	**93.4**	**F**	**108.2**	**F**
27	White Rock Rd @ Prairie City Rd	**144.1**	**F**	**169.7**	**F**	36.3	D	36.2	D

[8] Rio del Oro Specific Plan Project DEIR/DEIS. City of Rancho Cordova and USACE. April, 2008

CONCLUSIONS

Significant findings of this study include:

- The proposed project is estimated to generate 10,266 new daily trips, with 721 new trips occurring during the AM peak-hour, and 934 new trips occurring during the PM peak-hour.
- The addition of the proposed project to the Existing (2017) Conditions results in a significant impact at four (4) study intersections and one (1) roadway segment. With the application of mitigation measures recommended herein, the impacts to intersections can be mitigated to be *less than significant*. The proposed project results in one significant impact to the roadway segments for Existing (2017) Conditions, as defined by the applicable jurisdictions.
- The addition of the proposed project to Cumulative (2040) Conditions results in a significant impact at three (3) intersections and two (2) roadway segments. Two of the impacts to intersections would be mitigated to less than significant. One location does not have a feasible mitigation. One of the impacts to the roadway segments would be mitigated to less than significant and the proposed project results in one significant impact to the roadway segments for Cumulative (2040) Conditions, as defined by the applicable jurisdictions.

Appendix A

Traffic Count Data Sheets

Prepared by National Data & Surveying Services

Bradshaw Rd & Jackson Rd/SR-16

Peak Hour Turning Movement Count

ID: 17-07693-001
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Bradshaw Rd — SOUTHBOUND

AM	294	643	61	8	2090	AM
NOON	0	0	0	0	0	NOON
PM	153	1711	198	4	1008	PM

Jackson Rd/SR-16 — EASTBOUND

AM	NOON	PM	
803	0	534	
0	0	0	0
311	0	168	0
249	0	421	0
90	0	198	0

Jackson Rd/SR-16 — WESTBOUND

PM	NOON	AM	
86	0	127	0
275	0	319	0
38	0	15	0
0	0	0	0
643	0	333	

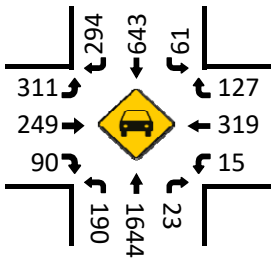
Bradshaw Rd — NORTHBOUND

PM	1958	11	106	750	24	PM
NOON	0	0	0	0	0	NOON
AM	749	1	190	1644	23	AM

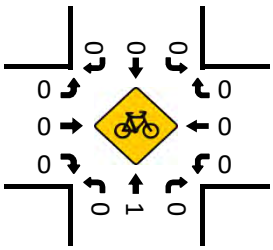
CONTROL

	0		
TEV	3975	0	4143
	AM	NOON	PM
PHF	0.98		0.98

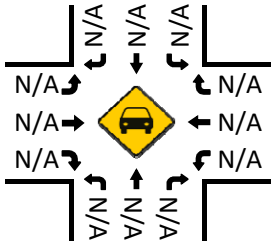
Total Vehicles (AM)



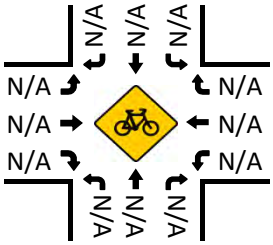
Bikes (AM)



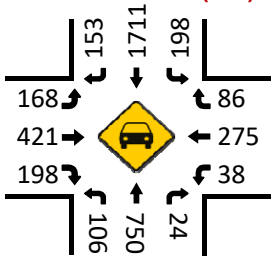
Total Vehicles (Noon)



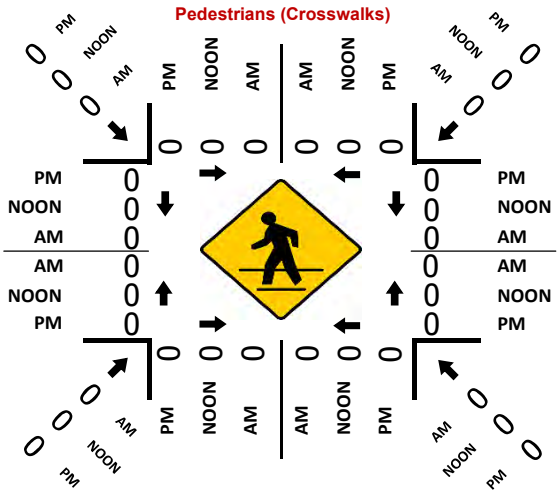
Bikes (NOON)



Total Vehicles (PM)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
0
0
0
0
0

Prepared by National Data & Surveying Services

Excelsior Rd & Jackson Rd/SR-16

Peak Hour Turning Movement Count

ID: 17-07693-002
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Excelsior Rd — SOUTHBOUND

AM	47	75	4	0	677	AM
NOON	0	0	0	0	0	NOON
PM	67	537	11	0	163	PM

Jackson Rd/SR-16 — EASTBOUND

AM	NOON	PM	
486	0	391	⇦
0	0	0	↶ 0
45	0	71	↱ 0
217	0	450	→ 0
21	0	78	↳ 0

Jackson Rd/SR-16 — WESTBOUND

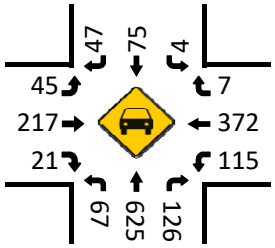
PM	NOON	AM	
5	0	7	0 ↰
295	0	372	0 ←
126	0	115	0 ↶
0	0	0	0 ↷
551	0	347	⇨

Excelsior Rd — NORTHBOUND

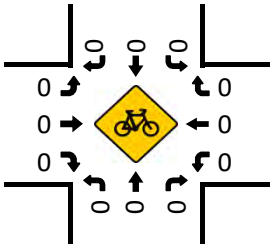
PM	741	0	29	87	90	PM
NOON	0	0	0	0	0	NOON
AM	211	0	67	625	126	AM

CONTROL			
	0		
TEV	1721 AM	0 NOON	1846 PM
PHF	0.95		0.94

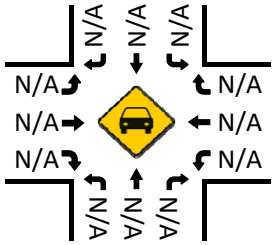
Total Vehicles (AM)



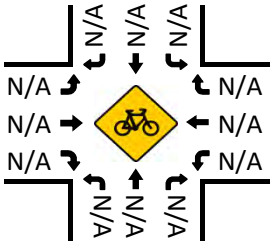
Bikes (AM)



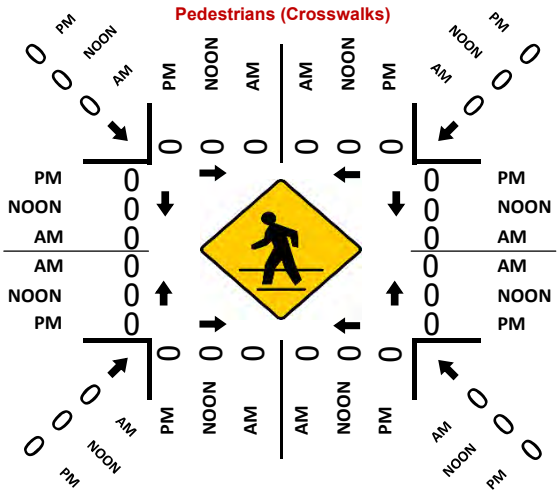
Total Vehicles (Noon)



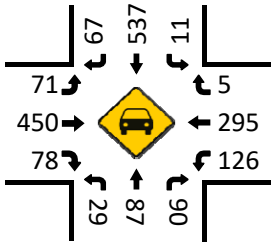
Bikes (NOON)



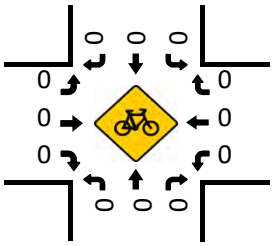
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Eagles Nest Rd & Jackson Rd/SR-16

Peak Hour Turning Movement Count

ID: 17-07693-003
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Eagles Nest Rd — SOUTHBOUND

AM	12	2	0	0	202	AM
NOON	0	0	0	0	0	NOON
PM	115	158	0	0	27	PM

Jackson Rd/SR-16 — EASTBOUND

AM	NOON	PM	
470	0	426	⇦
0	0	0	↶ 0
59	0	19	↱ 0
321	0	539	→ 0
4	0	0	↷ 0

Jackson Rd/SR-16 — WESTBOUND

	PM	NOON	AM
0 ↰	2	0	1
0 ←	307	0	449
0 ↶	15	0	5
0 ↷	0	0	0
⇨	540	0	352

CONTROL

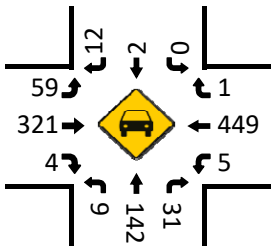
0

	AM	NOON	PM
TEV	1035	0	1166
PHF	0.92		0.96

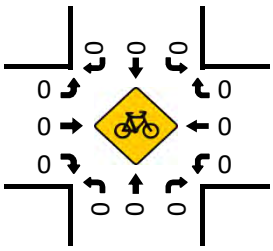
Eagles Nest Rd — NORTHBOUND

PM	173	0	4	6	1	PM
NOON	0	0	0	0	0	NOON
AM	11	0	9	142	31	AM

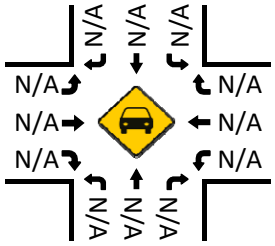
Total Vehicles (AM)



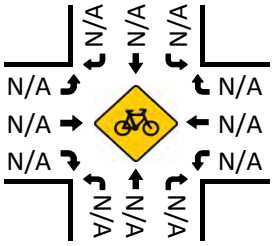
Bikes (AM)



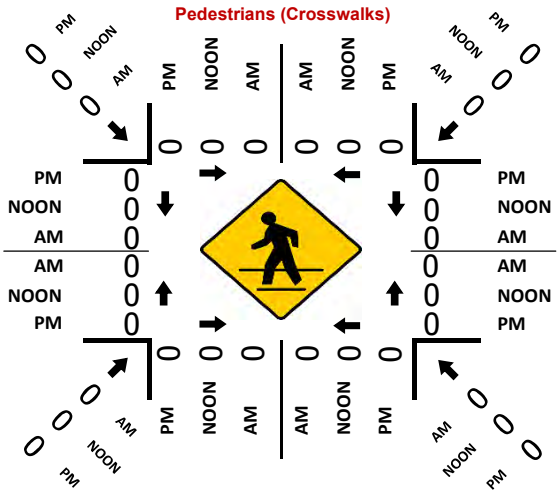
Total Vehicles (Noon)



Bikes (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
0
0
0
0
0
0
0

Prepared by National Data & Surveying Services

Sunrise Blvd & Jackson Rd/SR-16

Peak Hour Turning Movement Count

ID: 17-07693-004
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND — Sunrise Blvd

AM	104	408	126	0	1146	AM
NOON	0	0	0	0	0	NOON
PM	85	815	223	0	529	PM

EASTBOUND — Jackson Rd/SR-16

AM	NOON	PM
514	0	342
0	0	0
110	0	113
181	0	453
3	0	12

WESTBOUND — Jackson Rd/SR-16

PM	NOON	AM
131	0	291
250	0	403
28	0	21
0	0	0
699	0	323

NORTHBOUND — Sunrise Blvd

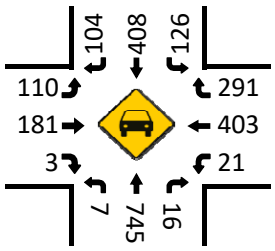
PM	855	0	7	285	23	PM
NOON	0	0	0	0	0	NOON
AM	432	0	7	745	16	AM

CONTROL

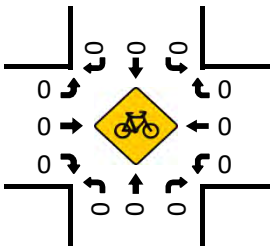
0

TEV	2415 AM	0 NOON	2425 PM
PHF	0.99		0.98

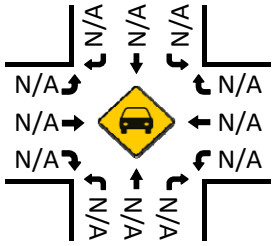
Total Vehicles (AM)



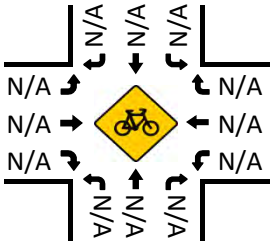
Bikes (AM)



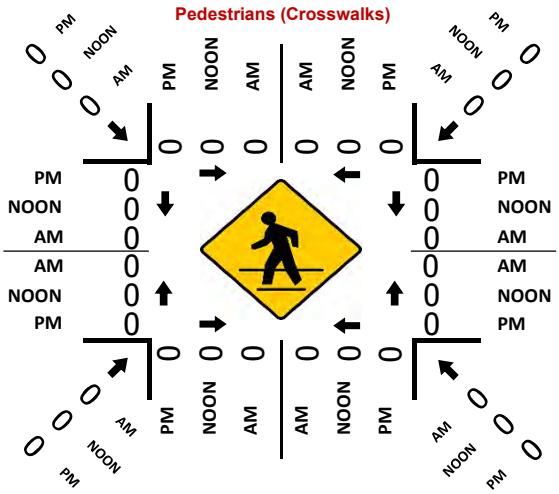
Total Vehicles (Noon)



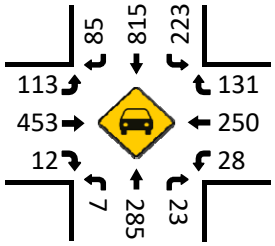
Bikes (NOON)



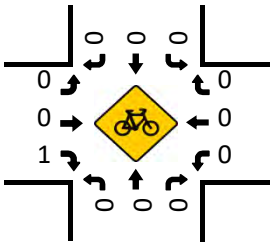
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Grant Line Rd & Jackson Rd/SR-16

Peak Hour Turning Movement Count

ID: 17-07693-005
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Grant Line Rd — SOUTHBOUND

AM	30	261	22	0	457	AM
NOON	0	0	0	0	0	NOON
PM	49	378	61	0	397	PM

Jackson Rd/SR-16 — EASTBOUND

AM	NOON	PM	
726	0	390	⇦
0	0	0	↶ 0
38	0	32	↱ 0
278	0	657	→ 0
0	0	3	↴ 0

Jackson Rd/SR-16 — WESTBOUND

PM	NOON	AM	
41	0	66	0 ↰
338	0	693	0 ←
53	0	66	0 ↶
1	0	0	0 ↶
786	0	325	⇨

Grant Line Rd — NORTHBOUND

PM	434	0	3	324	67	PM
NOON	0	0	0	0	0	NOON
AM	327	0	3	353	25	AM

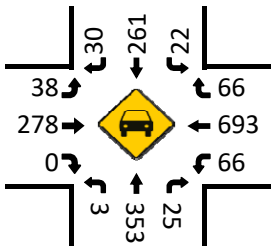
↴ 0	↶ 0	↑ 0	↱ 0	

CONTROL

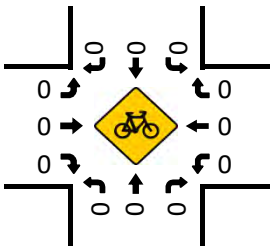
0

TEV	1835 AM	0 NOON	2007 PM
PHF	0.96		0.94

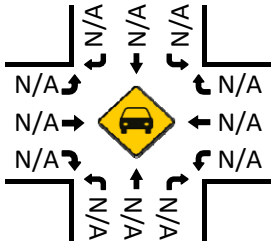
Total Vehicles (AM)



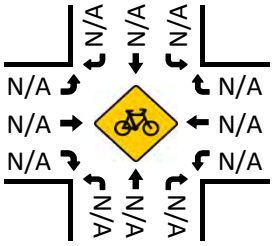
Bikes (AM)



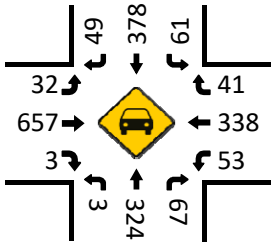
Total Vehicles (Noon)



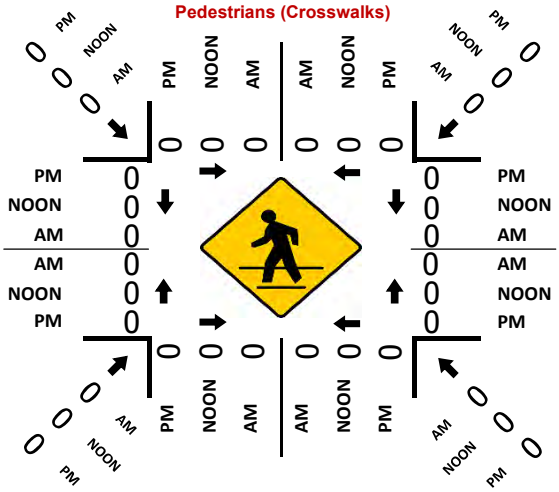
Bikes (NOON)



Total Vehicles (PM)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
0
0
0
0
0
0
0

Prepared by National Data & Surveying Services

Sunrise Blvd & Florin Rd

Peak Hour Turning Movement Count

ID: 17-07693-007
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Sunrise Blvd)

AM	116	322	0	0	808	AM
NOON	0	0	0	0	0	NOON
PM	141	754	0	0	333	PM

EASTBOUND (Florin Rd)

AM	NOON	PM
144	0	146
0	0	0
122	0	79
0	0	0
9	0	20

WESTBOUND (Florin Rd)

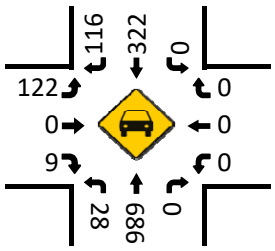
PM	NOON	AM
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

NORTHBOUND (Sunrise Blvd)

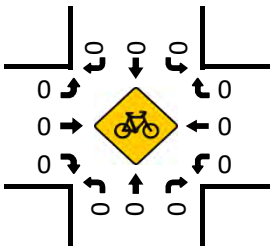
PM	774	0	5	254	0	PM
NOON	0	0	0	0	0	NOON
AM	331	0	28	686	0	AM

CONTROL			
	0		
TEV	1283	0	1253
	AM	NOON	PM
PHF	0.93		0.96

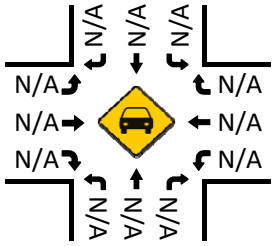
Total Vehicles (AM)



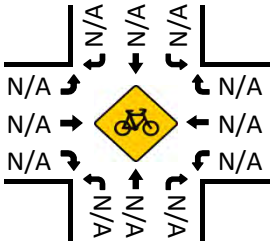
Bikes (AM)



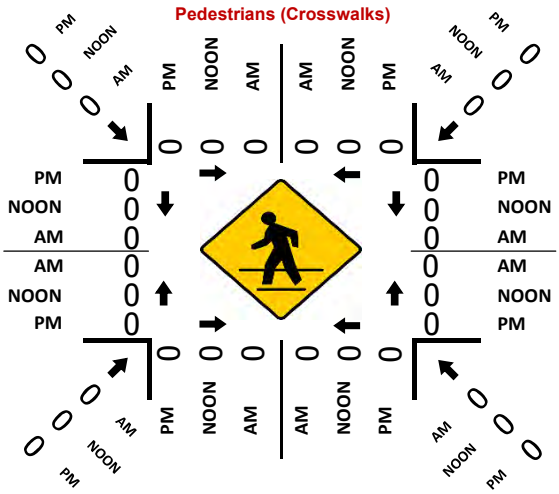
Total Vehicles (Noon)



Bikes (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
0
0
0
0
0
0
0

Prepared by National Data & Surveying Services

Grant Line Rd & Kiefer Blvd

Peak Hour Turning Movement Count

ID: 17-07693-008
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Grant Line Rd — SOUTHBOUND

AM	0	269	21	0	589	AM
NOON	0	0	0	0	0	NOON
PM	2	452	176	0	418	PM

Kiefer Blvd — EASTBOUND

AM	NOON	PM
1	0	2
0	0	0
0	0	3
0	0	2
0	0	0

Kiefer Blvd — WESTBOUND

PM	NOON	AM
31	0	126
0	0	1
14	0	13
0	0	0
182	0	39

CONTROL

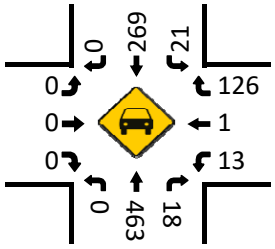
0

TEV	911 AM	0 NOON	1068 PM
PHF	0.97		0.90

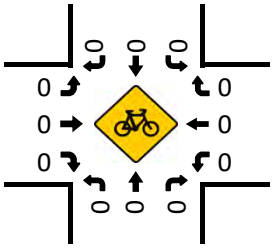
Grant Line Rd — NORTHBOUND

PM	466	0	0	384	4	PM
NOON	0	0	0	0	0	NOON
AM	282	0	0	463	18	AM

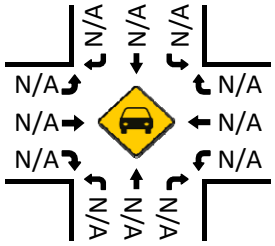
Total Vehicles (AM)



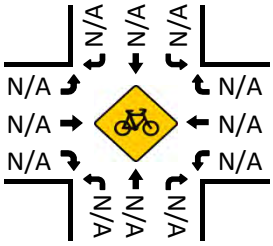
Bikes (AM)



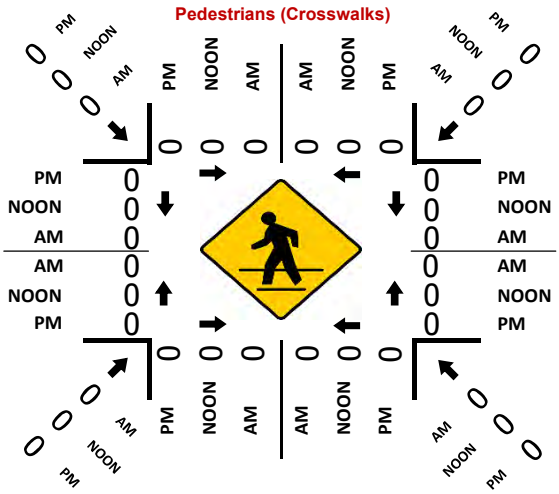
Total Vehicles (Noon)



Bikes (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
0
0
0
0
0
0
0

Prepared by National Data & Surveying Services

Sunrise Blvd & Grant Line Rd

Peak Hour Turning Movement Count

ID: 17-07693-009
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Sunrise Blvd)

AM	327	3	3	0	725	AM
NOON	0	0	0	0	0	NOON
PM	748	31	11	0	263	PM

EASTBOUND (Grant Line Rd)

AM	NOON	PM	
654	0	1198	⇦
0	0	0	↶ 0
686	0	245	↱ 0
403	0	352	→ 0
8	0	7	↴ 0

WESTBOUND (Grant Line Rd)

PM	NOON	AM	
9	0	8	0 ↰
443	0	320	0 ←
1	0	0	0 ↶
0	0	0	0 ↷
364	0	411	⇨

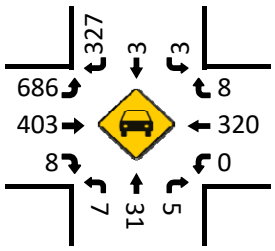
NORTHBOUND (Sunrise Blvd)

PM	39	0	7	9	1	PM
NOON	0	0	0	0	0	NOON
AM	11	0	7	31	5	AM

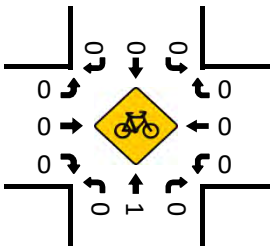
0 0 0 0 ↓ ↶ ↰ ↑ ↱

CONTROL			
	0		
TEV	1801	0	1864
	AM	NOON	PM
PHF	0.92		0.97

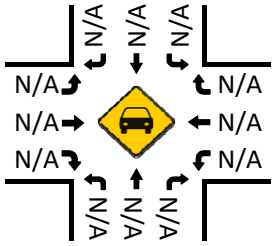
Total Vehicles (AM)



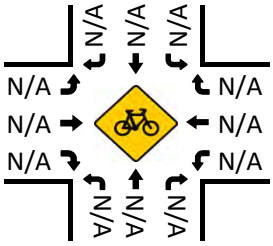
Bikes (AM)



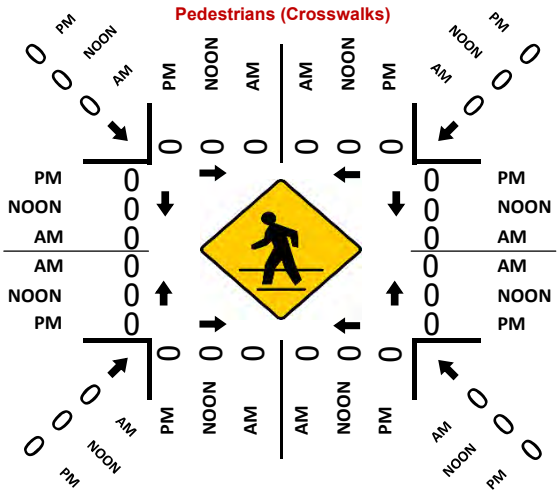
Total Vehicles (Noon)



Bikes (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
0
0
0
0

Prepared by National Data & Surveying Services

Zinfandel Dr & Douglas Rd

Peak Hour Turning Movement Count

ID: 17-07693-010
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Zinfandel Dr — SOUTHBOUND

AM	70	28	146	0	960	AM
NOON	0	0	0	0	0	NOON
PM	362	156	517	0	321	PM

Douglas Rd — EASTBOUND

AM	NOON	PM	
447	0	545	⇦
0	0	0	↶ 0
354	0	67	↱ 0
187	0	263	→ 0
14	0	18	↳ 0

Douglas Rd — WESTBOUND

	PM	NOON	AM
0 ↰	200	0	427
0 ←	178	0	370
0 ↰	58	0	29
0 ↶	0	0	1
⇨	809	0	381

Zinfandel Dr — NORTHBOUND

PM	232	0	5	54	29	PM
NOON	0	0	0	0	0	NOON
AM	71	0	7	179	47	AM

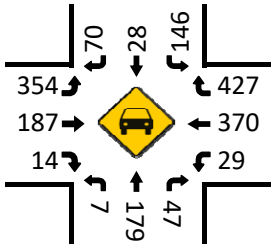
↶ 0	↰ 0	↑ 0	↱ 0	

CONTROL

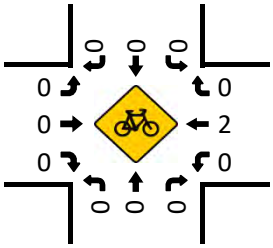
0

TEV	1859	0	1907
	AM	NOON	PM
PHF	0.94		0.93

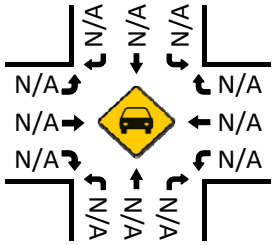
Total Vehicles (AM)



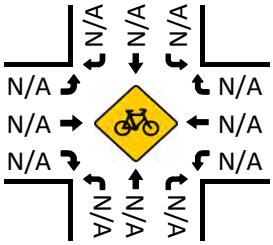
Bikes (AM)



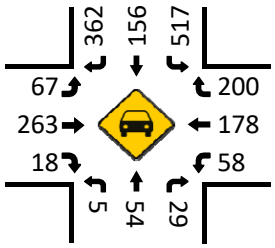
Total Vehicles (Noon)



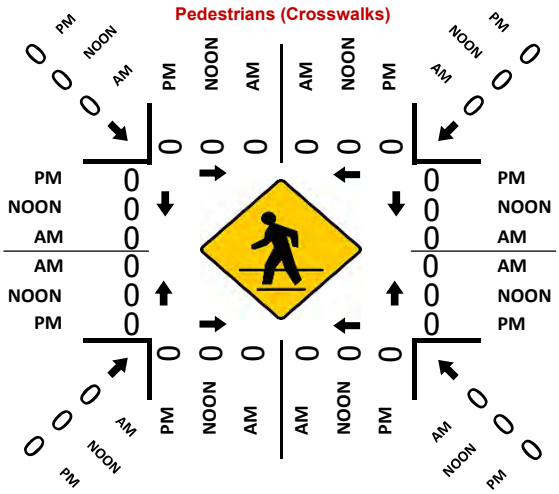
Bikes (NOON)



Total Vehicles (PM)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
0

Prepared by National Data & Surveying Services

Sunrise Blvd & Douglas Rd

Peak Hour Turning Movement Count

ID: 17-07693-011
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Sunrise Blvd — SOUTHBOUND

AM	66	477	64	3	1903	AM
NOON	0	0	0	0	0	NOON
PM	124	1586	243	3	708	PM

Douglas Rd — EASTBOUND

AM	NOON	PM
814	0	391
5	0	5
187	0	58
95	0	305
133	0	417
AM	NOON	PM

Douglas Rd — WESTBOUND

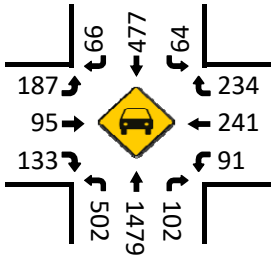
PM	NOON	AM
104	0	234
107	0	241
114	0	91
0	0	0
644	0	261
PM	NOON	AM

Sunrise Blvd — NORTHBOUND

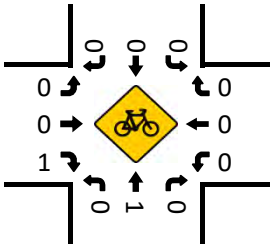
PM	2120	3	155	543	96	PM
NOON	0	0	0	0	0	NOON
AM	707	6	502	1479	102	AM

CONTROL			
0			
TEV	3685	0	3863
	AM	NOON	PM
PHF	0.97		0.96

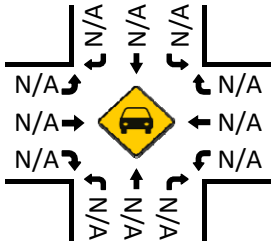
Total Vehicles (AM)



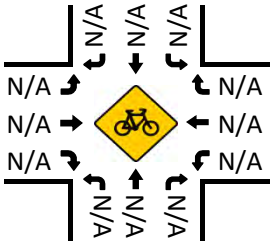
Bikes (AM)



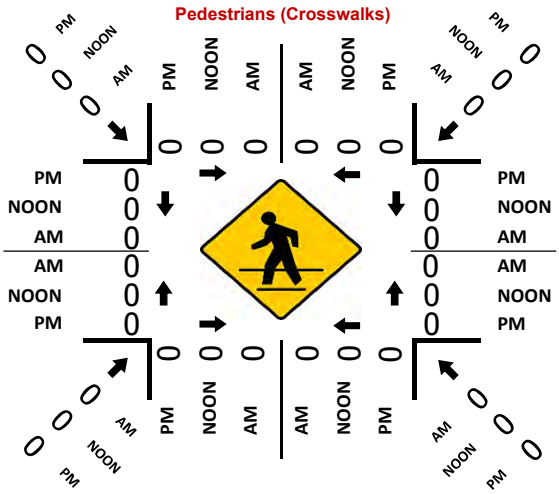
Total Vehicles (Noon)



Bikes (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
0
0
0

Prepared by National Data & Surveying Services

Grant Line Rd & Douglas Rd

Peak Hour Turning Movement Count

ID: 17-07693-012
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Grant Line Rd — SOUTHBOUND

AM	98	288	0	0	715	AM
NOON	0	0	0	0	0	NOON
PM	155	501	0	0	577	PM

Douglas Rd — EASTBOUND

AM	NOON	PM
206	0	192
0	0	0
228	0	174
0	0	0
21	0	120

Douglas Rd — WESTBOUND

PM	NOON	AM
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

CONTROL

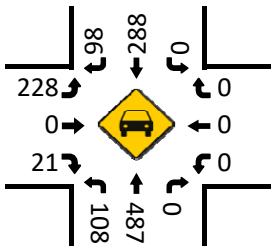
0

TEV	1230	0	1390
	AM	NOON	PM
PHF	0.96		0.88

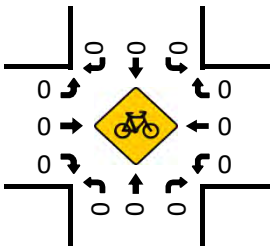
Grant Line Rd — NORTHBOUND

PM	621	0	37	403	0	PM
NOON	0	0	0	0	0	NOON
AM	309	0	108	487	0	AM

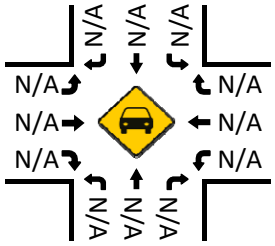
Total Vehicles (AM)



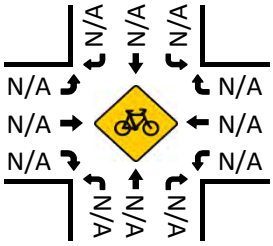
Bikes (AM)



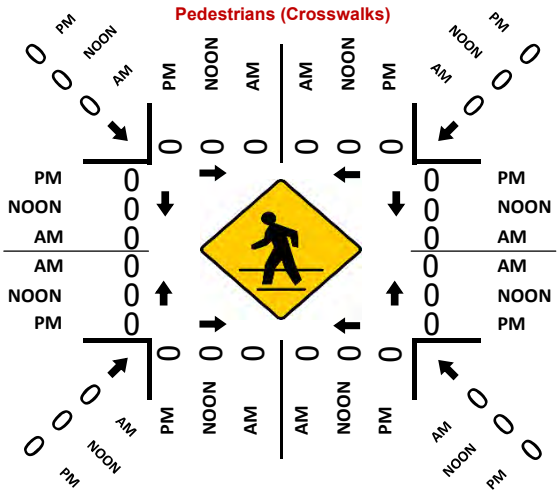
Total Vehicles (Noon)



Bikes (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
0
0
0
0
0
0
0

Prepared by National Data & Surveying Services

Mather Field Rd & Folsom Blvd

Peak Hour Turning Movement Count

ID: 17-07693-013
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Mather Field Rd — SOUTHBOUND

AM	22	74	6	0	138	AM
NOON	0	0	0	0	0	NOON
PM	18	54	18	0	214	PM

Folsom Blvd — EASTBOUND

AM	NOON	PM	
1006	0	859	⇦
2	0	2	↶ 0
12	0	20	↱ 0
468	0	907	→ 0
194	0	178	↳ 0

Folsom Blvd — WESTBOUND

	PM	NOON	AM
0 ↰	27	0	23
0 ←	659	0	749
0 ↶	392	0	478
0 ↶	1	0	0
⇨	1613	0	938

Mather Field Rd — NORTHBOUND

PM	624	0	180	167	687	PM
NOON	0	0	0	0	0	NOON
AM	746	0	233	103	464	AM

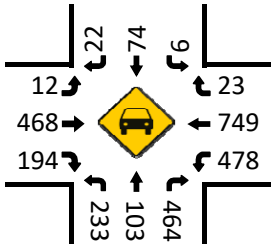
0 0 0 0 (turning movements)

CONTROL

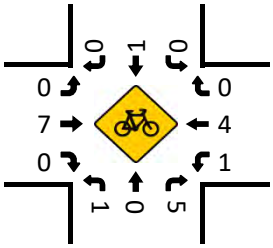
0

	AM	NOON	PM
TEV	2828	0	3310
PHF	0.93		0.98

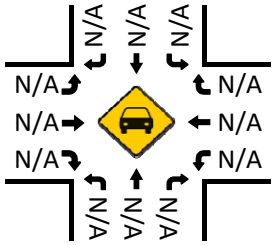
Total Vehicles (AM)



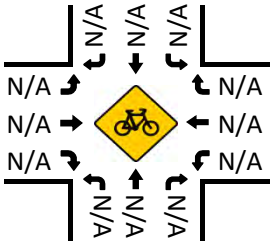
Bikes (AM)



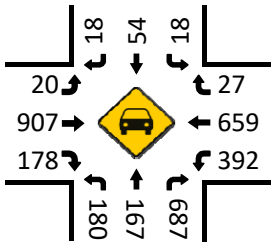
Total Vehicles (Noon)



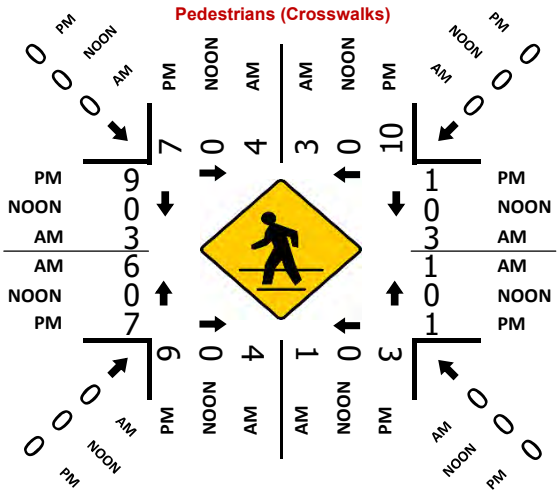
Bikes (NOON)



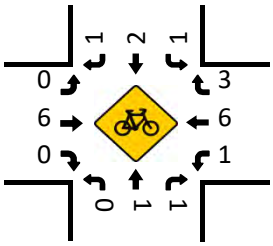
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



Prepared by National Data & Surveying Services

Mather Field Rd & US-50 WB Ramps

Peak Hour Turning Movement Count

ID: 17-07693-014
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Mather Field Rd — SOUTHBOUND

AM	278	722	0	0	1044	AM
NOON	0	0	0	0	0	NOON
PM	326	562	0	0	1408	PM

US-50 WB Ramps — EASTBOUND

AM	NOON	PM
278	0	326
0	0	0
0	0	0
0	0	0
0	0	0
AM	NOON	PM

US-50 WB Ramps — WESTBOUND

PM	NOON	AM
310	0	300
0	0	0
343	0	996
0	0	0
1055	0	523
PM	NOON	AM

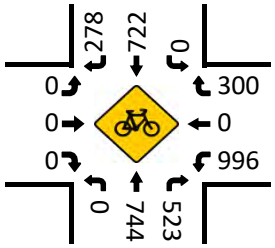
CONTROL

	0		
TEV	3565	0	3694
	AM	NOON	PM
PHF	0.90		0.96

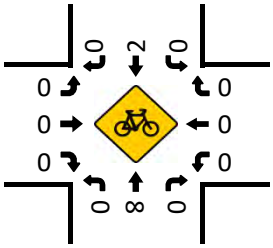
Mather Field Rd — NORTHBOUND

PM	905	0	0	1098	1055	PM
NOON	0	0	0	0	0	NOON
AM	1720	2	0	744	523	AM

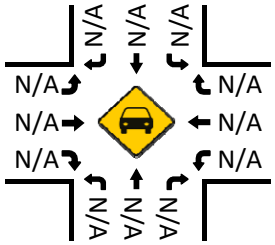
Total Vehicles (AM)



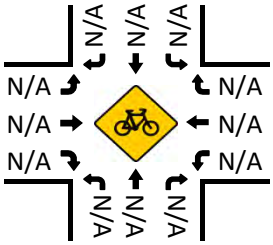
Bikes (AM)



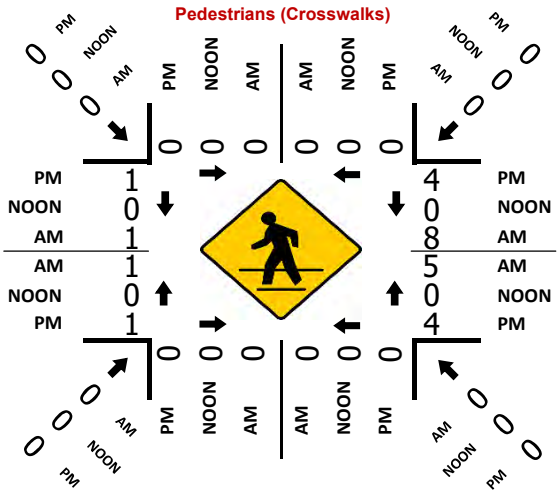
Total Vehicles (Noon)



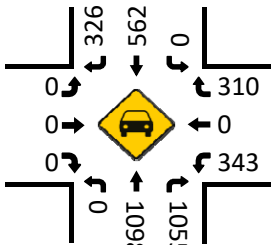
Bikes (NOON)



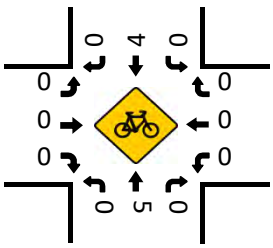
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Mather Field Rd & US-50 EB Ramps

Peak Hour Turning Movement Count

ID: 17-07693-015
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Mather Field Rd — SOUTHBOUND

AM	273	1471	0	1	1237	AM
NOON	0	0	0	0	0	NOON
PM	215	658	0	1	2054	PM

US-50 EB Ramps — EASTBOUND

AM	NOON	PM	
273	0	215	⇦
0	0	0	↶ 0
250	0	534	↱ 0
0	0	0	→ 0
1094	0	608	↳ 0
AM	NOON	PM	

US-50 EB Ramps — WESTBOUND

PM	NOON	AM	
0	0	0	0 ↰
0	0	0	0 ←
0	0	0	0 ↶
0	0	0	0 ↷
828	0	324	⇨
PM	NOON	AM	

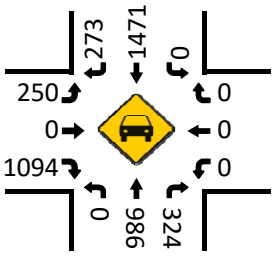
CONTROL

	0		
TEV	4399	0	4363
	AM	NOON	PM
PHF	0.92		0.95

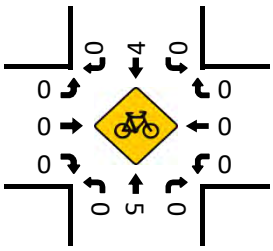
Mather Field Rd — NORTHBOUND

PM	1266	0	0	1519	828	PM
NOON	0	0	0	0	0	NOON
AM	2565	0	0	986	324	AM

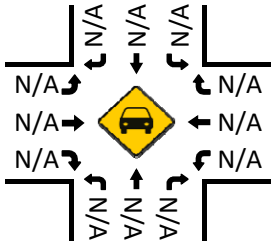
Total Vehicles (AM)



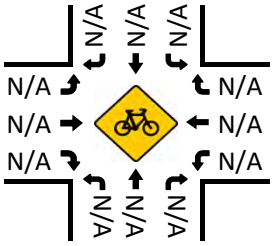
Bikes (AM)



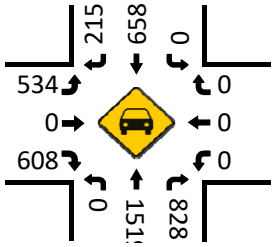
Total Vehicles (Noon)



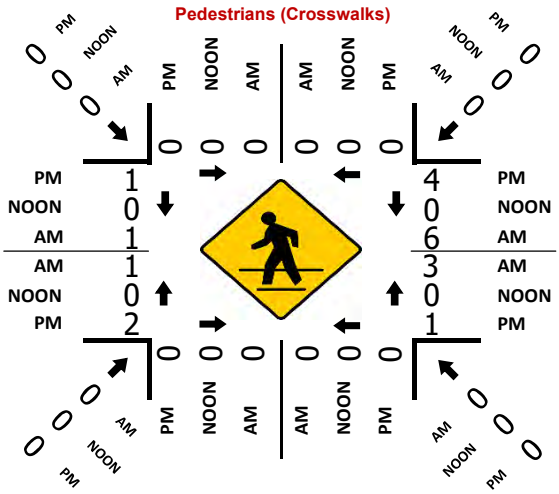
Bikes (NOON)



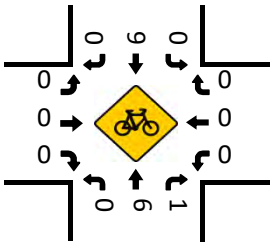
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



Prepared by National Data & Surveying Services

Mather Field Rd & International Dr

Peak Hour Turning Movement Count

ID: 17-07693-016
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

SOUTHBOUND — Mather Field Rd

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND — International Dr

AM	NOON	PM	
942	0	1738	⇦
0	0	0	↶ 0
0	0	0	↱ 0
1016	0	693	→ 0
745	0	234	↳ 0

WESTBOUND — International Dr

PM	NOON	AM	
0	0	0	0 ↰
1115	0	673	0 ←
142	0	85	0 ↲
7	0	18	0 ↺
802	0	1096	⇨

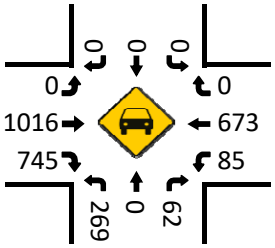
NORTHBOUND — Mather Field Rd

PM	376	0	623	0	102	PM
NOON	0	0	0	0	0	NOON
AM	830	0	269	0	62	AM

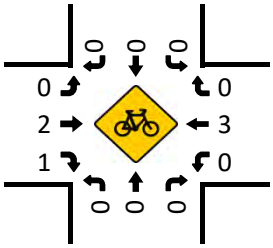
↶	↰	↑	↱	
0	0	0	0	

CONTROL			
0			
TEV	2868	0	2916
	AM	NOON	PM
PHF	0.94		0.89

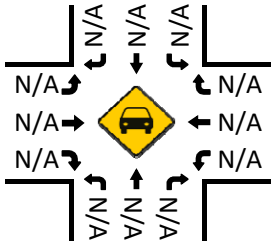
Total Vehicles (AM)



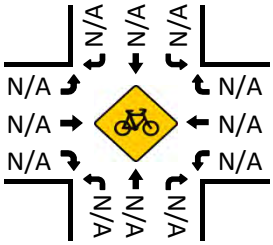
Bikes (AM)



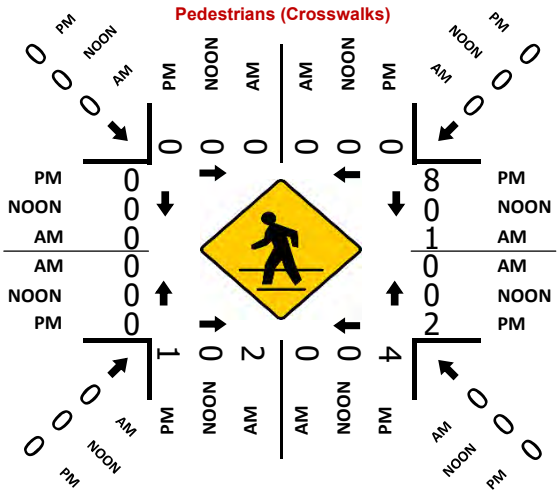
Total Vehicles (Noon)



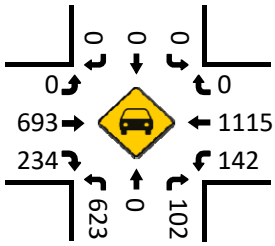
Bikes (NOON)



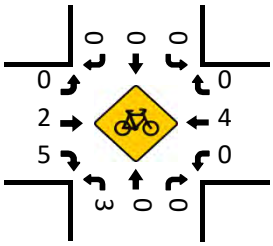
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Zinfandel Dr & International Dr

Peak Hour Turning Movement Count

ID: 17-07693-017
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Zinfandel Dr — SOUTHBOUND

AM	227	410	137	5	1095
NOON	0	0	0	0	0
PM	162	843	173	8	938

International Dr — EASTBOUND

AM	NOON	PM	
892	0	756	⇦
10	0	14	↶ 0
91	0	321	↱ 0
382	0	423	→ 0
96	0	253	↳ 0

International Dr — WESTBOUND

PM	NOON	AM	
149	0	98	0 ↰
468	0	364	0 ←
184	0	101	0 ↲
30	0	16	0 ↺
701	0	651	⇨

Zinfandel Dr — NORTHBOUND

PM	1294	14	112	460	75
NOON	0	0	0	0	0
AM	626	19	291	901	116

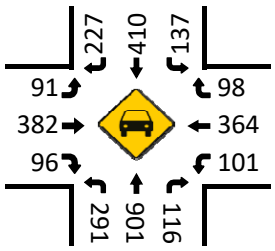
0 0 0 0 ⇩ ↰ ↰ ↑ ↱ 0 0 0 0

CONTROL

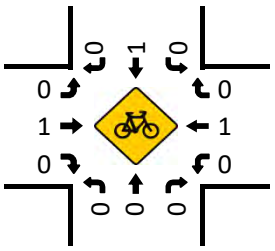
0

TEV	3264	0	3689
	AM	NOON	PM
PHF	0.95		0.96

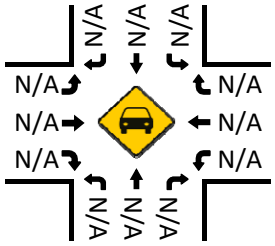
Total Vehicles (AM)



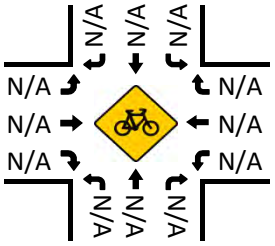
Bikes (AM)



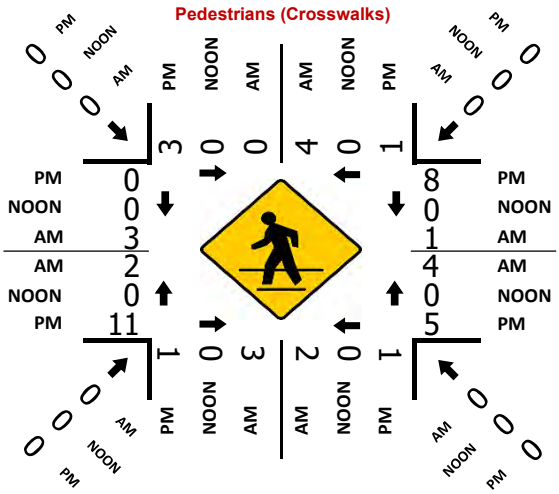
Total Vehicles (Noon)



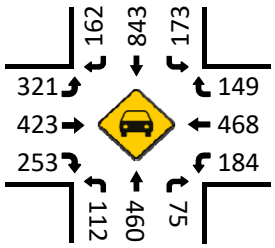
Bikes (NOON)



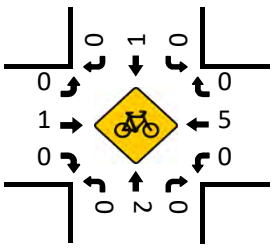
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Zinfandel Dr & White Rock Rd

Peak Hour Turning Movement Count

ID: 17-07693-018
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Zinfandel Dr — SOUTHBOUND

AM	696	1319	685	0	1424	AM
NOON	0	0	0	0	0	NOON
PM	237	995	337	0	2262	PM

White Rock Rd — EASTBOUND

AM	NOON	PM
868	0	455
3	0	1
219	0	476
95	0	230
10	0	22
AM	NOON	PM

White Rock Rd — WESTBOUND

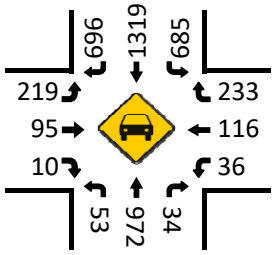
PM	NOON	AM
649	0	233
174	0	116
68	0	36
3	0	1
581	0	815
PM	NOON	AM

Zinfandel Dr — NORTHBOUND

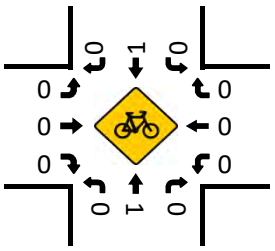
PM	1085	0	43	1137	11	PM
NOON	0	0	0	0	0	NOON
AM	1368	3	53	972	34	AM

CONTROL			
0			
TEV	4475	0	4383
	AM	NOON	PM
PHF	0.96		0.94

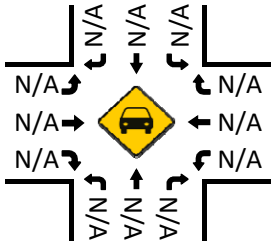
Total Vehicles (AM)



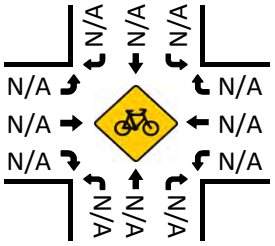
Bikes (AM)



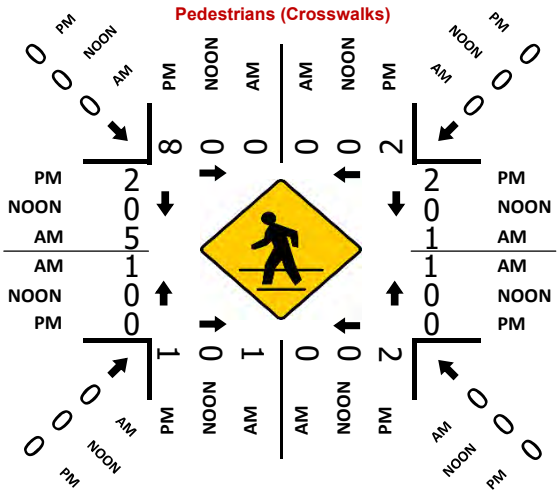
Total Vehicles (Noon)



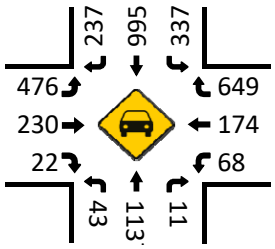
Bikes (NOON)



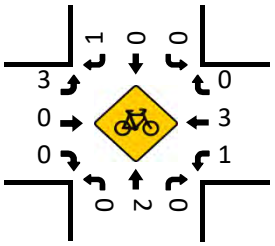
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Zinfandel Dr & US-50 EB Ramps

Peak Hour Turning Movement Count

ID: 17-07693-019
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Zinfandel Dr — SOUTHBOUND

AM	202	1582	0	0	1552	AM
NOON	0	0	0	0	0	NOON
PM	135	966	0	0	3340	PM

US-50 EB Ramps — EASTBOUND

AM	NOON	PM	
202	0	135	
0	0	0	0
345	0	658	0
913	0	120	0
1076	0	622	0
AM	NOON	PM	

US-50 EB Ramps — WESTBOUND

PM	NOON	AM	
870	0	132	0
0	0	0	0
0	0	0	0
0	0	0	0
124	0	924	
PM	NOON	AM	

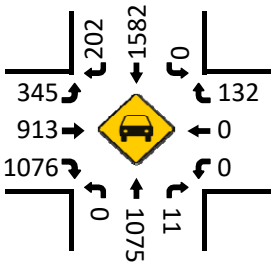
CONTROL

CONTROL			
	0		
TEV	5336	0	5187
	AM	NOON	PM
PHF	0.95		0.97

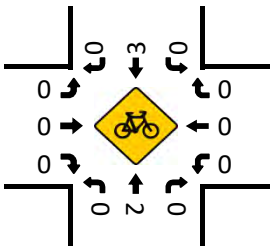
Zinfandel Dr — NORTHBOUND

PM	1588	0	0	1812	4	PM
NOON	0	0	0	0	0	NOON
AM	2658	0	0	1075	11	AM

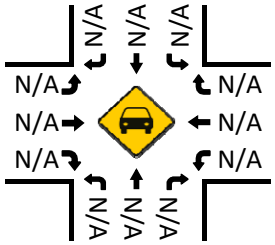
Total Vehicles (AM)



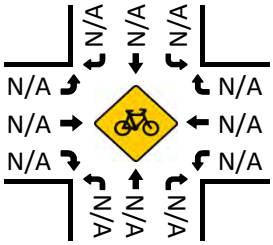
Bikes (AM)



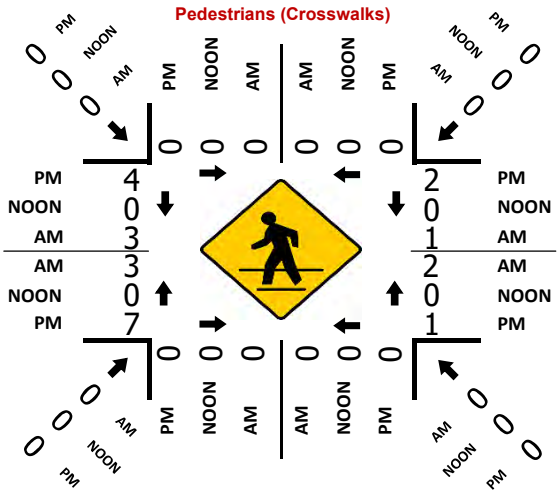
Total Vehicles (Noon)



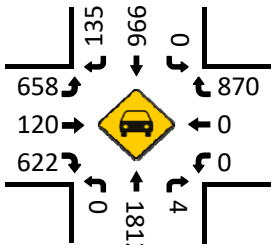
Bikes (NOON)



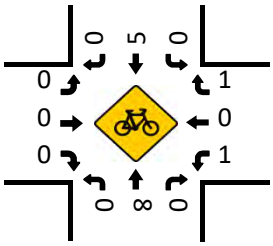
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Zinfandel Dr & US-50 WB Ramps

Peak Hour Turning Movement Count

ID: 17-07693-020
City: Sacramento

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Zinfandel Dr — SOUTHBOUND

AM	346	794	0	0	1073	AM
NOON	0	0	0	0	0	NOON
PM	500	710	0	0	1920	PM

US-50 WB Ramps — EASTBOUND

AM	NOON	PM
346	0	500
0	0	0
0	0	0
0	0	0
0	0	0
AM	NOON	PM

US-50 WB Ramps — WESTBOUND

PM	NOON	AM
293	0	161
0	0	0
398	0	1000
0	0	0
1720	0	637
PM	NOON	AM

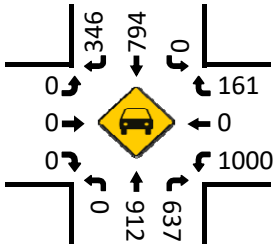
CONTROL

	0		
TEV	3850	0	5249
	AM	NOON	PM
PHF	0.97		0.98

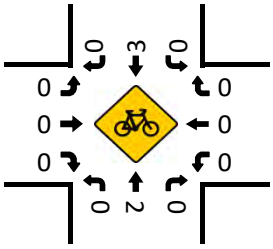
Zinfandel Dr — NORTHBOUND

PM	1109	1	0	1627	1720	PM
NOON	0	0	0	0	0	NOON
AM	1794	0	0	912	637	AM

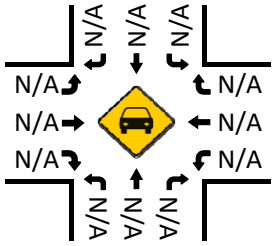
Total Vehicles (AM)



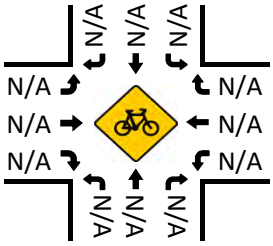
Bikes (AM)



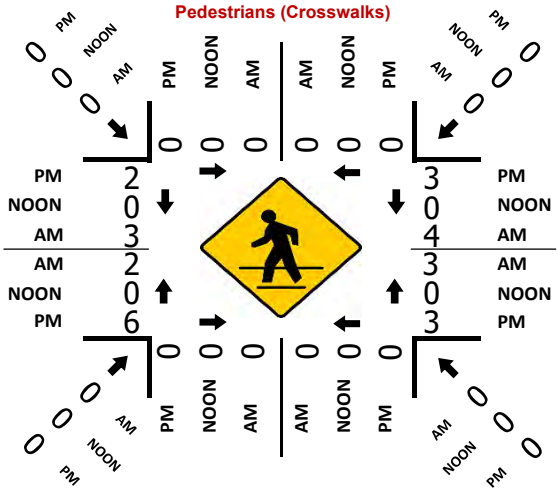
Total Vehicles (Noon)



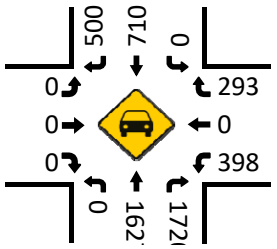
Bikes (NOON)



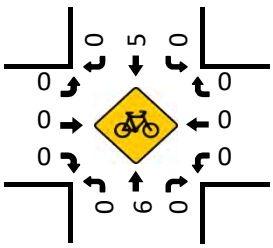
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Sunrise Blvd & White Rock Rd

Peak Hour Turning Movement Count

ID: 17-07693-021
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Sunrise Blvd)

AM	326	925	224	21	1470	AM
NOON	0	0	0	0	0	NOON
PM	132	1199	226	36	1367	PM

EASTBOUND (White Rock Rd)

AM	NOON	PM	
981	0	682	⇦
45	0	35	↶ 0
110	0	251	↱ 0
168	0	565	→ 0
78	0	245	↳ 0

WESTBOUND (White Rock Rd)

PM	NOON	AM	
213	0	139	0 ↰
297	0	301	0 ←
242	0	147	0 ↶
11	0	1	0 ↩
1014	0	498	⇨

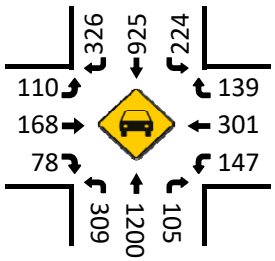
NORTHBOUND (Sunrise Blvd)

PM	1757	71	218	867	212	PM
NOON	0	0	0	0	0	NOON
AM	1192	42	309	1200	105	AM

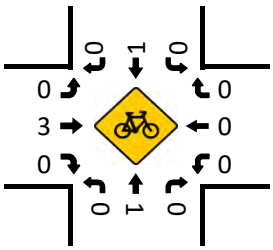
CONTROL

	0		
TEV	4141	0	4820
	AM	NOON	PM
PHF	0.93		0.93

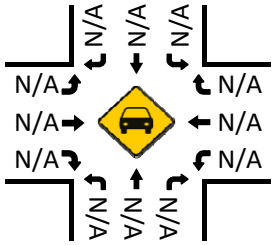
Total Vehicles (AM)



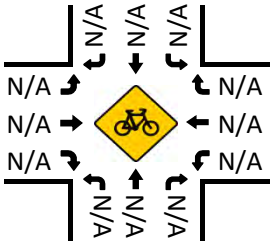
Bikes (AM)



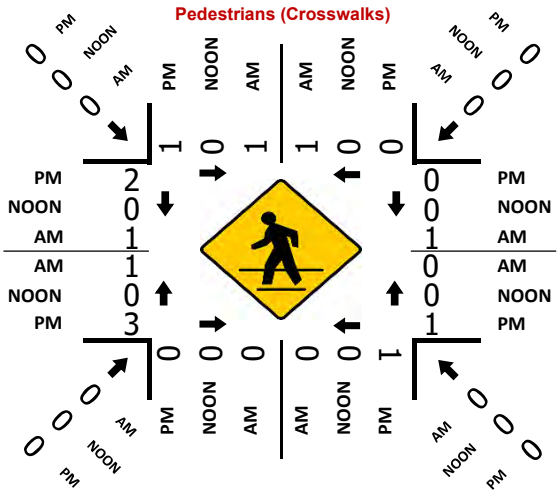
Total Vehicles (Noon)



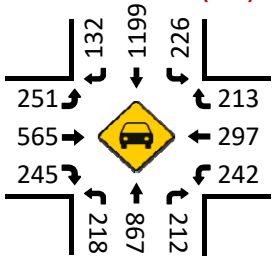
Bikes (NOON)



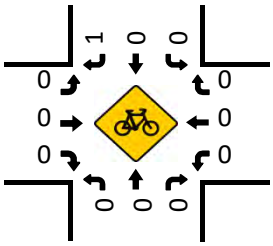
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Sunrise Blvd & Folsom Blvd

Peak Hour Turning Movement Count

ID: 17-07693-022
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Sunrise Blvd — SOUTHBOUND

AM	293	2110	226	0	1582	AM
NOON	0	0	0	0	0	NOON
PM	257	1215	216	1	1789	PM

Folsom Blvd — EASTBOUND

AM	NOON	PM	
648	0	573	
0	0	0	0
194	0	422	0
143	0	401	0
69	0	90	0

Folsom Blvd — WESTBOUND

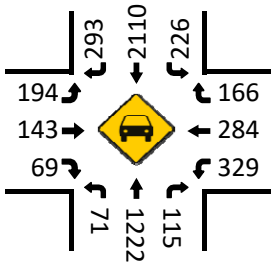
	PM	NOON	AM
0	247	0	166
0	266	0	284
0	187	0	329
0	1	0	0
	772	0	484

Sunrise Blvd — NORTHBOUND

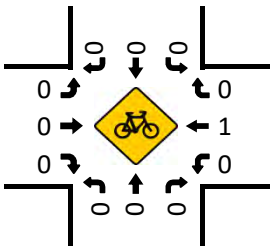
PM	1494	2	50	1119	154	PM
NOON	0	0	0	0	0	NOON
AM	2509	1	71	1222	115	AM

CONTROL			
	0		
TEV	5223	0	4628
	AM	NOON	PM
PHF	0.97		0.94

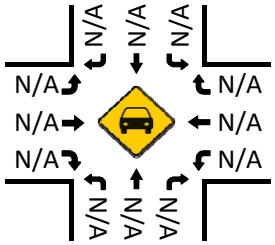
Total Vehicles (AM)



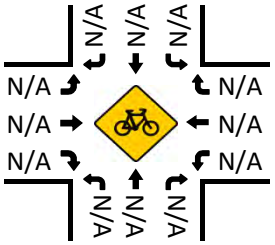
Bikes (AM)



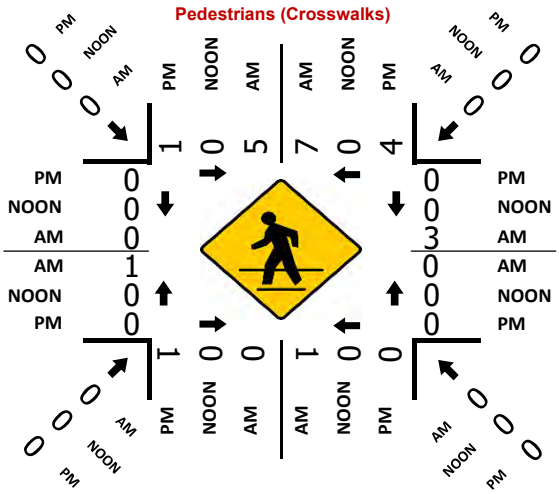
Total Vehicles (Noon)



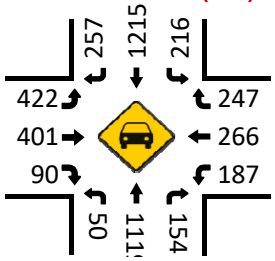
Bikes (NOON)



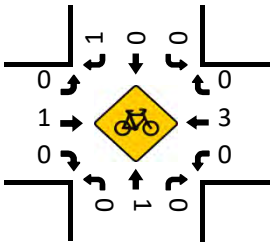
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Sunrise Blvd & US-50 EB Ramps

Peak Hour Turning Movement Count

ID: 17-07693-023
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	
	07:45 AM - 08:45 AM
	NONE
	04:00 PM - 05:00 PM

COUNT PERIODS	
	07:00 AM - 09:00 AM
	NONE
	04:00 PM - 06:00 PM

Sunrise Blvd — SOUTHBOUND

AM	441	2053	0	0	2463	AM
NOON	0	0	0	0	0	NOON
PM	403	1362	0	0	2820	PM

US-50 EB Ramps — EASTBOUND

AM	NOON	PM	
441	0	403	⇦
0	0	0	↶ 0
1222	0	1230	↱ 0
0	0	0	→ 0
531	0	322	↳ 0
AM	NOON	PM	

US-50 EB Ramps — WESTBOUND

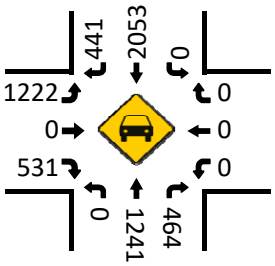
PM	NOON	AM	
0	0	0	0 ↰
0	0	0	0 ←
0	0	0	0 ↰
0	0	0	0 ↰
179	0	464	⇨
PM	NOON	AM	

CONTROL			
0			
TEV	5952	0	5086
	AM	NOON	PM
PHF	0.98		0.93

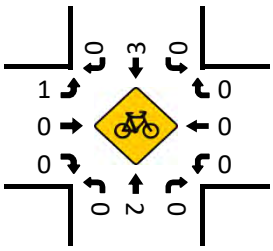
Sunrise Blvd — NORTHBOUND

PM	1684	0	0	1590	179	PM
NOON	0	0	0	0	0	NOON
AM	2584	0	0	1241	464	AM

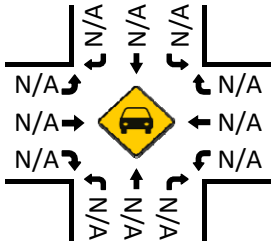
Total Vehicles (AM)



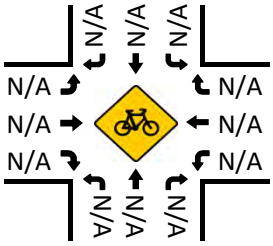
Bikes (AM)



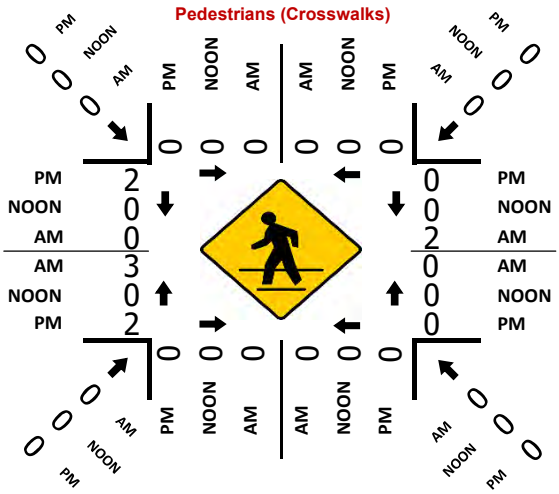
Total Vehicles (Noon)



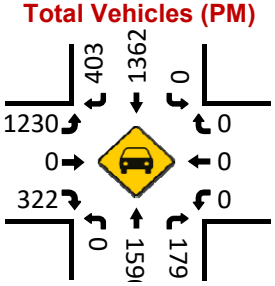
Bikes (NOON)



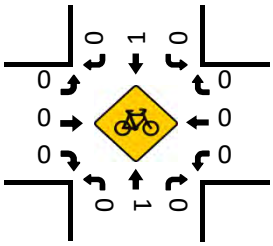
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Sunrise Blvd & US-50 WB Ramps

Peak Hour Turning Movement Count

ID: 17-07693-024
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Sunrise Blvd)

AM	1520	2097	0	0	2600	AM
NOON	0	0	0	0	0	NOON
PM	1217	1413	0	0	2884	PM

EASTBOUND (US-50 WB Ramps)

AM	NOON	PM
1520	0	1217
0	0	0
0	0	0
0	0	0
0	0	0
AM	NOON	PM

WESTBOUND (US-50 WB Ramps)

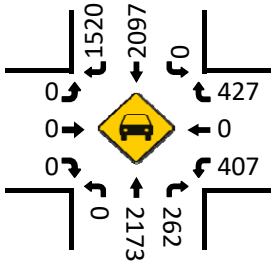
PM	NOON	AM
453	0	427
0	0	0
417	0	407
0	0	0
359	0	262
PM	NOON	AM

NORTHBOUND (Sunrise Blvd)

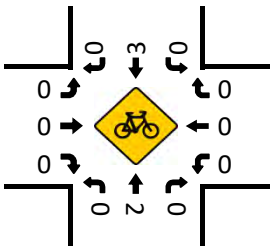
PM	1830	0	0	2431	359	PM
NOON	0	0	0	0	0	NOON
AM	2504	0	0	2173	262	AM

CONTROL			
	0		
TEV	6886	0	6290
	AM	NOON	PM
PHF	0.99		0.95

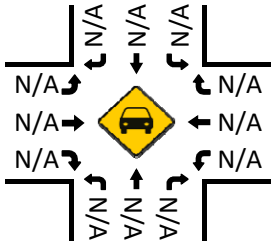
Total Vehicles (AM)



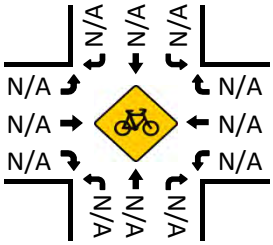
Bikes (AM)



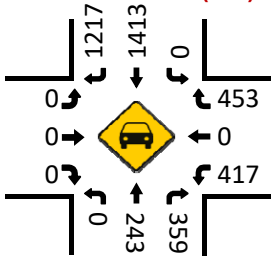
Total Vehicles (Noon)



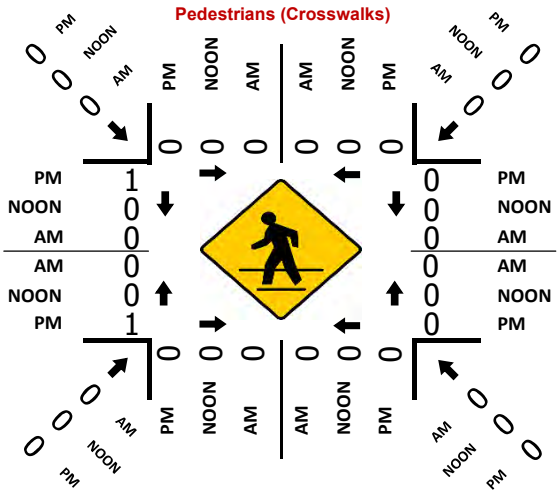
Bikes (NOON)



Total Vehicles (PM)



Pedestrians (Crosswalks)


PM
NOON
AM
1
0
0
0
0
1
0
0
0
0
0
0
0
0

Prepared by National Data & Surveying Services

Sunrise Blvd & Zinfandel Dr

Peak Hour Turning Movement Count

ID: 17-07693-025
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Sunrise Blvd — SOUTHBOUND

AM	79	3279	36	0	2489	AM
NOON	0	0	0	0	0	NOON
PM	96	2314	62	2	2854	PM

Zinfandel Dr — EASTBOUND

AM	NOON	PM	
371	0	273	
0	0	0	0
112	0	186	0
13	0	36	0
243	0	173	0
AM	NOON	PM	

Zinfandel Dr — WESTBOUND

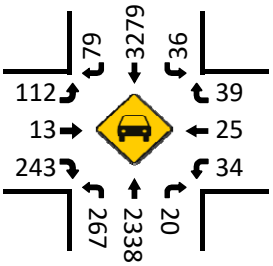
PM	NOON	AM	
57	0	39	0
26	0	25	0
61	0	34	0
0	0	0	0
121	0	69	
PM	NOON	AM	

Sunrise Blvd — NORTHBOUND

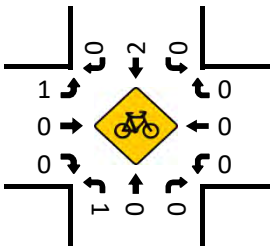
PM	2581	33	151	2609	23	PM
NOON	0	0	0	0	0	NOON
AM	3590	34	267	2338	20	AM

CONTROL			
0			
TEV	6519	0	5829
	AM	NOON	PM
PHF	0.96		0.94

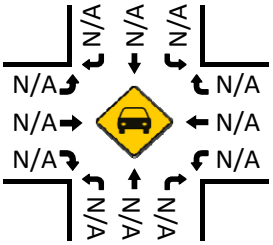
Total Vehicles (AM)



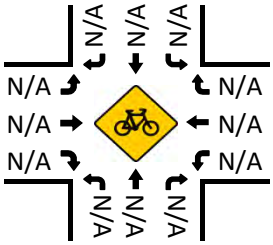
Bikes (AM)



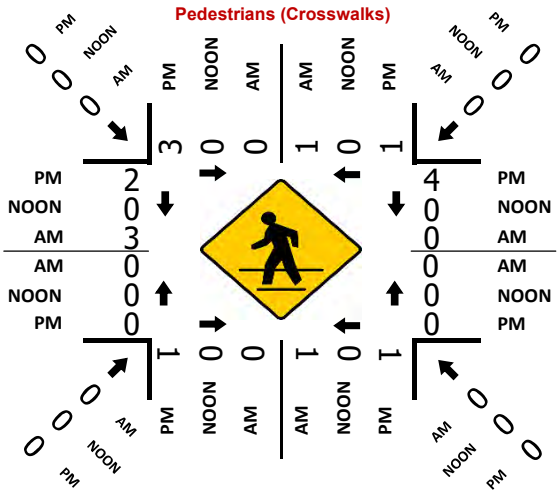
Total Vehicles (Noon)



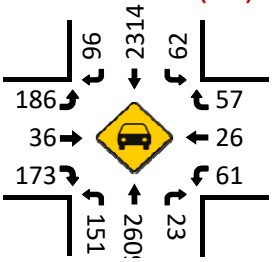
Bikes (NOON)



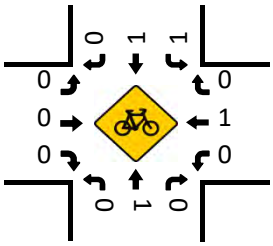
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Grant Line Rd & White Rock Rd

Peak Hour Turning Movement Count

ID: 17-07693-026
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Grant Line Rd — SOUTHBOUND

AM	338	408	0	1	801	AM
NOON	0	0	0	0	0	NOON
PM	46	687	0	0	1275	PM

White Rock Rd — EASTBOUND

AM	NOON	PM
348	0	53
0	0	1
36	0	689
0	0	0
3	0	22

White Rock Rd — WESTBOUND

PM	NOON	AM
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

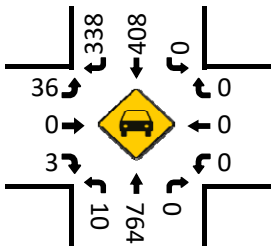
Grant Line Rd — NORTHBOUND

PM	709	0	6	586	0	PM
NOON	0	0	0	0	0	NOON
AM	411	0	10	764	0	AM

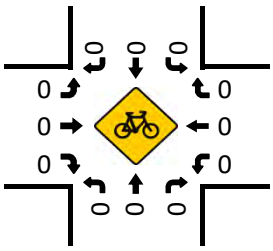
CONTROL: 0

TEV	1560 AM	0 NOON	2037 PM
PHF	0.90		0.88

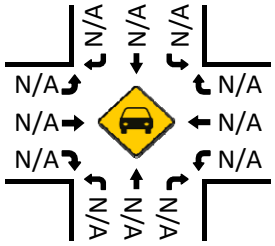
Total Vehicles (AM)



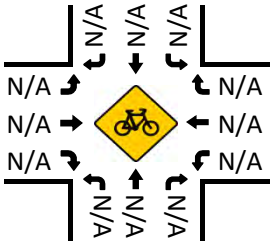
Bikes (AM)



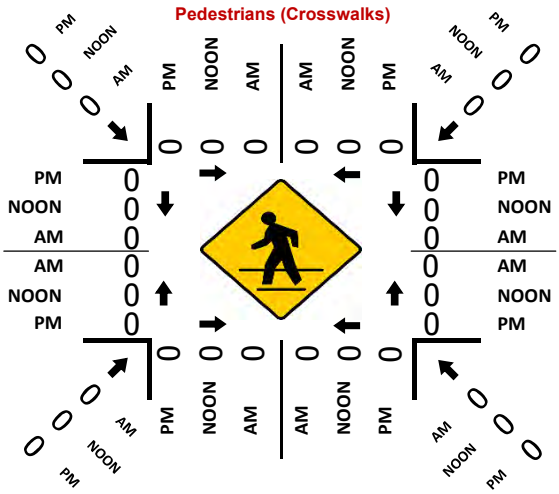
Total Vehicles (Noon)



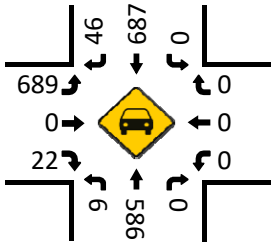
Bikes (NOON)



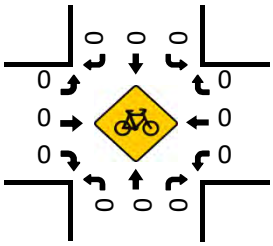
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Prairie City Rd & White Rock Rd

Peak Hour Turning Movement Count

ID: 17-07693-027
City: Rancho Cordova

Day: Thursday
Date: 09/28/2017

PEAK HOURS		COUNT PERIODS
07:15 AM - 08:15 AM		07:00 AM - 09:00 AM
NONE		NONE
04:45 PM - 05:45 PM		04:00 PM - 06:00 PM

Prairie City Rd — SOUTHBOUND

AM	441	0	43	0	731	AM
NOON	0	0	0	0	0	NOON
PM	464	0	143	0	774	PM

White Rock Rd — EASTBOUND

AM	NOON	PM	
785	0	672	⇦
1	0	0	↶ 0
566	0	659	↱ 0
224	0	643	→ 0
0	0	0	↴ 0

White Rock Rd — WESTBOUND

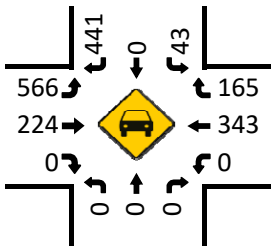
PM	NOON	AM	
115	0	165	0 ↰
208	0	343	0 ←
0	0	0	0 ↶
3	0	0	0 ↷
789	0	267	⇨

Prairie City Rd — NORTHBOUND

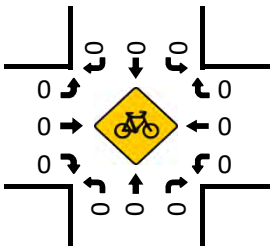
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

CONTROL			
0			
TEV	1783	0	2235
	AM	NOON	PM
PHF	0.91		0.96

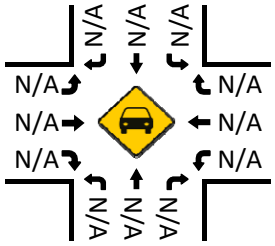
Total Vehicles (AM)



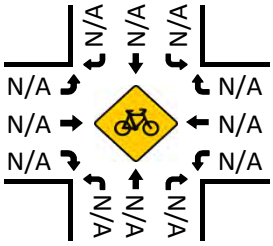
Bikes (AM)



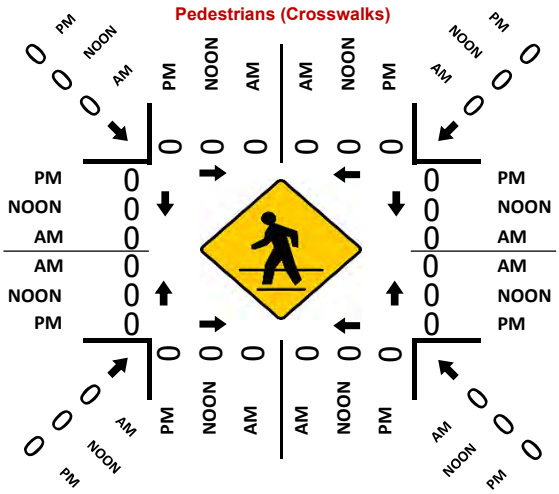
Total Vehicles (Noon)



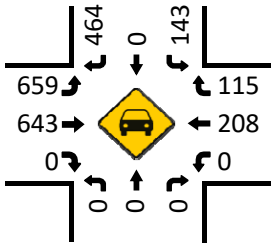
Bikes (NOON)



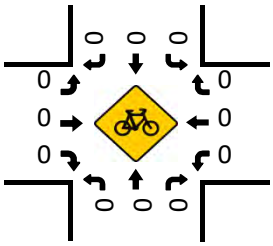
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by NDS/ATD

VOLUME

Jackson Rd/SR-16 Bet. Bradshaw Rd & Excelsior Rd

Day: Thursday
Date: 9/28/2017

City: Sacramento
Project #: CA17_7694_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,048	6,293	12,341

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			8		2		10		12:00			93		89		182	
00:15			10		6		16		12:15			104		81		185	
00:30			7		8		15		12:30			82		120		202	
00:45			4	29	9	25	13	54	12:45			69	348	95	385	164	733
01:00			4		7		11		13:00			97		91		188	
01:15			6		7		13		13:15			89		101		190	
01:30			6		6		12		13:30			101		78		179	
01:45			7	23	4	24	11	47	13:45			100	387	84	354	184	741
02:00			3		2		5		14:00			108		69		177	
02:15			3		4		7		14:15			100		98		198	
02:30			3		10		13		14:30			90		93		183	
02:45			4	13	10	26	14	39	14:45			96	394	100	360	196	754
03:00			4		5		9		15:00			113		108		221	
03:15			4		13		17		15:15			136		79		215	
03:30			3		14		17		15:30			129		102		231	
03:45			8	19	15	47	23	66	15:45			132	510	89	378	221	888
04:00			4		14		18		16:00			146		79		225	
04:15			5		25		30		16:15			164		93		257	
04:30			10		44		54		16:30			133		83		216	
04:45			17	36	27	110	44	146	16:45			178	621	76	331	254	952
05:00			19		39		58		17:00			140		93		233	
05:15			40		50		90		17:15			133		111		244	
05:30			31		78		109		17:30			164		77		241	
05:45			31	121	100	267	131	388	17:45			148	585	80	361	228	946
06:00			57		97		154		18:00			132		75		207	
06:15			57		153		210		18:15			109		56		165	
06:30			70		162		232		18:30			98		53		151	
06:45			54	238	105	517	159	755	18:45			82	421	61	245	143	666
07:00			52		93		145		19:00			94		50		144	
07:15			53		107		160		19:15			90		45		135	
07:30			69		74		143		19:30			72		47		119	
07:45			69	243	121	395	190	638	19:45			71	327	47	189	118	516
08:00			76		145		221		20:00			64		38		102	
08:15			69		141		210		20:15			40		39		79	
08:30			76		113		189		20:30			57		27		84	
08:45			57	278	141	540	198	818	20:45			64	225	20	124	84	349
09:00			73		157		230		21:00			48		28		76	
09:15			75		129		204		21:15			60		31		91	
09:30			64		160		224		21:30			39		29		68	
09:45			64	276	166	612	230	888	21:45			44	191	18	106	62	297
10:00			74		110		184		22:00			36		23		59	
10:15			67		132		199		22:15			37		24		61	
10:30			74		101		175		22:30			24		9		33	
10:45			68	283	92	435	160	718	22:45			19	116	6	62	25	178
11:00			84		91		175		23:00			10		12		22	
11:15			86		98		184		23:15			13		8		21	
11:30			64		99		163		23:30			13		8		21	
11:45			84	318	76	364	160	682	23:45			10	46	8	36	18	82
TOTALS				1877		3362		5239	TOTALS				4171		2931		7102
SPLIT %				35.8%		64.2%		42.5%	SPLIT %				58.7%		41.3%		57.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,048	6,293	12,341

AM Peak Hour			11:45	09:00	09:00	PM Peak Hour			16:00	12:30	16:45
AM Pk Volume			363	612	888	PM Pk Volume			621	407	972
Pk Hr Factor			0.873	0.922	0.965	Pk Hr Factor			0.872	0.848	0.957
7 - 9 Volume	0	0	521	935	1456	4 - 6 Volume	0	0	1206	692	1898
7 - 9 Peak Hour			07:45	08:00	08:00	4 - 6 Peak Hour			16:00	16:30	16:45
7 - 9 Pk Volume	0	0	290	540	818	4 - 6 Pk Volume	0	0	621	363	972
Pk Hr Factor	0.000	0.000	0.954	0.931	0.925	Pk Hr Factor	0.000	0.000	0.872	0.818	0.957

Prepared by NDS/ATD

VOLUME

Jackson Rd/SR-16 Bet. Excelsior Rd & Eagles Nest Rd

Day: Thursday
Date: 9/28/2017

City: Sacramento
Project #: CA17_7694_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,842	5,918	11,760

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			7		2		9		12:00			97		89		186	
00:15			8		6		14		12:15			101		78		179	
00:30			11		9		20		12:30			96		98		194	
00:45			11	37	10	27	21	64	12:45			74	368	94	359	168	727
01:00			3		5		8		13:00			75		88		163	
01:15			4		4		8		13:15			98		95		193	
01:30			6		11		17		13:30			86		90		176	
01:45			8	21	4	24	12	45	13:45			82	341	87	360	169	701
02:00			3		4		7		14:00			82		84		166	
02:15			2		2		4		14:15			90		104		194	
02:30			2		11		13		14:30			79		114		193	
02:45			2	9	8	25	10	34	14:45			94	345	110	412	204	757
03:00			5		3		8		15:00			97		95		192	
03:15			3		10		13		15:15			120		113		233	
03:30			2		17		19		15:30			109		91		200	
03:45			6	16	14	44	20	60	15:45			125	451	96	395	221	846
04:00			10		12		22		16:00			140		103		243	
04:15			6		28		34		16:15			157		78		235	
04:30			9		41		50		16:30			122		86		208	
04:45			20	45	22	103	42	148	16:45			140	559	106	373	246	932
05:00			15		34		49		17:00			130		107		237	
05:15			43		44		87		17:15			140		108		248	
05:30			46		87		133		17:30			126		84		210	
05:45			44	148	97	262	141	410	17:45			134	530	70	369	204	899
06:00			61		102		163		18:00			114		85		199	
06:15			70		144		214		18:15			106		69		175	
06:30			75		164		239		18:30			88		59		147	
06:45			92	298	150	560	242	858	18:45			88	396	61	274	149	670
07:00			63		138		201		19:00			52		36		88	
07:15			69		121		190		19:15			71		48		119	
07:30			86		117		203		19:30			58		35		93	
07:45			87	305	90	466	177	771	19:45			60	241	30	149	90	390
08:00			86		96		182		20:00			71		19		90	
08:15			80		101		181		20:15			40		33		73	
08:30			84		75		159		20:30			58		35		93	
08:45			70	320	100	372	170	692	20:45			62	231	22	109	84	340
09:00			82		99		181		21:00			43		22		65	
09:15			66		92		158		21:15			39		20		59	
09:30			90		101		191		21:30			37		15		52	
09:45			66	304	102	394	168	698	21:45			34	153	27	84	61	237
10:00			83		79		162		22:00			30		22		52	
10:15			71		86		157		22:15			21		29		50	
10:30			73		94		167		22:30			22		14		36	
10:45			68	295	67	326	135	621	22:45			16	89	11	76	27	165
11:00			74		89		163		23:00			12		11		23	
11:15			80		91		171		23:15			14		4		18	
11:30			61		92		153		23:30			12		5		17	
11:45			79	294	60	332	139	626	23:45			8	46	3	23	11	69
TOTALS				2092		2935		5027	TOTALS				3750		2983		6733
SPLIT %				41.6%		58.4%		42.7%	SPLIT %				55.7%		44.3%		57.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,842	5,918	11,760

AM Peak Hour			11:45	06:15	06:15	PM Peak Hour			16:00	14:30	16:45
AM Pk Volume			373	596	896	PM Pk Volume			559	432	941
Pk Hr Factor			0.923	0.909	0.926	Pk Hr Factor			0.890	0.947	0.949
7 - 9 Volume	0	0	625	838	1463	4 - 6 Volume	0	0	1089	742	1831
7 - 9 Peak Hour			07:30	07:00	07:00	4 - 6 Peak Hour			16:00	16:30	16:45
7 - 9 Pk Volume	0	0	339	466	771	4 - 6 Pk Volume	0	0	559	407	941
Pk Hr Factor	0.000	0.000	0.974	0.844	0.950	Pk Hr Factor	0.000	0.000	0.890	0.942	0.949

Prepared by NDS/ATD

VOLUME

Jackson Rd/SR-16 Bet. Eagles Nest Rd & Sunrise Blvd

Day: Thursday
Date: 9/28/2017

City: Sacramento
Project #: CA17_7694_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,136	5,670	11,806

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			9		1		10		12:00			92		83		175	
00:15			7		9		16		12:15			106		83		189	
00:30			7		8		15		12:30			89		97		186	
00:45			12	35	9	27	21	62	12:45			83	370	87	350	170	720
01:00			1		3		4		13:00			106		73		179	
01:15			4		3		7		13:15			97		102		199	
01:30			5		12		17		13:30			126		77		203	
01:45			9	19	3	21	12	40	13:45			96	425	86	338	182	763
02:00			5		3		8		14:00			99		77		176	
02:15			2		1		3		14:15			99		93		192	
02:30			2		11		13		14:30			82		109		191	
02:45			2	11	8	23	10	34	14:45			108	388	93	372	201	760
03:00			2		4		6		15:00			95		99		194	
03:15			3		8		11		15:15			142		72		214	
03:30			2		17		19		15:30			135		84		219	
03:45			5	12	14	43	19	55	15:45			126	498	81	336	207	834
04:00			7		12		19		16:00			129		65		194	
04:15			4		33		37		16:15			141		98		239	
04:30			7		37		44		16:30			152		100		252	
04:45			16	34	32	114	48	148	16:45			130	552	56	319	186	871
05:00			17		34		51		17:00			132		68		200	
05:15			34		46		80		17:15			138		64		202	
05:30			50		83		133		17:30			135		56		191	
05:45			52	153	99	262	151	415	17:45			142	547	75	263	217	810
06:00			57		114		171		18:00			119		71		190	
06:15			82		160		242		18:15			119		43		162	
06:30			70		181		251		18:30			90		50		140	
06:45			87	296	153	608	240	904	18:45			86	414	52	216	138	630
07:00			69		136		205		19:00			82		38		120	
07:15			81		137		218		19:15			73		29		102	
07:30			80		120		200		19:30			70		37		107	
07:45			78	308	102	495	180	803	19:45			57	282	38	142	95	424
08:00			88		97		185		20:00			61		35		96	
08:15			86		92		178		20:15			39		24		63	
08:30			86		80		166		20:30			64		17		81	
08:45			59	319	90	359	149	678	20:45			49	213	23	99	72	312
09:00			96		100		196		21:00			50		27		77	
09:15			73		101		174		21:15			46		24		70	
09:30			74		112		186		21:30			35		22		57	
09:45			76	319	96	409	172	728	21:45			37	168	21	94	58	262
10:00			76		75		151		22:00			34		21		55	
10:15			76		102		178		22:15			33		14		47	
10:30			80		97		177		22:30			20		7		27	
10:45			70	302	73	347	143	649	22:45			20	107	9	51	29	158
11:00			87		93		180		23:00			16		5		21	
11:15			71		93		164		23:15			10		10		20	
11:30			87		105		192		23:30			14		7		21	
11:45			69	314	61	352	130	666	23:45			10	50	8	30	18	80
TOTALS				2122		3060		**5182**	**TOTALS**				4014		2610		**6624**
SPLIT %				40.9%		59.1%		**43.9%**	**SPLIT %**				60.6%		39.4%		**56.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,136	5,670	11,806

AM Peak Hour			11:45	06:15	**06:15**	**PM Peak Hour**			16:15	14:15	**15:45**
AM Pk Volume			356	630	**938**	**PM Pk Volume**			555	394	**892**
Pk Hr Factor			0.840	0.870	**0.934**	**Pk Hr Factor**			0.913	0.904	**0.885**
7 - 9 Volume	0	0	627	854	**1481**	**4 - 6 Volume**	0	0	1099	582	**1681**
7 - 9 Peak Hour			07:45	07:00	**07:00**	**4 - 6 Peak Hour**			16:15	16:15	**16:15**
7 - 9 Pk Volume	0	0	338	495	**803**	**4 - 6 Pk Volume**	0	0	555	322	**877**
Pk Hr Factor	0.000	0.000	0.960	0.903	**0.921**	**Pk Hr Factor**	0.000	0.000	0.913	0.805	**0.870**

Prepared by NDS/ATD

VOLUME

Jackson Rd/SR-16 Bet. Sunrise Blvd & Grant Line Rd

Day: Thursday
Date: 9/28/2017

City: Sacramento
Project #: CA17_7694_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,464	7,516	14,980

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			7		5		12		12:00			117		105		222	
00:15			5		10		15		12:15			127		124		251	
00:30			7		9		16		12:30			105		123		228	
00:45			12	31	9	33	21	64	12:45			107	456	128	480	235	936
01:00			1		3		4		13:00			125		92		217	
01:15			4		2		6		13:15			122		113		235	
01:30			7		9		16		13:30			142		97		239	
01:45			9	21	3	17	12	38	13:45			129	518	112	414	241	932
02:00			2		4		6		14:00			133		106		239	
02:15			6		3		9		14:15			114		114		228	
02:30			2		11		13		14:30			126		124		250	
02:45			5	15	7	25	12	40	14:45			103	476	112	456	215	932
03:00			1		5		6		15:00			121		114		235	
03:15			5		10		15		15:15			163		139		302	
03:30			1		21		22		15:30			163		109		272	
03:45			7	14	15	51	22	65	15:45			141	588	119	481	260	1069
04:00			5		13		18		16:00			178		95		273	
04:15			7		31		38		16:15			173		114		287	
04:30			12		32		44		16:30			184		108		292	
04:45			20	44	35	111	55	155	16:45			179	714	89	406	268	1120
05:00			30		47		77		17:00			172		90		262	
05:15			61		78		139		17:15			152		92		244	
05:30			60		103		163		17:30			159		76		235	
05:45			56	207	108	336	164	543	17:45			133	616	114	372	247	988
06:00			66		140		206		18:00			179		85		264	
06:15			100		216		316		18:15			137		80		217	
06:30			90		194		284		18:30			128		78		206	
06:45			98	354	186	736	284	1090	18:45			117	561	62	305	179	866
07:00			82		200		282		19:00			109		54		163	
07:15			76		185		261		19:15			87		57		144	
07:30			88		184		272		19:30			70		70		140	
07:45			85	331	148	717	233	1048	19:45			79	345	46	227	125	572
08:00			76		133		209		20:00			64		52		116	
08:15			80		123		203		20:15			54		30		84	
08:30			103		109		212		20:30			81		36		117	
08:45			80	339	135	500	215	839	20:45			67	266	45	163	112	429
09:00			92		120		212		21:00			64		35		99	
09:15			91		121		212		21:15			59		32		91	
09:30			100		138		238		21:30			51		31		82	
09:45			112	395	134	513	246	908	21:45			43	217	19	117	62	334
10:00			81		126		207		22:00			37		26		63	
10:15			82		121		203		22:15			39		29		68	
10:30			118		111		229		22:30			29		14		43	
10:45			92	373	122	480	214	853	22:45			24	129	11	80	35	209
11:00			102		138		240		23:00			17		5		22	
11:15			95		107		202		23:15			13		15		28	
11:30			111		138		249		23:30			21		7		28	
11:45			81	389	77	460	158	849	23:45			14	65	9	36	23	101
TOTALS				2513		3979		**6492**	**TOTALS**				4951		3537		**8488**
SPLIT %				38.7%		61.3%		**43.3%**	**SPLIT %**				58.3%		41.7%		**56.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,464	7,516	14,980

AM Peak Hour			11:30	06:15	**06:15**	**PM Peak Hour**			16:00	14:30	**16:00**
AM Pk Volume			436	796	**1166**	**PM Pk Volume**			714	489	**1120**
Pk Hr Factor			0.858	0.921	**0.922**	**Pk Hr Factor**			0.970	0.879	**0.959**
7 - 9 Volume	0	0	670	1217	**1887**	**4 - 6 Volume**	0	0	1330	778	**2108**
7 - 9 Peak Hour			07:45	07:00	**07:00**	**4 - 6 Peak Hour**			16:00	16:00	**16:00**
7 - 9 Pk Volume	0	0	344	717	**1048**	**4 - 6 Pk Volume**	0	0	714	406	**1120**
Pk Hr Factor	0.000	0.000	0.835	0.896	**0.929**	**Pk Hr Factor**	0.000	0.000	0.970	0.890	**0.959**

Prepared by NDS/ATD

VOLUME

Excelsior Rd Bet. Jackson Rd/SR-16 & Kiefer Blvd

Day: Thursday
Date: 9/28/2017

City: Sacramento
Project #: CA17_7694_005

DAILY TOTALS	NB	SB	EB	WB	Total
	2,264	2,288	0	0	4,552

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0						0		12:00	16		22						38	
00:15	1		3						4		12:15	30		19						49	
00:30	0		0						0		12:30	13		18						31	
00:45	1	2	2	5					3	7	12:45	15	74	28	87					43	161
01:00	2		2						4		13:00	11		24						35	
01:15	2		3						5		13:15	14		19						33	
01:30	1		1						2		13:30	12		19						31	
01:45	0	5	1	7					1	12	13:45	30	67	17	79					47	146
02:00	0		1						1		14:00	26		32						58	
02:15	0		0						0		14:15	15		23						38	
02:30	0		2						2		14:30	30		40						70	
02:45	2	2	1	4					3	6	14:45	16	87	40	135					56	222
03:00	0		3						3		15:00	16		41						57	
03:15	0		1						1		15:15	26		46						72	
03:30	2		2						4		15:30	20		46						66	
03:45	2	4	0	6					2	10	15:45	20	82	60	193					80	275
04:00	0		5						5		16:00	34		78						112	
04:15	1		4						5		16:15	33		103						136	
04:30	2		10						12		16:30	26		95						121	
04:45	5	8	4	23					9	31	16:45	30	123	155	431					185	554
05:00	3		7						10		17:00	34		133						167	
05:15	4		6						10		17:15	24		174						198	
05:30	13		6						19		17:30	32		112						144	
05:45	14	34	13	32					27	66	17:45	24	114	73	492					97	606
06:00	14		17						31		18:00	21		45						66	
06:15	33		18						51		18:15	19		34						53	
06:30	42		25						67		18:30	19		23						42	
06:45	70	159	24	84					94	243	18:45	17	76	29	131					46	207
07:00	87		39						126		19:00	28		28						56	
07:15	138		35						173		19:15	22		18						40	
07:30	161		30						191		19:30	20		10						30	
07:45	184	570	29	133					213	703	19:45	21	91	6	62					27	153
08:00	147		33						180		20:00	11		8						19	
08:15	130		22						152		20:15	13		11						24	
08:30	83		22						105		20:30	11		11						22	
08:45	58	418	20	97					78	515	20:45	8	43	5	35					13	78
09:00	42		18						60		21:00	12		13						25	
09:15	23		17						40		21:15	20		9						29	
09:30	20		13						33		21:30	9		10						19	
09:45	18	103	20	68					38	171	21:45	11	52	11	43					22	95
10:00	22		13						35		22:00	10		2						12	
10:15	10		15						25		22:15	8		2						10	
10:30	13		17						30		22:30	6		3						9	
10:45	12	57	10	55					22	112	22:45	2	26	4	11					6	37
11:00	17		13						30		23:00	2		4						6	
11:15	12		10						22		23:15	3		4						7	
11:30	9		22						31		23:30	3		2						5	
11:45	19	57	18	63					37	120	23:45	2	10	2	12					4	22
TOTALS		1419		577						1996	TOTALS		845		1711						2556
SPLIT %		71.1%		28.9%						43.8%	SPLIT %		33.1%		66.9%						56.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	2,264	2,288	0	0	4,552

AM Peak Hour	07:15	07:00			07:15	PM Peak Hour	16:00	16:45			16:45
AM Pk Volume	630	133			757	PM Pk Volume	123	574			694
Pk Hr Factor	0.856	0.853			0.888	Pk Hr Factor	0.904	0.825			0.876
7 - 9 Volume	988	230	0	0	1218	4 - 6 Volume	237	923	0	0	1160
7 - 9 Peak Hour	07:15	07:00			07:15	4 - 6 Peak Hour	16:00	16:45			16:45
7 - 9 Pk Volume	630	133	0	0	757	4 - 6 Pk Volume	123	574	0	0	694
Pk Hr Factor	0.856	0.853	0.000	0.000	0.888	Pk Hr Factor	0.904	0.825	0.000	0.000	0.876

Prepared by NDS/ATD

VOLUME

Kiefer Blvd Bet. Grant Line Rd & Jackson Rd/SR-16

Day: Thursday
Date: 9/28/2017

City: Sloughhouse
Project #: CA17_7694_006

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	537	404	941

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			5		3		8	
00:15			0		0		0		12:15			5		5		10	
00:30			0		0		0		12:30			1		1		2	
00:45			1	1	0		1	1	12:45			8	19	4	13	12	32
01:00			1		1		2		13:00			4		4		8	
01:15			0		0		0		13:15			5		5		10	
01:30			0		0		0		13:30			3		8		11	
01:45			0	1	0	1	0	2	13:45			5	17	3	20	8	37
02:00			0		0		0		14:00			2		2		4	
02:15			0		0		0		14:15			10		4		14	
02:30			1		0		1		14:30			5		4		9	
02:45			0	1	0		0	1	14:45			7	24	3	13	10	37
03:00			0		0		0		15:00			10		4		14	
03:15			0		0		0		15:15			9		10		19	
03:30			1		1		2		15:30			10		3		13	
03:45			0	1	0	1	0	2	15:45			18	47	5	22	23	69
04:00			0		0		0		16:00			18		6		24	
04:15			0		1		1		16:15			17		7		24	
04:30			0		1		1		16:30			29		3		32	
04:45			0		0	2	0	2	16:45			43	107	4	20	47	127
05:00			2		3		5		17:00			24		8		32	
05:15			2		3		5		17:15			58		2		60	
05:30			1		2		3		17:30			59		1		60	
05:45			3	8	4	12	7	20	17:45			31	172	4	15	35	187
06:00			2		2		4		18:00			13		2		15	
06:15			3		9		12		18:15			16		3		19	
06:30			1		19		20		18:30			10		2		12	
06:45			3	9	21	51	24	60	18:45			5	44	3	10	8	54
07:00			3		15		18		19:00			4		2		6	
07:15			7		28		35		19:15			2		3		5	
07:30			2		32		34		19:30			2		0		2	
07:45			2	14	36	111	38	125	19:45			1	9	0	5	1	14
08:00			3		19		22		20:00			2		0		2	
08:15			2		16		18		20:15			3		0		3	
08:30			10		7		17		20:30			4		0		4	
08:45			4	19	7	49	11	68	20:45			3	12	0		3	12
09:00			2		10		12		21:00			1		2		3	
09:15			1		6		7		21:15			1		0		1	
09:30			2		9		11		21:30			3		2		5	
09:45			2	7	2	27	4	34	21:45			0	5	0	4	0	9
10:00			2		6		8		22:00			2		0		2	
10:15			2		2		4		22:15			2		1		3	
10:30			1		3		4		22:30			0		0		0	
10:45			3	8	4	15	7	23	22:45			1	5	0	1	1	6
11:00			1		2		3		23:00			0		0		0	
11:15			1		2		3		23:15			0		0		0	
11:30			1		4		5		23:30			1		0		1	
11:45			3	6	4	12	7	18	23:45			0	1	0		0	1
TOTALS				75		281		356	TOTALS				462		123		585
SPLIT %				21.1%		78.9%		37.8%	SPLIT %				79.0%		21.0%		62.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	537	404	941

AM Peak Hour			08:00	07:15	07:15	PM Peak Hour			16:45	15:15	16:45
AM Pk Volume			19	115	129	PM Pk Volume			184	24	199
Pk Hr Factor			0.475	0.799	0.849	Pk Hr Factor			0.780	0.600	0.829
7 - 9 Volume	0	0	33	160	193	4 - 6 Volume	0	0	279	35	314
7 - 9 Peak Hour			08:00	07:15	07:15	4 - 6 Peak Hour			16:45	16:15	16:45
7 - 9 Pk Volume	0	0	19	115	129	4 - 6 Pk Volume	0	0	184	22	199
Pk Hr Factor	0.000	0.000	0.475	0.799	0.849	Pk Hr Factor	0.000	0.000	0.780	0.688	0.829

Prepared by NDS/ATD

VOLUME

International Dr Bet. Zinfandel Dr & Sunrise Blvd

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_007

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,655	5,591	11,246

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			8		1		9		12:00			101		121		222	
00:15			2		7		9		12:15			100		100		200	
00:30			1		3		4		12:30			105		121		226	
00:45			0	11	2	13	2	24	12:45			108	414	102	444	210	858
01:00			3		3		6		13:00			103		103		206	
01:15			1		4		5		13:15			85		89		174	
01:30			0		4		4		13:30			105		88		193	
01:45			3	7	2	13	5	20	13:45			82	375	77	357	159	732
02:00			1		0		1		14:00			81		85		166	
02:15			5		0		5		14:15			71		69		140	
02:30			0		0		0		14:30			78		114		192	
02:45			2	8	3	3	5	11	14:45			90	320	98	366	188	686
03:00			1		0		1		15:00			79		104		183	
03:15			3		0		3		15:15			107		100		207	
03:30			2		0		2		15:30			115		118		233	
03:45			2	8	4	4	6	12	15:45			85	386	140	462	225	848
04:00			5		5		10		16:00			125		146		271	
04:15			7		2		9		16:15			124		116		240	
04:30			15		4		19		16:30			128		149		277	
04:45			17	44	5	16	22	60	16:45			137	514	147	558	284	1072
05:00			15		8		23		17:00			128		217		345	
05:15			29		9		38		17:15			134		184		318	
05:30			32		11		43		17:30			125		126		251	
05:45			87	163	22	50	109	213	17:45			79	466	96	623	175	1089
06:00			65		26		91		18:00			100		90		190	
06:15			67		37		104		18:15			73		75		148	
06:30			79		53		132		18:30			54		75		129	
06:45			122	333	83	199	205	532	18:45			50	277	64	304	114	581
07:00			89		98		187		19:00			49		70		119	
07:15			109		93		202		19:15			43		46		89	
07:30			126		127		253		19:30			34		35		69	
07:45			184	508	124	442	308	950	19:45			35	161	40	191	75	352
08:00			145		101		246		20:00			27		45		72	
08:15			118		122		240		20:15			18		30		48	
08:30			118		77		195		20:30			18		20		38	
08:45			110	491	71	371	181	862	20:45			26	89	21	116	47	205
09:00			79		69		148		21:00			15		28		43	
09:15			68		51		119		21:15			25		18		43	
09:30			70		56		126		21:30			16		13		29	
09:45			91	308	57	233	148	541	21:45			10	66	17	76	27	142
10:00			66		66		132		22:00			8		11		19	
10:15			67		67		134		22:15			17		11		28	
10:30			91		77		168		22:30			14		7		21	
10:45			64	288	90	300	154	588	22:45			12	51	9	38	21	89
11:00			80		78		158		23:00			6		10		16	
11:15			77		88		165		23:15			7		5		12	
11:30			91		97		188		23:30			3		5		8	
11:45			91	339	125	388	216	727	23:45			12	28	4	24	16	52
TOTALS				2508		2032		4540	TOTALS				3147		3559		6706
SPLIT %				55.2%		44.8%		40.4%	SPLIT %				46.9%		53.1%		59.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,655	5,591	11,246

AM Peak Hour			07:30	07:30	07:30	PM Peak Hour			16:30	16:30	16:30
AM Pk Volume			573	474	1047	PM Pk Volume			527	697	1224
Pk Hr Factor			0.779	0.933	0.850	Pk Hr Factor			0.962	0.803	0.887
7 - 9 Volume	0	0	999	813	1812	4 - 6 Volume	0	0	980	1181	2161
7 - 9 Peak Hour			07:30	07:30	07:30	4 - 6 Peak Hour			16:30	16:30	16:30
7 - 9 Pk Volume	0	0	573	474	1047	4 - 6 Pk Volume	0	0	527	697	1224
Pk Hr Factor	0.000	0.000	0.779	0.933	0.850	Pk Hr Factor	0.000	0.000	0.962	0.803	0.887

Prepared by NDS/ATD

VOLUME

Mather Blvd Bet. Femoyer St & Douglas Rd

Day: Thursday
Date: 9/28/2017

City: Rancho Cordova
Project #: CA17_7694_008

DAILY TOTALS	NB	SB	EB	WB	Total
	2,937	2,603	0	0	5,540

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	1		6						7		12:00	22		50						72	
00:15	1		2						3		12:15	29		51						80	
00:30	4		2						6		12:30	32		58						90	
00:45	1	7	2	12					3	19	12:45	34	117	54	213					88	330
01:00	1		2						3		13:00	25		30						55	
01:15	1		2						3		13:15	31		24						55	
01:30	0		0						0		13:30	23		23						46	
01:45	0	2	3	7					3	9	13:45	27	106	28	105					55	211
02:00	1		1						2		14:00	27		33						60	
02:15	0		1						1		14:15	23		30						53	
02:30	0		1						1		14:30	41		51						92	
02:45	0	1	1	4					1	5	14:45	48	139	36	150					84	289
03:00	5		0						5		15:00	39		47						86	
03:15	2		0						2		15:15	25		59						84	
03:30	3		0						3		15:30	31		65						96	
03:45	7	17	1	1					8	18	15:45	26	121	63	234					89	355
04:00	1		0						1		16:00	31		112						143	
04:15	2		1						3		16:15	32		97						129	
04:30	2		1						3		16:30	38		163						201	
04:45	11	16	0	2					11	18	16:45	28	129	101	473					129	602
05:00	7		2						9		17:00	31		144						175	
05:15	14		1						15		17:15	35		128						163	
05:30	24		4						28		17:30	43		96						139	
05:45	37	82	3	10					40	92	17:45	29	138	69	437					98	575
06:00	37		7						44		18:00	22		56						78	
06:15	58		11						69		18:15	22		47						69	
06:30	84		9						93		18:30	20		39						59	
06:45	122	301	6	33					128	334	18:45	21	85	27	169					48	254
07:00	141		20						161		19:00	20		36						56	
07:15	150		19						169		19:15	23		31						54	
07:30	183		20						203		19:30	18		32						50	
07:45	214	688	27	86					241	774	19:45	12	73	26	125					38	198
08:00	163		30						193		20:00	12		16						28	
08:15	149		49						198		20:15	12		22						34	
08:30	100		27						127		20:30	13		13						26	
08:45	55	467	22	128					77	595	20:45	11	48	21	72					32	120
09:00	60		20						80		21:00	9		12						21	
09:15	42		11						53		21:15	4		12						16	
09:30	34		13						47		21:30	9		17						26	
09:45	30	166	18	62					48	228	21:45	4	26	12	53					16	79
10:00	19		8						27		22:00	4		16						20	
10:15	25		22						47		22:15	4		12						16	
10:30	24		13						37		22:30	3		10						13	
10:45	28	96	22	65					50	161	22:45	1	12	5	43					6	55
11:00	17		25						42		23:00	5		1						6	
11:15	21		20						41		23:15	3		5						8	
11:30	19		33						52		23:30	4		5						9	
11:45	26	83	23	101					49	184	23:45	5	17	7	18					12	35
TOTALS		1926		511						2437	TOTALS		1011		2092						3103
SPLIT %		79.0%		21.0%						44.0%	SPLIT %		32.6%		67.4%						56.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	2,937	2,603	0	0	5,540

AM Peak Hour	07:15	11:45			07:30	PM Peak Hour	14:30	16:30			16:30
AM Pk Volume	710	182			835	PM Pk Volume	153	536			668
Pk Hr Factor	0.829	0.784			0.866	Pk Hr Factor	0.797	0.822			0.831
7 - 9 Volume	1155	214	0	0	1369	4 - 6 Volume	267	910	0	0	1177
7 - 9 Peak Hour	07:15	07:45			07:30	4 - 6 Peak Hour	17:00	16:30			16:30
7 - 9 Pk Volume	710	133	0	0	835	4 - 6 Pk Volume	138	536	0	0	668
Pk Hr Factor	0.829	0.679	0.000	0.000	0.866	Pk Hr Factor	0.802	0.822	0.000	0.000	0.831

Prepared by NDS/ATD

VOLUME

Douglas Rd Bet. Mather Blvd & Sunrise Blvd

Day: Thursday
Date: 9/28/2017

City: Rancho Cordova
Project #: CA17_7694_009

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,370	6,034	12,404

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			14		6		20		12:00			101		62		163	
00:15			11		5		16		12:15			71		80		151	
00:30			9		4		13		12:30			66		79		145	
00:45			8	42	5	20	13	62	12:45			81	319	77	298	158	617
01:00			5		4		9		13:00			60		81		141	
01:15			7		3		10		13:15			69		71		140	
01:30			5		1		6		13:30			84		87		171	
01:45			4	21	3	11	7	32	13:45			103	316	76	315	179	631
02:00			4		1		5		14:00			97		77		174	
02:15			4		3		7		14:15			103		75		178	
02:30			1		2		3		14:30			149		100		249	
02:45			3	12	3	9	6	21	14:45			127	476	65	317	192	793
03:00			4		3		7		15:00			97		74		171	
03:15			3		4		7		15:15			124		59		183	
03:30			1		7		8		15:30			124		98		222	
03:45			10	18	4	18	14	36	15:45			141	486	91	322	232	808
04:00			4		8		12		16:00			144		98		242	
04:15			1		5		6		16:15			184		89		273	
04:30			6		7		13		16:30			203		100		303	
04:45			16	27	13	33	29	60	16:45			180	711	79	366	259	1077
05:00			17		18		35		17:00			194		123		317	
05:15			14		35		49		17:15			202		98		300	
05:30			22		57		79		17:30			176		91		267	
05:45			29	82	70	180	99	262	17:45			166	738	120	432	286	1170
06:00			35		72		107		18:00			133		94		227	
06:15			40		102		142		18:15			105		90		195	
06:30			49		129		178		18:30			136		65		201	
06:45			60	184	178	481	238	665	18:45			102	476	65	314	167	790
07:00			51		177		228		19:00			111		69		180	
07:15			66		206		272		19:15			116		47		163	
07:30			87		196		283		19:30			108		54		162	
07:45			80	284	221	800	301	1084	19:45			96	431	63	233	159	664
08:00			76		185		261		20:00			84		50		134	
08:15			107		195		302		20:15			61		43		104	
08:30			86		125		211		20:30			65		42		107	
08:45			66	335	125	630	191	965	20:45			70	280	32	167	102	447
09:00			58		122		180		21:00			52		31		83	
09:15			53		87		140		21:15			66		23		89	
09:30			71		87		158		21:30			46		26		72	
09:45			62	244	69	365	131	609	21:45			41	205	20	100	61	305
10:00			61		60		121		22:00			38		25		63	
10:15			62		63		125		22:15			32		21		53	
10:30			65		61		126		22:30			32		12		44	
10:45			54	242	64	248	118	490	22:45			27	129	10	68	37	197
11:00			56		72		128		23:00			15		3		18	
11:15			65		54		119		23:15			11		16		27	
11:30			64		79		143		23:30			15		5		20	
11:45			68	253	65	270	133	523	23:45			18	59	13	37	31	96
TOTALS				1744		3065		4809	TOTALS				4626		2969		7595
SPLIT %				36.3%		63.7%		38.8%	SPLIT %				60.9%		39.1%		61.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,370	6,034	12,404

AM Peak Hour			07:30	07:15	07:30	PM Peak Hour			16:30	17:00	16:30
AM Pk Volume			350	808	1147	PM Pk Volume			779	432	1179
Pk Hr Factor			0.818	0.914	0.950	Pk Hr Factor			0.959	0.878	0.930
7 - 9 Volume	0	0	619	1430	2049	4 - 6 Volume	0	0	1449	798	2247
7 - 9 Peak Hour			07:30	07:15	07:30	4 - 6 Peak Hour			16:30	17:00	16:30
7 - 9 Pk Volume	0	0	350	808	1147	4 - 6 Pk Volume	0	0	779	432	1179
Pk Hr Factor	0.000	0.000	0.818	0.914	0.950	Pk Hr Factor	0.000	0.000	0.959	0.878	0.930

Prepared by NDS/ATD

VOLUME

Douglas Rd Bet. Sunrise Blvd & Grant Line Rd

Day: Thursday
Date: 9/28/2017

City: Rancho Cordova
Project #: CA17_7694_010

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,825	3,685	7,510

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			7		4		11		12:00			47		38		85	
00:15			4		4		8		12:15			41		46		87	
00:30			2		1		3		12:30			46		46		92	
00:45			3	16	1	10	4	26	12:45			54	188	43	173	97	361
01:00			3		2		5		13:00			55		48		103	
01:15			1		1		2		13:15			48		48		96	
01:30			1		1		2		13:30			62		54		116	
01:45			1	6	1	5	2	11	13:45			55	220	70	220	125	440
02:00			3		2		5		14:00			67		55		122	
02:15			1		2		3		14:15			59		53		112	
02:30			1		2		3		14:30			64		52		116	
02:45			1	6	2	8	3	14	14:45			67	257	56	216	123	473
03:00			1		3		4		15:00			58		55		113	
03:15			1		2		3		15:15			61		55		116	
03:30			1		6		7		15:30			72		62		134	
03:45			5	8	2	13	7	21	15:45			79	270	60	232	139	502
04:00			1		7		8		16:00			87		82		169	
04:15			1		8		9		16:15			97		71		168	
04:30			5		11		16		16:30			105		53		158	
04:45			8	15	9	35	17	50	16:45			99	388	61	267	160	655
05:00			6		15		21		17:00			116		89		205	
05:15			6		14		20		17:15			134		81		215	
05:30			21		24		45		17:30			112		66		178	
05:45			23	56	28	81	51	137	17:45			87	449	59	295	146	744
06:00			22		29		51		18:00			83		57		140	
06:15			28		48		76		18:15			57		63		120	
06:30			39		70		109		18:30			59		51		110	
06:45			55	144	85	232	140	376	18:45			49	248	49	220	98	468
07:00			53		90		143		19:00			57		32		89	
07:15			65		117		182		19:15			42		33		75	
07:30			75		118		193		19:30			42		39		81	
07:45			65	258	145	470	210	728	19:45			44	185	27	131	71	316
08:00			88		166		254		20:00			39		31		70	
08:15			84		81		165		20:15			31		19		50	
08:30			64		55		119		20:30			28		21		49	
08:45			65	301	53	355	118	656	20:45			37	135	17	88	54	223
09:00			51		47		98		21:00			34		16		50	
09:15			43		28		71		21:15			21		22		43	
09:30			48		48		96		21:30			15		13		28	
09:45			44	186	37	160	81	346	21:45			8	78	12	63	20	141
10:00			47		42		89		22:00			18		12		30	
10:15			35		36		71		22:15			12		11		23	
10:30			42		42		84		22:30			4		7		11	
10:45			28	152	60	180	88	332	22:45			8	42	9	39	17	81
11:00			34		42		76		23:00			19		6		25	
11:15			52		38		90		23:15			2		3		5	
11:30			48		47		95		23:30			10		2		12	
11:45			44	178	53	180	97	358	23:45			8	39	1	12	9	51
TOTALS				1326		1729		**3055**	**TOTALS**				2499		1956		**4455**
SPLIT %				43.4%		56.6%		**40.7%**	**SPLIT %**				56.1%		43.9%		**59.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,825	3,685	7,510

AM Peak Hour			07:30	07:15	**07:15**	**PM Peak Hour**			16:45	16:45	**16:45**
AM Pk Volume			312	546	**839**	**PM Pk Volume**			461	297	**758**
Pk Hr Factor			0.886	0.822	**0.826**	**Pk Hr Factor**			0.860	0.834	**0.881**
7 - 9 Volume	0	0	559	825	**1384**	**4 - 6 Volume**	0	0	837	562	**1399**
7 - 9 Peak Hour			07:30	07:15	**07:15**	**4 - 6 Peak Hour**			16:45	16:45	**16:45**
7 - 9 Pk Volume	0	0	312	546	**839**	**4 - 6 Pk Volume**	0	0	461	297	**758**
Pk Hr Factor	0.000	0.000	0.886	0.822	**0.826**	**Pk Hr Factor**	0.000	0.000	0.860	0.834	**0.881**

Prepared by NDS/ATD

VOLUME

White Rock Rd Bet. Zinfandel Dr & Sunrise Blvd

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_011

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,925	8,018	15,943

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			3		9		12		12:00			144		153		297	
00:15			4		5		9		12:15			174		173		347	
00:30			6		6		12		12:30			165		155		320	
00:45			3	16	4	24	7	40	12:45			146	629	148	629	294	1258
01:00			2		9		11		13:00			153		134		287	
01:15			1		5		6		13:15			143		154		297	
01:30			2		6		8		13:30			144		134		278	
01:45			1	6	1	21	2	27	13:45			122	562	120	542	242	1104
02:00			4		2		6		14:00			128		114		242	
02:15			3		1		4		14:15			109		119		228	
02:30			5		4		9		14:30			130		151		281	
02:45			11	23	3	10	14	33	14:45			105	472	141	525	246	997
03:00			5		8		13		15:00			151		149		300	
03:15			6		18		24		15:15			122		133		255	
03:30			4		19		23		15:30			150		173		323	
03:45			8	23	8	53	16	76	15:45			153	576	154	609	307	1185
04:00			10		7		17		16:00			241		137		378	
04:15			17		14		31		16:15			209		130		339	
04:30			26		14		40		16:30			249		149		398	
04:45			55	108	27	62	82	170	16:45			186	885	141	557	327	1442
05:00			42		21		63		17:00			228		169		397	
05:15			45		28		73		17:15			209		129		338	
05:30			89		57		146		17:30			176		113		289	
05:45			145	321	76	182	221	503	17:45			150	763	124	535	274	1298
06:00			77		74		151		18:00			142		119		261	
06:15			104		131		235		18:15			110		83		193	
06:30			125		135		260		18:30			81		75		156	
06:45			137	443	147	487	284	930	18:45			65	398	78	355	143	753
07:00			104		175		279		19:00			72		74		146	
07:15			101		207		308		19:15			72		64		136	
07:30			109		193		302		19:30			60		67		127	
07:45			155	469	188	763	343	1232	19:45			67	271	66	271	133	542
08:00			92		204		296		20:00			55		50		105	
08:15			114		171		285		20:15			36		42		78	
08:30			93		188		281		20:30			26		48		74	
08:45			99	398	180	743	279	1141	20:45			25	142	37	177	62	319
09:00			99		129		228		21:00			24		37		61	
09:15			87		107		194		21:15			22		27		49	
09:30			89		113		202		21:30			23		15		38	
09:45			112	387	89	438	201	825	21:45			13	82	19	98	32	180
10:00			93		94		187		22:00			15		22		37	
10:15			102		92		194		22:15			14		16		30	
10:30			99		97		196		22:30			15		11		26	
10:45			114	408	102	385	216	793	22:45			8	52	8	57	16	109
11:00			111		95		206		23:00			11		18		29	
11:15			91		113		204		23:15			8		8		16	
11:30			125		127		252		23:30			7		12		19	
11:45			134	461	116	451	250	912	23:45			4	30	6	44	10	74
TOTALS				3063		3619		6682	TOTALS				4862		4399		9261
SPLIT %				45.8%		54.2%		41.9%	SPLIT %				52.5%		47.5%		58.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,925	8,018	15,943

AM Peak Hour			11:45	07:15	07:15	PM Peak Hour			16:00	12:00	16:15
AM Pk Volume			617	792	1249	PM Pk Volume			885	629	1461
Pk Hr Factor			0.886	0.957	0.910	Pk Hr Factor			0.889	0.909	0.918
7 - 9 Volume	0	0	867	1506	2373	4 - 6 Volume	0	0	1648	1092	2740
7 - 9 Peak Hour			07:30	07:15	07:15	4 - 6 Peak Hour			16:00	16:15	16:15
7 - 9 Pk Volume	0	0	470	792	1249	4 - 6 Pk Volume	0	0	885	589	1461
Pk Hr Factor	0.000	0.000	0.758	0.957	0.910	Pk Hr Factor	0.000	0.000	0.889	0.871	0.918

Prepared by NDS/ATD

VOLUME

White Rock Rd Bet. Sunrise Blvd & Grant Line Rd

Day: Thursday
Date: 9/28/2017

City: Rancho Cordova
Project #: CA17_7694_012

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,123	1,410	3,533

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		1		1		12:00			21		18		39	
00:15			0		0		0		12:15			13		8		21	
00:30			0		0		0		12:30			17		5		22	
00:45			0		1	2	1	2	12:45			24	75	19	50	43	125
01:00			2		1		3		13:00			20		14		34	
01:15			0		0		0		13:15			17		10		27	
01:30			0		0		0		13:30			20		15		35	
01:45			0	2	1	2	1	4	13:45			24	81	21	60	45	141
02:00			0		0		0		14:00			23		15		38	
02:15			0		1		1		14:15			26		9		35	
02:30			0		0		0		14:30			37		5		42	
02:45			0		0	1	0	1	14:45			27	113	19	48	46	161
03:00			1		0		1		15:00			40		21		61	
03:15			1		0		1		15:15			37		18		55	
03:30			0		1		1		15:30			75		17		92	
03:45			0	2	1	2	1	4	15:45			53	205	21	77	74	282
04:00			0		0		0		16:00			112		25		137	
04:15			1		0		1		16:15			108		21		129	
04:30			1		0		1		16:30			154		19		173	
04:45			2	4	4	4	6	8	16:45			169	543	16	81	185	624
05:00			4		3		7		17:00			180		14		194	
05:15			5		8		13		17:15			205		13		218	
05:30			7		18		25		17:30			126		8		134	
05:45			8	24	19	48	27	72	17:45			83	594	7	42	90	636
06:00			8		25		33		18:00			59		14		73	
06:15			10		20		30		18:15			30		11		41	
06:30			15		35		50		18:30			24		9		33	
06:45			16	49	43	123	59	172	18:45			12	125	9	43	21	168
07:00			16		76		92		19:00			8		4		12	
07:15			7		91		98		19:15			7		5		12	
07:30			14		94		108		19:30			9		5		14	
07:45			10	47	102	363	112	410	19:45			5	29	3	17	8	46
08:00			9		65		74		20:00			3		1		4	
08:15			13		73		86		20:15			6		4		10	
08:30			14		43		57		20:30			3		0		3	
08:45			11	47	41	222	52	269	20:45			1	13	1	6	2	19
09:00			12		32		44		21:00			2		3		5	
09:15			8		39		47		21:15			0		2		2	
09:30			12		15		27		21:30			1		0		1	
09:45			11	43	13	99	24	142	21:45			3	6	1	6	4	12
10:00			11		9		20		22:00			4		4		8	
10:15			11		17		28		22:15			2		3		5	
10:30			16		10		26		22:30			3		2		5	
10:45			9	47	15	51	24	98	22:45			1	10	1	10	2	20
11:00			12		8		20		23:00			0		0		0	
11:15			20		13		33		23:15			0		0		0	
11:30			14		22		36		23:30			2		1		3	
11:45			16	62	8	51	24	113	23:45			0	2	1	2	1	4
TOTALS				327		968		1295	TOTALS				1796		442		2238
SPLIT %				25.3%		74.7%		36.7%	SPLIT %				80.3%		19.7%		63.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,123	1,410	3,533

AM Peak Hour			11:15	07:00	07:00	PM Peak Hour			16:30	15:45	16:30
AM Pk Volume			71	363	410	PM Pk Volume			708	86	770
Pk Hr Factor			0.845	0.890	0.915	Pk Hr Factor			0.863	0.860	0.883
7 - 9 Volume	0	0	94	585	679	4 - 6 Volume	0	0	1137	123	1260
7 - 9 Peak Hour			07:00	07:00	07:00	4 - 6 Peak Hour			16:30	16:00	16:30
7 - 9 Pk Volume	0	0	47	363	410	4 - 6 Pk Volume	0	0	708	81	770
Pk Hr Factor	0.000	0.000	0.734	0.890	0.915	Pk Hr Factor	0.000	0.000	0.863	0.810	0.883

Prepared by NDS/ATD

VOLUME

White Rock Rd Bet. Grant Line Rd & Prairie City Rd

Day: Thursday
Date: 9/28/2017

City: Rancho Cordova
Project #: CA17_7694_013

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	8,090	7,346	15,436

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			9		7		16		12:00			69		101		170	
00:15			1		3		4		12:15			76		92		168	
00:30			3		6		9		12:30			101		73		174	
00:45			4	17	2	18	6	35	12:45			85	331	90	356	175	687
01:00			9		4		13		13:00			89		90		179	
01:15			4		3		7		13:15			99		86		185	
01:30			1		4		5		13:30			69		103		172	
01:45			7	21	2	13	9	34	13:45			102	359	114	393	216	752
02:00			7		1		8		14:00			72		98		170	
02:15			3		6		9		14:15			84		95		179	
02:30			3		4		7		14:30			99		101		200	
02:45			1	14	4	15	5	29	14:45			132	387	117	411	249	798
03:00			1		2		3		15:00			113		111		224	
03:15			1		4		5		15:15			126		143		269	
03:30			3		7		10		15:30			162		165		327	
03:45			1	6	5	18	6	24	15:45			183	584	178	597	361	1181
04:00			4		3		7		16:00			198		183		381	
04:15			9		8		17		16:15			230		177		407	
04:30			14		12		26		16:30			289		195		484	
04:45			13	40	15	38	28	78	16:45			298	1015	162	717	460	1732
05:00			22		28		50		17:00			271		176		447	
05:15			27		31		58		17:15			389		204		593	
05:30			42		45		87		17:30			255		148		403	
05:45			43	134	56	160	99	294	17:45			226	1141	167	695	393	1836
06:00			72		79		151		18:00			155		114		269	
06:15			96		79		175		18:15			128		130		258	
06:30			104		111		215		18:30			112		66		178	
06:45			137	409	150	419	287	828	18:45			86	481	72	382	158	863
07:00			154		172		326		19:00			68		60		128	
07:15			176		213		389		19:15			63		72		135	
07:30			181		210		391		19:30			35		42		77	
07:45			223	734	223	818	446	1552	19:45			38	204	61	235	99	439
08:00			219		180		399		20:00			33		44		77	
08:15			194		163		357		20:15			27		50		77	
08:30			177		145		322		20:30			20		41		61	
08:45			166	756	120	608	286	1364	20:45			32	112	28	163	60	275
09:00			140		131		271		21:00			26		40		66	
09:15			132		100		232		21:15			20		37		57	
09:30			101		89		190		21:30			22		25		47	
09:45			99	472	105	425	204	897	21:45			23	91	25	127	48	218
10:00			117		72		189		22:00			19		29		48	
10:15			130		73		203		22:15			13		21		34	
10:30			85		71		156		22:30			14		14		28	
10:45			79	411	81	297	160	708	22:45			4	50	18	82	22	132
11:00			71		87		158		23:00			10		7		17	
11:15			69		71		140		23:15			10		9		19	
11:30			60		73		133		23:30			4		4		8	
11:45			91	291	103	334	194	625	23:45			6	30	5	25	11	55
TOTALS				3305		3163		6468	TOTALS				4785		4183		8968
SPLIT %				51.1%		48.9%		41.9%	SPLIT %				53.4%		46.6%		58.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	8,090	7,346	15,436

AM Peak Hour			07:30	07:15	07:15	PM Peak Hour			16:30	16:30	16:30
AM Pk Volume			817	826	1625	PM Pk Volume			1247	737	1984
Pk Hr Factor			0.916	0.926	0.911	Pk Hr Factor			0.801	0.903	0.836
7 - 9 Volume	0	0	1490	1426	2916	4 - 6 Volume	0	0	2156	1412	3568
7 - 9 Peak Hour			07:30	07:15	07:15	4 - 6 Peak Hour			16:30	16:30	16:30
7 - 9 Pk Volume	0	0	817	826	1625	4 - 6 Pk Volume	0	0	1247	737	1984
Pk Hr Factor	0.000	0.000	0.916	0.926	0.911	Pk Hr Factor	0.000	0.000	0.801	0.903	0.836

Prepared by NDS/ATD

VOLUME

Mather Field Rd Bet. Folsom Blvd & US-50 WB Ramps

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_014

DAILY TOTALS	NB	SB	EB	WB	Total
	11,787	10,756	0	0	22,543

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	31		21						52		12:00	163		138						301	
00:15	27		11						38		12:15	181		160						341	
00:30	27		10						37		12:30	178		198						376	
00:45	16	101	7	49					23	150	12:45	177	699	172	668					349	1367
01:00	17		9						26		13:00	158		163						321	
01:15	18		4						22		13:15	133		163						296	
01:30	21		4						25		13:30	152		142						294	
01:45	10	66	2	19					12	85	13:45	172	615	189	657					361	1272
02:00	16		5						21		14:00	161		150						311	
02:15	16		3						19		14:15	218		202						420	
02:30	18		2						20		14:30	214		170						384	
02:45	8	58	1	11					9	69	14:45	219	812	182	704					401	1516
03:00	6		3						9		15:00	183		219						402	
03:15	9		6						15		15:15	242		209						451	
03:30	11		5						16		15:30	238		184						422	
03:45	6	32	4	18					10	50	15:45	241	904	174	786					415	1690
04:00	14		2						16		16:00	250		168						418	
04:15	11		11						22		16:15	251		167						418	
04:30	10		16						26		16:30	274		151						425	
04:45	20	55	14	43					34	98	16:45	269	1044	155	641					424	1685
05:00	19		13						32		17:00	274		170						444	
05:15	23		20						43		17:15	256		160						416	
05:30	30		30						60		17:30	311		159						470	
05:45	41	113	50	113					91	226	17:45	202	1043	192	681					394	1724
06:00	48		80						128		18:00	216		145						361	
06:15	67		87						154		18:15	214		179						393	
06:30	78		94						172		18:30	220		171						391	
06:45	104	297	87	348					191	645	18:45	199	849	221	716					420	1565
07:00	102		98						200		19:00	182		155						337	
07:15	189		122						311		19:15	150		135						285	
07:30	274		159						433		19:30	140		145						285	
07:45	217	782	157	536					374	1318	19:45	142	614	106	541					248	1155
08:00	173		181						354		20:00	155		110						265	
08:15	174		198						372		20:15	158		103						261	
08:30	150		268						418		20:30	124		94						218	
08:45	145	642	235	882					380	1524	20:45	107	544	100	407					207	951
09:00	148		174						322		21:00	122		87						209	
09:15	122		128						250		21:15	111		95						206	
09:30	123		211						334		21:30	102		86						188	
09:45	122	515	222	735					344	1250	21:45	87	422	99	367					186	789
10:00	137		218						355		22:00	72		70						142	
10:15	111		191						302		22:15	71		49						120	
10:30	148		186						334		22:30	60		42						102	
10:45	174	570	208	803					382	1373	22:45	61	264	32	193					93	457
11:00	160		214						374		23:00	46		23						69	
11:15	126		209						335		23:15	46		19						65	
11:30	133		188						321		23:30	35		18						53	
11:45	156	575	155	766					311	1341	23:45	44	171	12	72					56	243
TOTALS		3806		4323						8129	TOTALS		7981		6433						14414
SPLIT %		46.8%		53.2%						36.1%	SPLIT %		55.4%		44.6%						63.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	11,787	10,756	0	0	22,543

AM Peak Hour	07:15	08:00			07:30	PM Peak Hour	16:45	14:45			16:45
AM Pk Volume	853	882			1533	PM Pk Volume	1110	794			1754
Pk Hr Factor	0.778	0.823			0.885	Pk Hr Factor	0.892	0.906			0.933
7 - 9 Volume	1424	1418	0	0	2842	4 - 6 Volume	2087	1322	0	0	3409
7 - 9 Peak Hour	07:15	08:00			07:30	4 - 6 Peak Hour	16:45	17:00			16:45
7 - 9 Pk Volume	853	882	0	0	1533	4 - 6 Pk Volume	1110	681	0	0	1754
Pk Hr Factor	0.778	0.823	0.000	0.000	0.885	Pk Hr Factor	0.892	0.887	0.000	0.000	0.933

Prepared by NDS/ATD

VOLUME

Mather Field Rd Bet. US-50 WB Ramps & US-50 EB Ramps

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_015

DAILY TOTALS	NB	SB	EB	WB	Total
	20,606	14,422	0	0	35,028

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	46		35						81		12:00	298		185						483	
00:15	37		21						58		12:15	318		208						526	
00:30	41		23						64		12:30	282		233						515	
00:45	19	143	15	94					34	237	12:45	261	1159	218	844					479	2003
01:00	21		13						34		13:00	248		213						461	
01:15	22		14						36		13:15	248		193						441	
01:30	27		13						40		13:30	296		198						494	
01:45	20	90	15	55					35	145	13:45	288	1080	203	807					491	1887
02:00	24		12						36		14:00	300		163						463	
02:15	19		11						30		14:15	347		213						560	
02:30	30		15						45		14:30	431		187						618	
02:45	21	94	11	49					32	143	14:45	406	1484	219	782					625	2266
03:00	14		12						26		15:00	368		246						614	
03:15	20		16						36		15:15	431		248						679	
03:30	18		12						30		15:30	489		220						709	
03:45	33	85	14	54					47	139	15:45	463	1751	226	940					689	2691
04:00	34		16						50		16:00	494		196						690	
04:15	24		17						41		16:15	449		228						677	
04:30	55		28						83		16:30	569		216						785	
04:45	44	157	33	94					77	251	16:45	549	2061	219	859					768	2920
05:00	44		46						90		17:00	581		218						799	
05:15	60		55						115		17:15	585		234						819	
05:30	99		114						213		17:30	400		222						622	
05:45	134	337	156	371					290	708	17:45	294	1860	199	873					493	2733
06:00	130		133						263		18:00	370		175						545	
06:15	166		195						361		18:15	306		187						493	
06:30	228		238						466		18:30	296		189						485	
06:45	305	829	332	898					637	1727	18:45	264	1236	207	758					471	1994
07:00	279		295						574		19:00	263		153						416	
07:15	319		345						664		19:15	213		140						353	
07:30	363		460						823		19:30	191		129						320	
07:45	308	1269	464	1564					772	2833	19:45	208	875	136	558					344	1433
08:00	308		379						687		20:00	194		107						301	
08:15	291		372						663		20:15	184		108						292	
08:30	271		344						615		20:30	164		101						265	
08:45	236	1106	299	1394					535	2500	20:45	146	688	128	444					274	1132
09:00	254		229						483		21:00	168		92						260	
09:15	230		219						449		21:15	144		94						238	
09:30	248		218						466		21:30	116		78						194	
09:45	252	984	183	849					435	1833	21:45	113	541	92	356					205	897
10:00	261		175						436		22:00	127		68						195	
10:15	236		154						390		22:15	96		59						155	
10:30	255		163						418		22:30	79		44						123	
10:45	303	1055	183	675					486	1730	22:45	67	369	40	211					107	580
11:00	292		173						465		23:00	65		45						110	
11:15	249		176						425		23:15	67		34						101	
11:30	256		198						454		23:30	59		34						93	
11:45	298	1095	213	760					511	1855	23:45	67	258	20	133					87	391
TOTALS		7244		6857						14101	TOTALS		13362		7565						20927
SPLIT %		51.4%		48.6%						40.3%	SPLIT %		63.9%		36.1%						59.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	20,606	14,422	0	0	35,028

AM Peak Hour	07:15	07:30			07:15	PM Peak Hour	16:30	15:00			16:30
AM Pk Volume	1298	1675			2946	PM Pk Volume	2284	940			3171
Pk Hr Factor	0.894	0.902			0.895	Pk Hr Factor	0.976	0.948			0.968
7 - 9 Volume	2375	2958	0	0	5333	4 - 6 Volume	3921	1732	0	0	5653
7 - 9 Peak Hour	07:15	07:30			07:15	4 - 6 Peak Hour	16:30	16:45			16:30
7 - 9 Pk Volume	1298	1675	0	0	2946	4 - 6 Pk Volume	2284	893	0	0	3171
Pk Hr Factor	0.894	0.902	0.000	0.000	0.895	Pk Hr Factor	0.976	0.954	0.000	0.000	0.968

Prepared by NDS/ATD

VOLUME

Mather Field Rd Bet. US-50 EB Ramps & International Dr

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_016

DAILY TOTALS	NB	SB	EB	WB	Total
	21,881	20,347	0	0	42,228

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	41		56						97		12:00	354		271						625	
00:15	35		38						73		12:15	377		255						632	
00:30	29		34						63		12:30	312		292						604	
00:45	8	113	17	145					25	258	12:45	301	1344	313	1131					614	2475
01:00	11		24						35		13:00	286		265						551	
01:15	17		16						33		13:15	311		262						573	
01:30	17		11						28		13:30	322		267						589	
01:45	12	57	22	73					34	130	13:45	311	1230	275	1069					586	2299
02:00	19		14						33		14:00	386		229						615	
02:15	11		17						28		14:15	383		276						659	
02:30	16		25						41		14:30	525		236						761	
02:45	13	59	19	75					32	134	14:45	471	1765	276	1017					747	2782
03:00	8		17						25		15:00	448		315						763	
03:15	17		22						39		15:15	500		326						826	
03:30	14		15						29		15:30	662		269						931	
03:45	24	63	19	73					43	136	15:45	562	2172	303	1213					865	3385
04:00	20		22						42		16:00	610		268						878	
04:15	21		19						40		16:15	571		312						883	
04:30	50		44						94		16:30	675		322						997	
04:45	42	133	51	136					93	269	16:45	584	2440	329	1231					913	3671
05:00	39		57						96		17:00	653		325						978	
05:15	55		95						150		17:15	537		339						876	
05:30	94		179						273		17:30	416		351						767	
05:45	110	298	289	620					399	918	17:45	338	1944	302	1317					640	3261
06:00	126		202						328		18:00	419		258						677	
06:15	146		257						403		18:15	298		282						580	
06:30	244		341						585		18:30	310		258						568	
06:45	319	835	507	1307					826	2142	18:45	272	1299	233	1031					505	2330
07:00	284		488						772		19:00	267		194						461	
07:15	361		508						869		19:15	215		210						425	
07:30	356		613						969		19:30	164		185						349	
07:45	321	1322	664	2273					985	3595	19:45	199	845	173	762					372	1607
08:00	313		590						903		20:00	200		165						365	
08:15	304		563						867		20:15	144		156						300	
08:30	303		509						812		20:30	135		147						282	
08:45	244	1164	456	2118					700	3282	20:45	110	589	173	641					283	1230
09:00	273		340						613		21:00	127		141						268	
09:15	250		293						543		21:15	123		141						264	
09:30	251		263						514		21:30	86		121						207	
09:45	225	999	237	1133					462	2132	21:45	74	410	121	524					195	934
10:00	295		214						509		22:00	108		111						219	
10:15	248		233						481		22:15	83		93						176	
10:30	269		236						505		22:30	52		77						129	
10:45	285	1097	246	929					531	2026	22:45	40	283	76	357					116	640
11:00	309		217						526		23:00	45		66						111	
11:15	292		213						505		23:15	46		69						115	
11:30	313		254						567		23:30	42		57						99	
11:45	324	1238	253	937					577	2175	23:45	49	182	43	235					92	417
TOTALS		7378		9819						17197	TOTALS		14503		10528						25031
SPLIT %		42.9%		57.1%						40.7%	SPLIT %		57.9%		42.1%						59.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	21,881	20,347	0	0	42,228

AM Peak Hour	11:30	07:30			07:15	PM Peak Hour	16:15	16:45			16:15
AM Pk Volume	1368	2430			3726	PM Pk Volume	2483	1344			3771
Pk Hr Factor	0.907	0.915			0.946	Pk Hr Factor	0.920	0.957			0.946
7 - 9 Volume	2486	4391	0	0	6877	4 - 6 Volume	4384	2548	0	0	6932
7 - 9 Peak Hour	07:15	07:30			07:15	4 - 6 Peak Hour	16:15	16:45			16:15
7 - 9 Pk Volume	1351	2430	0	0	3726	4 - 6 Pk Volume	2483	1344	0	0	3771
Pk Hr Factor	0.936	0.915	0.000	0.000	0.946	Pk Hr Factor	0.920	0.957	0.000	0.000	0.946

Prepared by NDS/ATD

VOLUME

Zinfandel Dr Bet. Folsom Blvd & US-50 WB Ramps

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_017

DAILY TOTALS	NB	SB	EB	WB	Total
	12,026	10,354	0	0	22,380

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	19		21						40		12:00	223		183						406	
00:15	20		19						39		12:15	213		186						399	
00:30	17		26						43		12:30	227		185						412	
00:45	15	71	8	74					23	145	12:45	221	884	190	744					411	1628
01:00	14		7						21		13:00	205		161						366	
01:15	7		13						20		13:15	224		189						413	
01:30	8		10						18		13:30	199		188						387	
01:45	5	34	7	37					12	71	13:45	181	809	137	675					318	1484
02:00	8		14						22		14:00	203		165						368	
02:15	6		7						13		14:15	227		147						374	
02:30	8		9						17		14:30	211		162						373	
02:45	9	31	7	37					16	68	14:45	227	868	182	656					409	1524
03:00	4		5						9		15:00	232		192						424	
03:15	7		7						14		15:15	221		200						421	
03:30	9		5						14		15:30	245		168						413	
03:45	14	34	14	31					28	65	15:45	250	948	163	723					413	1671
04:00	7		18						25		16:00	308		178						486	
04:15	8		15						23		16:15	269		158						427	
04:30	9		35						44		16:30	260		172						432	
04:45	26	50	25	93					51	143	16:45	298	1135	167	675					465	1810
05:00	12		28						40		17:00	302		203						505	
05:15	17		40						57		17:15	312		205						517	
05:30	21		62						83		17:30	302		174						476	
05:45	42	92	54	184					96	276	17:45	272	1188	195	777					467	1965
06:00	55		67						122		18:00	241		197						438	
06:15	46		96						142		18:15	239		189						428	
06:30	65		123						188		18:30	196		161						357	
06:45	72	238	135	421					207	659	18:45	232	908	165	712					397	1620
07:00	91		156						247		19:00	202		153						355	
07:15	121		164						285		19:15	172		146						318	
07:30	153		145						298		19:30	158		145						303	
07:45	149	514	179	644					328	1158	19:45	163	695	141	585					304	1280
08:00	156		188						344		20:00	127		124						251	
08:15	134		168						302		20:15	117		113						230	
08:30	120		159						279		20:30	116		91						207	
08:45	124	534	146	661					270	1195	20:45	113	473	95	423					208	896
09:00	130		125						255		21:00	105		67						172	
09:15	117		132						249		21:15	100		86						186	
09:30	112		128						240		21:30	76		68						144	
09:45	112	471	99	484					211	955	21:45	75	356	59	280					134	636
10:00	140		125						265		22:00	81		43						124	
10:15	148		142						290		22:15	52		45						97	
10:30	140		132						272		22:30	45		41						86	
10:45	148	576	121	520					269	1096	22:45	41	219	34	163					75	382
11:00	171		134						305		23:00	38		35						73	
11:15	169		153						322		23:15	24		31						55	
11:30	238		179						417		23:30	38		19						57	
11:45	198	776	182	648					380	1424	23:45	22	122	22	107					44	229
TOTALS		3421		3834						7255	TOTALS		8605		6520						15125
SPLIT %		47.2%		52.8%						32.4%	SPLIT %		56.9%		43.1%						67.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	12,026	10,354	0	0	22,380

AM Peak Hour	11:30	11:45			11:30	PM Peak Hour	16:45	17:00			17:00
AM Pk Volume	872	736			1602	PM Pk Volume	1214	777			1965
Pk Hr Factor	0.916	0.989			0.960	Pk Hr Factor	0.973	0.948			0.950
7 - 9 Volume	1048	1305	0	0	2353	4 - 6 Volume	2323	1452	0	0	3775
7 - 9 Peak Hour	07:30	07:45			07:30	4 - 6 Peak Hour	16:45	17:00			17:00
7 - 9 Pk Volume	592	694	0	0	1272	4 - 6 Pk Volume	1214	777	0	0	1965
Pk Hr Factor	0.949	0.923	0.000	0.000	0.924	Pk Hr Factor	0.973	0.948	0.000	0.000	0.950

Prepared by NDS/ATD

VOLUME

Zinfandel Dr Bet. US-50 EB Ramps & White Rock Rd

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_018

DAILY TOTALS	NB	SB	EB	WB	Total
	24,091	26,424	0	0	50,515

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	38		29						67		12:00	393		379						772	
00:15	27		35						62		12:15	423		407						830	
00:30	20		41						61		12:30	389		432						821	
00:45	17	102	24	129					41	231	12:45	382	1587	454	1672					836	3259
01:00	24		24						48		13:00	389		381						770	
01:15	23		14						37		13:15	321		421						742	
01:30	23		21						44		13:30	403		407						810	
01:45	13	83	20	79					33	162	13:45	370	1483	389	1598					759	3081
02:00	8		15						23		14:00	428		307						735	
02:15	13		17						30		14:15	426		371						797	
02:30	19		17						36		14:30	503		373						876	
02:45	19	59	21	70					40	129	14:45	492	1849	363	1414					855	3263
03:00	13		13						26		15:00	515		366						881	
03:15	34		16						50		15:15	475		432						907	
03:30	43		20						63		15:30	542		337						879	
03:45	36	126	18	67					54	193	15:45	541	2073	419	1554					960	3627
04:00	28		28						56		16:00	547		394						941	
04:15	41		26						67		16:15	534		436						970	
04:30	45		62						107		16:30	593		393						986	
04:45	55	169	109	225					164	394	16:45	553	2227	411	1634					964	3861
05:00	65		75						140		17:00	572		407						979	
05:15	83		127						210		17:15	543		458						1001	
05:30	129		198						327		17:30	555		399						954	
05:45	140	417	330	730					470	1147	17:45	526	2196	413	1677					939	3873
06:00	160		288						448		18:00	438		397						835	
06:15	221		343						564		18:15	485		353						838	
06:30	290		420						710		18:30	372		339						711	
06:45	309	980	491	1542					800	2522	18:45	377	1672	330	1419					707	3091
07:00	339		470						809		19:00	311		319						630	
07:15	381		558						939		19:15	259		318						577	
07:30	383		592						975		19:30	265		301						566	
07:45	386	1489	691	2311					1077	3800	19:45	240	1075	282	1220					522	2295
08:00	345		660						1005		20:00	248		255						503	
08:15	322		637						959		20:15	162		242						404	
08:30	342		623						965		20:30	166		216						382	
08:45	327	1336	613	2533					940	3869	20:45	141	717	217	930					358	1647
09:00	286		482						768		21:00	142		185						327	
09:15	256		425						681		21:15	146		171						317	
09:30	240		339						579		21:30	100		164						264	
09:45	223	1005	347	1593					570	2598	21:45	96	484	140	660					236	1144
10:00	211		281						492		22:00	120		125						245	
10:15	217		320						537		22:15	71		109						180	
10:30	218		316						534		22:30	77		118						195	
10:45	307	953	348	1265					655	2218	22:45	60	328	69	421					129	749
11:00	349		316						665		23:00	59		75						134	
11:15	344		359						703		23:15	36		60						96	
11:30	398		378						776		23:30	43		42						85	
11:45	399	1490	393	1446					792	2936	23:45	53	191	58	235					111	426
TOTALS		8209		11990						20199	TOTALS		15882		14434						30316
SPLIT %		40.6%		59.4%						40.0%	SPLIT %		52.4%		47.6%						60.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	24,091	26,424	0	0	50,515

AM Peak Hour	11:30	07:45			07:30	PM Peak Hour	16:30	12:30			16:30
AM Pk Volume	1613	2611			4016	PM Pk Volume	2261	1688			3930
Pk Hr Factor	0.953	0.945			0.932	Pk Hr Factor	0.953	0.930			0.982
7 - 9 Volume	2825	4844	0	0	7669	4 - 6 Volume	4423	3311	0	0	7734
7 - 9 Peak Hour	07:15	07:45			07:30	4 - 6 Peak Hour	16:30	17:00			16:30
7 - 9 Pk Volume	1495	2611	0	0	4016	4 - 6 Pk Volume	2261	1677	0	0	3930
Pk Hr Factor	0.968	0.945	0.000	0.000	0.932	Pk Hr Factor	0.953	0.915	0.000	0.000	0.982

Prepared by NDS/ATD

VOLUME

Zinfandel Dr Bet. White Rock Rd & International Dr

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_019

DAILY TOTALS	NB	SB	EB	WB	Total
	11,407	12,278	0	0	23,685

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	10		18						28		12:00	214		198						412	
00:15	13		19						32		12:15	214		201						415	
00:30	9		19						28		12:30	196		198						394	
00:45	4	36	13	69					17	105	12:45	193	817	190	787					383	1604
01:00	10		7						17		13:00	196		180						376	
01:15	12		8						20		13:15	158		193						351	
01:30	13		8						21		13:30	170		200						370	
01:45	3	38	5	28					8	66	13:45	170	694	176	749					346	1443
02:00	4		5						9		14:00	180		160						340	
02:15	6		12						18		14:15	192		175						367	
02:30	8		4						12		14:30	203		183						386	
02:45	5	23	6	27					11	50	14:45	233	808	186	704					419	1512
03:00	4		8						12		15:00	231		182						413	
03:15	5		5						10		15:15	187		244						431	
03:30	6		8						14		15:30	237		200						437	
03:45	17	32	8	29					25	61	15:45	182	837	206	832					388	1669
04:00	10		9						19		16:00	228		222						450	
04:15	14		6						20		16:15	192		252						444	
04:30	24		16						40		16:30	198		227						425	
04:45	29	77	28	59					57	136	16:45	211	829	263	964					474	1793
05:00	31		20						51		17:00	184		286						470	
05:15	44		31						75		17:15	222		323						545	
05:30	62		31						93		17:30	167		257						424	
05:45	83	220	86	168					169	388	17:45	170	743	264	1130					434	1873
06:00	92		89						181		18:00	201		229						430	
06:15	117		100						217		18:15	175		218						393	
06:30	160		145						305		18:30	146		195						341	
06:45	198	567	165	499					363	1066	18:45	175	697	194	836					369	1533
07:00	229		153						382		19:00	134		184						318	
07:15	233		165						398		19:15	114		158						272	
07:30	276		231						507		19:30	134		160						294	
07:45	232	970	257	806					489	1776	19:45	102	484	143	645					245	1129
08:00	240		255						495		20:00	104		135						239	
08:15	202		246						448		20:15	87		125						212	
08:30	205		200						405		20:30	72		115						187	
08:45	170	817	221	922					391	1739	20:45	65	328	117	492					182	820
09:00	170		179						349		21:00	72		89						161	
09:15	145		151						296		21:15	58		85						143	
09:30	143		139						282		21:30	42		86						128	
09:45	154	612	145	614					299	1226	21:45	34	206	78	338					112	544
10:00	153		121						274		22:00	52		63						115	
10:15	136		139						275		22:15	41		61						102	
10:30	153		158						311		22:30	41		64						105	
10:45	148	590	138	556					286	1146	22:45	23	157	14	202					37	359
11:00	161		148						309		23:00	25		36						61	
11:15	172		183						355		23:15	15		34						49	
11:30	218		188						406		23:30	15		26						41	
11:45	190	741	173	692					363	1433	23:45	29	84	34	130					63	214
TOTALS		4723		4469						9192	TOTALS		6684		7809						14493
SPLIT %		51.4%		48.6%						38.8%	SPLIT %		46.1%		53.9%						61.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	11,407	12,278	0	0	23,685

AM Peak Hour	07:15	07:30			07:30	PM Peak Hour	14:45	17:00			16:30
AM Pk Volume	981	989			1939	PM Pk Volume	888	1130			1914
Pk Hr Factor	0.889	0.962			0.956	Pk Hr Factor	0.937	0.875			0.878
7 - 9 Volume	1787	1728	0	0	3515	4 - 6 Volume	1572	2094	0	0	3666
7 - 9 Peak Hour	07:15	07:30			07:30	4 - 6 Peak Hour	16:00	17:00			16:30
7 - 9 Pk Volume	981	989	0	0	1939	4 - 6 Pk Volume	829	1130	0	0	1914
Pk Hr Factor	0.889	0.962	0.000	0.000	0.956	Pk Hr Factor	0.909	0.875	0.000	0.000	0.878

Prepared by NDS/ATD

VOLUME

Zinfandel Dr Bet. International Dr & Douglas Rd

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_020

DAILY TOTALS	NB	SB	EB	WB	Total
	6,493	7,212	0	0	13,705

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	5		14						19		12:00	85		89						174	
00:15	4		8						12		12:15	83		87						170	
00:30	3		13						16		12:30	82		74						156	
00:45	0	12	8	43					8	55	12:45	78	328	83	333					161	661
01:00	3		4						7		13:00	74		76						150	
01:15	1		4						5		13:15	64		92						156	
01:30	7		10						17		13:30	78		110						188	
01:45	1	12	0	18					1	30	13:45	85	301	97	375					182	676
02:00	2		1						3		14:00	85		92						177	
02:15	3		6						9		14:15	80		102						182	
02:30	4		3						7		14:30	108		121						229	
02:45	3	12	5	15					8	27	14:45	104	377	136	451					240	828
03:00	1		3						4		15:00	82		122						204	
03:15	1		1						2		15:15	72		129						201	
03:30	2		4						6		15:30	96		150						246	
03:45	8	12	6	14					14	26	15:45	78	328	156	557					234	885
04:00	9		5						14		16:00	84		201						285	
04:15	7		5						12		16:15	73		189						262	
04:30	13		7						20		16:30	76		214						290	
04:45	21	50	13	30					34	80	16:45	83	316	244	848					327	1164
05:00	22		11						33		17:00	124		264						388	
05:15	30		17						47		17:15	96		290						386	
05:30	50		16						66		17:30	76		216						292	
05:45	64	166	27	71					91	237	17:45	71	367	214	984					285	1351
06:00	71		29						100		18:00	95		188						283	
06:15	93		42						135		18:15	91		164						255	
06:30	146		45						191		18:30	65		172						237	
06:45	184	494	59	175					243	669	18:45	88	339	140	664					228	1003
07:00	203		52						255		19:00	74		130						204	
07:15	233		55						288		19:15	90		91						181	
07:30	222		59						281		19:30	83		124						207	
07:45	249	907	88	254					337	1161	19:45	57	304	93	438					150	742
08:00	230		90						320		20:00	39		92						131	
08:15	192		90						282		20:15	42		81						123	
08:30	200		72						272		20:30	37		69						106	
08:45	155	777	71	323					226	1100	20:45	29	147	81	323					110	470
09:00	116		72						188		21:00	31		64						95	
09:15	87		69						156		21:15	19		65						84	
09:30	77		54						131		21:30	20		69						89	
09:45	105	385	55	250					160	635	21:45	23	93	50	248					73	341
10:00	86		52						138		22:00	24		43						67	
10:15	65		70						135		22:15	17		38						55	
10:30	74		71						145		22:30	14		36						50	
10:45	81	306	67	260					148	566	22:45	18	73	25	142					43	215
11:00	73		57						130		23:00	15		25						40	
11:15	80		69						149		23:15	8		19						27	
11:30	96		86						182		23:30	10		20						30	
11:45	88	337	99	311					187	648	23:45	17	50	21	85					38	135
TOTALS		3470		1764						5234	TOTALS		3023		5448						8471
SPLIT %		66.3%		33.7%						38.2%	SPLIT %		35.7%		64.3%						61.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	6,493	7,212	0	0	13,705

AM Peak Hour	07:15	11:30			07:15	PM Peak Hour	16:30	16:45			16:45
AM Pk Volume	934	361			1226	PM Pk Volume	379	1014			1393
Pk Hr Factor	0.938	0.912			0.909	Pk Hr Factor	0.764	0.874			0.898
7 - 9 Volume	1684	577	0	0	2261	4 - 6 Volume	683	1832	0	0	2515
7 - 9 Peak Hour	07:15	07:45			07:15	4 - 6 Peak Hour	16:30	16:45			16:45
7 - 9 Pk Volume	934	340	0	0	1226	4 - 6 Pk Volume	379	1014	0	0	1393
Pk Hr Factor	0.938	0.944	0.000	0.000	0.909	Pk Hr Factor	0.764	0.874	0.000	0.000	0.898

Prepared by NDS/ATD

VOLUME

Sunrise Blvd Bet. US-50 WB Ramps & US-50 EB Ramps

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_021

DAILY TOTALS	NB	SB	EB	WB	Total
	38,834	28,442	0	0	67,276

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	82		30						112		12:00	658		432						1090	
00:15	60		36						96		12:15	628		441						1069	
00:30	65		24						89		12:30	665		446						1111	
00:45	47	254	19	109					66	363	12:45	661	2612	442	1761					1103	4373
01:00	46		18						64		13:00	653		460						1113	
01:15	41		27						68		13:15	594		466						1060	
01:30	50		10						60		13:30	676		432						1108	
01:45	24	161	22	77					46	238	13:45	640	2563	427	1785					1067	4348
02:00	46		18						64		14:00	714		405						1119	
02:15	30		19						49		14:15	742		420						1162	
02:30	37		24						61		14:30	794		419						1213	
02:45	31	144	32	93					63	237	14:45	771	3021	448	1692					1219	4713
03:00	40		21						61		15:00	806		383						1189	
03:15	37		15						52		15:15	768		484						1252	
03:30	38		25						63		15:30	786		433						1219	
03:45	43	158	44	105					87	263	15:45	719	3079	452	1752					1171	4831
04:00	50		30						80		16:00	803		415						1218	
04:15	57		54						111		16:15	655		426						1081	
04:30	59		84						143		16:30	658		386						1044	
04:45	63	229	166	334					229	563	16:45	696	2812	392	1619					1088	4431
05:00	92		134						226		17:00	691		398						1089	
05:15	109		179						288		17:15	640		426						1066	
05:30	155		305						460		17:30	518		398						916	
05:45	225	581	485	1103					710	1684	17:45	611	2460	404	1626					1015	4086
06:00	202		366						568		18:00	686		372						1058	
06:15	303		483						786		18:15	671		343						1014	
06:30	351		513						864		18:30	641		302						943	
06:45	480	1336	641	2003					1121	3339	18:45	555	2553	293	1310					848	3863
07:00	482		552						1034		19:00	497		278						775	
07:15	554		573						1127		19:15	496		233						729	
07:30	594		597						1191		19:30	436		236						672	
07:45	550	2180	707	2429					1257	4609	19:45	399	1828	234	981					633	2809
08:00	574		648						1222		20:00	406		208						614	
08:15	604		621						1225		20:15	355		210						565	
08:30	623		621						1244		20:30	312		178						490	
08:45	565	2366	638	2528					1203	4894	20:45	292	1365	191	787					483	2152
09:00	557		508						1065		21:00	323		154						477	
09:15	572		524						1096		21:15	269		167						436	
09:30	540		454						994		21:30	234		141						375	
09:45	558	2227	444	1930					1002	4157	21:45	229	1055	135	597					364	1652
10:00	510		397						907		22:00	210		114						324	
10:15	557		397						954		22:15	192		107						299	
10:30	508		408						916		22:30	146		67						213	
10:45	537	2112	382	1584					919	3696	22:45	117	665	79	367					196	1032
11:00	620		374						994		23:00	152		71						223	
11:15	651		415						1066		23:15	103		52						155	
11:30	644		464						1108		23:30	109		27						136	
11:45	681	2596	417	1670					1098	4266	23:45	113	477	50	200					163	677
TOTALS		14344		13965						28309	TOTALS		24490		14477						38967
SPLIT %		50.7%		49.3%						42.1%	SPLIT %		62.8%		37.2%						57.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	38,834	28,442	0	0	67,276

AM Peak Hour	11:15	07:45			07:45	PM Peak Hour	14:30	12:30			14:45
AM Pk Volume	2634	2597			4948	PM Pk Volume	3139	1814			4879
Pk Hr Factor	0.967	0.918			0.984	Pk Hr Factor	0.974	0.973			0.974
7 - 9 Volume	4546	4957	0	0	9503	4 - 6 Volume	5272	3245	0	0	8517
7 - 9 Peak Hour	08:00	07:45			07:45	4 - 6 Peak Hour	16:00	17:00			16:00
7 - 9 Pk Volume	2366	2597	0	0	4948	4 - 6 Pk Volume	2812	1626	0	0	4431
Pk Hr Factor	0.949	0.918	0.000	0.000	0.984	Pk Hr Factor	0.875	0.954	0.000	0.000	0.909

Prepared by NDS/ATD

VOLUME

Sunrise Blvd Bet. US-50 EB Ramps & Folsom Blvd

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_022

DAILY TOTALS	NB	SB	EB	WB	Total
	26,082	27,422	0	0	53,504

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	37		32						69		12:00	459		435						894	
00:15	27		28						55		12:15	450		485						935	
00:30	36		22						58		12:30	493		448						941	
00:45	25	125	20	102					45	227	12:45	463	1865	457	1825					920	3690
01:00	30		18						48		13:00	469		515						984	
01:15	27		16						43		13:15	420		465						885	
01:30	33		12						45		13:30	504		425						929	
01:45	14	104	15	61					29	165	13:45	396	1789	445	1850					841	3639
02:00	33		8						41		14:00	533		409						942	
02:15	19		14						33		14:15	468		420						888	
02:30	24		18						42		14:30	557		399						956	
02:45	18	94	20	60					38	154	14:45	550	2108	404	1632					954	3740
03:00	36		15						51		15:00	540		384						924	
03:15	22		16						38		15:15	597		413						1010	
03:30	27		11						38		15:30	529		446						975	
03:45	24	109	40	82					64	191	15:45	522	2188	412	1655					934	3843
04:00	28		36						64		16:00	536		414						950	
04:15	38		54						92		16:15	428		402						830	
04:30	43		89						132		16:30	442		356						798	
04:45	46	155	162	341					208	496	16:45	419	1825	398	1570					817	3395
05:00	67		136						203		17:00	452		340						792	
05:15	79		167						246		17:15	393		426						819	
05:30	92		277						369		17:30	366		361						727	
05:45	135	373	447	1027					582	1400	17:45	373	1584	391	1518					764	3102
06:00	154		364						518		18:00	463		317						780	
06:15	241		473						714		18:15	416		277						693	
06:30	279		478						757		18:30	388		302						690	
06:45	328	1002	648	1963					976	2965	18:45	327	1594	252	1148					579	2742
07:00	339		562						901		19:00	309		250						559	
07:15	385		558						943		19:15	298		215						513	
07:30	444		580						1024		19:30	270		188						458	
07:45	367	1535	679	2379					1046	3914	19:45	216	1093	207	860					423	1953
08:00	399		639						1038		20:00	246		164						410	
08:15	436		624						1060		20:15	220		163						383	
08:30	447		621						1068		20:30	204		136						340	
08:45	374	1656	663	2547					1037	4203	20:45	159	829	154	617					313	1446
09:00	374		534						908		21:00	191		138						329	
09:15	375		482						857		21:15	138		134						272	
09:30	358		446						804		21:30	118		124						242	
09:45	394	1501	442	1904					836	3405	21:45	102	549	94	490					196	1039
10:00	388		412						800		22:00	119		96						215	
10:15	383		415						798		22:15	114		85						199	
10:30	399		360						759		22:30	85		60						145	
10:45	370	1540	393	1580					763	3120	22:45	47	365	75	316					122	681
11:00	429		397						826		23:00	76		57						133	
11:15	463		422						885		23:15	44		42						86	
11:30	456		471						927		23:30	64		30						94	
11:45	504	1852	439	1729					943	3581	23:45	63	247	37	166					100	413
TOTALS		10046		13775						23821	TOTALS		16036		13647						29683
SPLIT %		42.2%		57.8%						44.5%	SPLIT %		54.0%		46.0%						55.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	26,082	27,422	0	0	53,504

AM Peak Hour	11:45	07:45			07:45	PM Peak Hour	14:30	12:15			15:15
AM Pk Volume	1906	2563			4212	PM Pk Volume	2244	1905			3869
Pk Hr Factor	0.945	0.944			0.986	Pk Hr Factor	0.940	0.925			0.958
7 - 9 Volume	3191	4926	0	0	8117	4 - 6 Volume	3409	3088	0	0	6497
7 - 9 Peak Hour	08:00	07:45			07:45	4 - 6 Peak Hour	16:00	16:00			16:00
7 - 9 Pk Volume	1656	2563	0	0	4212	4 - 6 Pk Volume	1825	1570	0	0	3395
Pk Hr Factor	0.926	0.944	0.000	0.000	0.986	Pk Hr Factor	0.851	0.948	0.000	0.000	0.893

Prepared by NDS/ATD

VOLUME

Sunrise Blvd Bet. Folsom Blvd & White Rock Rd

Day: Tuesday
Date: 9/26/2017

City: Rancho Cordova
Project #: CA17_7694_023

DAILY TOTALS	NB	SB	EB	WB	Total
	19,097	22,141	0	0	41,238

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	22		13						35		12:00	317		370						687	
00:15	12		25						37		12:15	360		370						730	
00:30	8		10						18		12:30	335		326						661	
00:45	9	51	5	53					14	104	12:45	354	1366	336	1402					690	2768
01:00	13		18						31		13:00	369		335						704	
01:15	13		14						27		13:15	334		375						709	
01:30	18		26						44		13:30	360		361						721	
01:45	8	52	18	76					26	128	13:45	333	1396	348	1419					681	2815
02:00	12		7						19		14:00	343		287						630	
02:15	10		11						21		14:15	347		300						647	
02:30	13		18						31		14:30	424		302						726	
02:45	12	47	8	44					20	91	14:45	375	1489	357	1246					732	2735
03:00	13		15						28		15:00	374		305						679	
03:15	10		19						29		15:15	346		321						667	
03:30	16		15						31		15:30	448		371						819	
03:45	15	54	30	79					45	133	15:45	356	1524	383	1380					739	2904
04:00	21		25						46		16:00	364		347						711	
04:15	29		41						70		16:15	321		398						719	
04:30	40		45						85		16:30	408		383						791	
04:45	53	143	144	255					197	398	16:45	302	1395	376	1504					678	2899
05:00	49		122						171		17:00	338		360						698	
05:15	65		158						223		17:15	340		378						718	
05:30	101		276						377		17:30	316		337						653	
05:45	142	357	441	997					583	1354	17:45	285	1279	327	1402					612	2681
06:00	164		299						463		18:00	309		252						561	
06:15	234		388						622		18:15	263		233						496	
06:30	248		386						634		18:30	253		231						484	
06:45	306	952	399	1472					705	2424	18:45	210	1035	232	948					442	1983
07:00	318		360						678		19:00	218		197						415	
07:15	311		388						699		19:15	196		158						354	
07:30	379		442						821		19:30	167		161						328	
07:45	363	1371	434	1624					797	2995	19:45	131	712	146	662					277	1374
08:00	361		507						868		20:00	122		151						273	
08:15	349		470						819		20:15	109		135						244	
08:30	354		417						771		20:30	109		152						261	
08:45	347	1411	403	1797					750	3208	20:45	79	419	97	535					176	954
09:00	292		340						632		21:00	82		107						189	
09:15	253		422						675		21:15	54		97						151	
09:30	257		373						630		21:30	52		107						159	
09:45	251	1053	347	1482					598	2535	21:45	47	235	87	398					134	633
10:00	307		403						710		22:00	60		68						128	
10:15	279		403						682		22:15	52		59						111	
10:30	279		358						637		22:30	50		64						114	
10:45	274	1139	337	1501					611	2640	22:45	27	189	52	243					79	432
11:00	318		355						673		23:00	43		30						73	
11:15	315		406						721		23:15	21		26						47	
11:30	328		394						722		23:30	18		20						38	
11:45	357	1318	375	1530					732	2848	23:45	28	110	16	92					44	202
TOTALS		7948		10910						18858	TOTALS		11149		11231						22380
SPLIT %		42.1%		57.9%						45.7%	SPLIT %		49.8%		50.2%						54.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	19,097	22,141	0	0	41,238

AM Peak Hour	07:30	07:30			07:30	PM Peak Hour	14:45	16:15			15:30
AM Pk Volume	1452	1853			3305	PM Pk Volume	1543	1517			2988
Pk Hr Factor	0.958	0.914			0.952	Pk Hr Factor	0.861	0.953			0.912
7 - 9 Volume	2782	3421	0	0	6203	4 - 6 Volume	2674	2906	0	0	5580
7 - 9 Peak Hour	07:30	07:30			07:30	4 - 6 Peak Hour	16:00	16:15			16:00
7 - 9 Pk Volume	1452	1853	0	0	3305	4 - 6 Pk Volume	1395	1517	0	0	2899
Pk Hr Factor	0.958	0.914	0.000	0.000	0.952	Pk Hr Factor	0.855	0.953	0.000	0.000	0.916

Prepared by NDS/ATD

VOLUME

Sunrise Blvd Bet. White Rock Rd & Douglas Rd

Day: Thursday
Date: 9/28/2017

City: Rancho Cordova
Project #: CA17_7694_024

DAILY TOTALS	NB	SB	EB	WB	Total
	15,708	15,233	0	0	30,941

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	14		19						33		12:00	274		191						465	
00:15	12		23						35		12:15	216		252						468	
00:30	4		9						13		12:30	252		212						464	
00:45	10	40	17	68					27	108	12:45	248	990	252	907					500	1897
01:00	6		11						17		13:00	250		223						473	
01:15	8		8						16		13:15	234		232						466	
01:30	11		10						21		13:30	255		271						526	
01:45	11	36	11	40					22	76	13:45	236	975	258	984					494	1959
02:00	4		8						12		14:00	268		265						533	
02:15	5		4						9		14:15	220		274						494	
02:30	4		7						11		14:30	273		241						514	
02:45	4	17	8	27					12	44	14:45	225	986	259	1039					484	2025
03:00	12		10						22		15:00	232		276						508	
03:15	7		13						20		15:15	213		274						487	
03:30	13		3						16		15:30	254		362						616	
03:45	20	52	14	40					34	92	15:45	238	937	354	1266					592	2203
04:00	19		11						30		16:00	220		399						619	
04:15	31		15						46		16:15	230		377						607	
04:30	45		14						59		16:30	267		443						710	
04:45	57	152	28	68					85	220	16:45	226	943	418	1637					644	2580
05:00	57		49						106		17:00	316		468						784	
05:15	81		59						140		17:15	247		453						700	
05:30	117		78						195		17:30	207		379						586	
05:45	157	412	109	295					266	707	17:45	232	1002	350	1650					582	2652
06:00	140		118						258		18:00	175		288						463	
06:15	207		130						337		18:15	191		286						477	
06:30	230		124						354		18:30	194		233						427	
06:45	359	936	116	488					475	1424	18:45	164	724	227	1034					391	1758
07:00	366		141						507		19:00	136		212						348	
07:15	398		146						544		19:15	127		165						292	
07:30	489		169						658		19:30	158		196						354	
07:45	458	1711	176	632					634	2343	19:45	94	515	179	752					273	1267
08:00	401		195						596		20:00	104		177						281	
08:15	409		209						618		20:15	105		133						238	
08:30	358		180						538		20:30	91		130						221	
08:45	349	1517	201	785					550	2302	20:45	89	389	143	583					232	972
09:00	312		205						517		21:00	84		135						219	
09:15	229		156						385		21:15	70		117						187	
09:30	248		157						405		21:30	61		83						144	
09:45	265	1054	187	705					452	1759	21:45	46	261	65	400					111	661
10:00	222		180						402		22:00	43		71						114	
10:15	241		179						420		22:15	46		69						115	
10:30	190		152						342		22:30	28		64						92	
10:45	212	865	164	675					376	1540	22:45	28	145	48	252					76	397
11:00	210		174						384		23:00	24		39						63	
11:15	258		163						421		23:15	17		32						49	
11:30	255		172						427		23:30	14		37						51	
11:45	254	977	264	773					518	1750	23:45	17	72	25	133					42	205
TOTALS		7769		4596						12365	TOTALS		7939		10637						18576
SPLIT %		62.8%		37.2%						40.0%	SPLIT %		42.7%		57.3%						60.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	15,708	15,233	0	0	30,941

AM Peak Hour	07:30	11:45			07:30	PM Peak Hour	16:30	16:30			16:30
AM Pk Volume	1757	919			2506	PM Pk Volume	1056	1782			2838
Pk Hr Factor	0.898	0.870			0.952	Pk Hr Factor	0.835	0.952			0.905
7 - 9 Volume	3228	1417	0	0	4645	4 - 6 Volume	1945	3287	0	0	5232
7 - 9 Peak Hour	07:30	08:00			07:30	4 - 6 Peak Hour	16:30	16:30			16:30
7 - 9 Pk Volume	1757	785	0	0	2506	4 - 6 Pk Volume	1056	1782	0	0	2838
Pk Hr Factor	0.898	0.939	0.000	0.000	0.952	Pk Hr Factor	0.835	0.952	0.000	0.000	0.905

Prepared by NDS/ATD

VOLUME

Sunrise Blvd Bet. Douglas Rd & Jackson Rd/SR-16

Day: Thursday
Date: 9/28/2017

City: Rancho Cordova
Project #: CA17_7694_025

DAILY TOTALS	NB	SB	EB	WB	Total
	10,849	11,786	0	0	22,635

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	10		15						25		12:00	122		136						258	
00:15	14		14						28		12:15	133		143						276	
00:30	5		7						12		12:30	133		155						288	
00:45	10	39	8	44					18	83	12:45	163	551	159	593					322	1144
01:00	3		8						11		13:00	112		169						281	
01:15	9		10						19		13:15	146		146						292	
01:30	5		15						20		13:30	128		155						283	
01:45	9	26	5	38					14	64	13:45	139	525	187	657					326	1182
02:00	4		9						13		14:00	138		182						320	
02:15	8		7						15		14:15	139		183						322	
02:30	2		1						3		14:30	169		258						427	
02:45	4	18	8	25					12	43	14:45	144	590	257	880					401	1470
03:00	2		12						14		15:00	145		247						392	
03:15	6		5						11		15:15	155		237						392	
03:30	18		8						26		15:30	164		308						472	
03:45	11	37	10	35					21	72	15:45	186	650	307	1099					493	1749
04:00	11		14						25		16:00	145		332						477	
04:15	18		15						33		16:15	162		358						520	
04:30	35		16						51		16:30	129		361						490	
04:45	35	99	16	61					51	160	16:45	151	587	405	1456					556	2043
05:00	50		37						87		17:00	149		387						536	
05:15	76		55						131		17:15	126		420						546	
05:30	127		60						187		17:30	180		346						526	
05:45	155	408	63	215					218	623	17:45	131	586	287	1440					418	2026
06:00	131		78						209		18:00	116		265						381	
06:15	218		114						332		18:15	144		208						352	
06:30	248		121						369		18:30	103		212						315	
06:45	330	927	109	422					439	1349	18:45	90	453	179	864					269	1317
07:00	328		124						452		19:00	78		163						241	
07:15	362		152						514		19:15	90		112						202	
07:30	405		166						571		19:30	92		97						189	
07:45	390	1485	133	575					523	2060	19:45	61	321	101	473					162	794
08:00	342		171						513		20:00	57		87						144	
08:15	336		175						511		20:15	51		82						133	
08:30	267		125						392		20:30	47		82						129	
08:45	263	1208	141	612					404	1820	20:45	60	215	79	330					139	545
09:00	218		132						350		21:00	43		91						134	
09:15	181		145						326		21:15	42		61						103	
09:30	159		128						287		21:30	34		60						94	
09:45	153	711	129	534					282	1245	21:45	29	148	45	257					74	405
10:00	151		116						267		22:00	37		47						84	
10:15	148		107						255		22:15	31		30						61	
10:30	112		136						248		22:30	18		42						60	
10:45	140	551	118	477					258	1028	22:45	15	101	23	142					38	243
11:00	153		98						251		23:00	14		24						38	
11:15	111		116						227		23:15	14		18						32	
11:30	157		116						273		23:30	5		15						20	
11:45	140	561	151	481					291	1042	23:45	19	52	19	76					38	128
TOTALS		6070		3519						9589	TOTALS		4779		8267						13046
SPLIT %		63.3%		36.7%						42.4%	SPLIT %		36.6%		63.4%						57.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,849	11,786	0	0	22,635

AM Peak Hour	07:15	07:30			07:15	PM Peak Hour	15:30	16:30			16:45
AM Pk Volume	1499	645			2121	PM Pk Volume	657	1573			2164
Pk Hr Factor	0.925	0.921			0.929	Pk Hr Factor	0.883	0.936			0.973
7 - 9 Volume	2693	1187	0	0	3880	4 - 6 Volume	1173	2896	0	0	4069
7 - 9 Peak Hour	07:15	07:30			07:15	4 - 6 Peak Hour	16:45	16:30			16:45
7 - 9 Pk Volume	1499	645	0	0	2121	4 - 6 Pk Volume	606	1573	0	0	2164
Pk Hr Factor	0.925	0.921	0.000	0.000	0.929	Pk Hr Factor	0.842	0.936	0.000	0.000	0.973

Prepared by NDS/ATD

VOLUME

Sunrise Blvd Bet. Jackson Rd/SR-16 & Grant Line Rd

Day: Thursday
Date: 9/28/2017

City: Sloughhouse
Project #: CA17_7694_026

DAILY TOTALS	NB	SB	EB	WB	Total
	5,396	6,352	0	0	11,748

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	9		12						21		12:00	51		69						120	
00:15	8		6						14		12:15	54		53						107	
00:30	2		5						7		12:30	50		63						113	
00:45	5	24	2	25					7	49	12:45	63	218	66	251					129	469
01:00	4		5						9		13:00	53		81						134	
01:15	3		6						9		13:15	57		68						125	
01:30	2		5						7		13:30	68		75						143	
01:45	5	14	6	22					11	36	13:45	40	218	89	313					129	531
02:00	2		4						6		14:00	67		96						163	
02:15	4		2						6		14:15	63		96						159	
02:30	3		2						5		14:30	57		140						197	
02:45	3	12	7	15					10	27	14:45	56	243	164	496					220	739
03:00	1		9						10		15:00	70		143						213	
03:15	5		3						8		15:15	82		141						223	
03:30	10		3						13		15:30	89		162						251	
03:45	7	23	11	26					18	49	15:45	93	334	189	635					282	969
04:00	8		10						18		16:00	66		183						249	
04:15	8		9						17		16:15	92		209						301	
04:30	21		7						28		16:30	66		219						285	
04:45	19	56	11	37					30	93	16:45	76	300	206	817					282	1117
05:00	33		9						42		17:00	81		202						283	
05:15	40		29						69		17:15	76		218						294	
05:30	84		25						109		17:30	81		210						291	
05:45	80	237	28	91					108	328	17:45	75	313	221	851					296	1164
06:00	91		40						131		18:00	49		156						205	
06:15	135		60						195		18:15	59		137						196	
06:30	161		61						222		18:30	54		90						144	
06:45	141	528	77	238					218	766	18:45	23	185	101	484					124	669
07:00	184		87						271		19:00	33		66						99	
07:15	209		105						314		19:15	45		54						99	
07:30	189		116						305		19:30	41		47						88	
07:45	194	776	81	389					275	1165	19:45	49	168	34	201					83	369
08:00	162		100						262		20:00	20		29						49	
08:15	186		149						335		20:15	32		42						74	
08:30	146		95						241		20:30	25		40						65	
08:45	152	646	60	404					212	1050	20:45	23	100	25	136					48	236
09:00	107		71						178		21:00	21		32						53	
09:15	105		80						185		21:15	24		26						50	
09:30	77		67						144		21:30	22		26						48	
09:45	65	354	69	287					134	641	21:45	21	88	23	107					44	195
10:00	69		61						130		22:00	23		18						41	
10:15	58		42						100		22:15	18		19						37	
10:30	48		62						110		22:30	10		16						26	
10:45	56	231	41	206					97	437	22:45	14	65	11	64					25	129
11:00	48		53						101		23:00	9		16						25	
11:15	50		54						104		23:15	8		5						13	
11:30	66		53						119		23:30	4		3						7	
11:45	65	229	66	226					131	455	23:45	13	34	7	31					20	65
TOTALS		3130		1966						5096	TOTALS		2266		4386						6652
SPLIT %		61.4%		38.6%						43.4%	SPLIT %		34.1%		65.9%						56.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	5,396	6,352	0	0	11,748

AM Peak Hour	07:00	07:30			07:30	PM Peak Hour	15:30	17:00			17:00
AM Pk Volume	776	446			1177	PM Pk Volume	340	851			1164
Pk Hr Factor	0.928	0.748			0.878	Pk Hr Factor	0.914	0.963			0.983
7 - 9 Volume	1422	793	0	0	2215	4 - 6 Volume	613	1668	0	0	2281
7 - 9 Peak Hour	07:00	07:30			07:30	4 - 6 Peak Hour	16:15	17:00			17:00
7 - 9 Pk Volume	776	446	0	0	1177	4 - 6 Pk Volume	315	851	0	0	1164
Pk Hr Factor	0.928	0.748	0.000	0.000	0.878	Pk Hr Factor	0.856	0.963	0.000	0.000	0.983

Prepared by NDS/ATD

VOLUME

Grant Line Rd Bet. White Rock Rd & Douglas Rd

Day: Thursday
Date: 9/28/2017

City: Rancho Cordova
Project #: CA17_7694_027

DAILY TOTALS	NB	SB	EB	WB	Total
	6,841	5,963	0	0	12,804

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	4		5						9		12:00	85		76						161	
00:15	4		3						7		12:15	80		104						184	
00:30	2		6						8		12:30	101		56						157	
00:45	7	17	2	16					9	33	12:45	87	353	78	314					165	667
01:00	4		4						8		13:00	98		81						179	
01:15	3		3						6		13:15	99		90						189	
01:30	1		3						4		13:30	111		74						185	
01:45	5	13	2	12					7	25	13:45	97	405	95	340					192	745
02:00	5		1						6		14:00	97		100						197	
02:15	2		4						6		14:15	89		93						182	
02:30	4		3						7		14:30	89		98						187	
02:45	1	12	3	11					4	23	14:45	112	387	98	389					210	776
03:00	0		2						2		15:00	107		108						215	
03:15	2		6						8		15:15	105		133						238	
03:30	1		6						7		15:30	98		156						254	
03:45	2	5	3	17					5	22	15:45	125	435	166	563					291	998
04:00	3		2						5		16:00	110		155						265	
04:15	8		8						16		16:15	129		174						303	
04:30	15		12						27		16:30	148		176						324	
04:45	12	38	12	34					24	72	16:45	145	532	149	654					294	1186
05:00	17		22						39		17:00	147		167						314	
05:15	33		24						57		17:15	150		197						347	
05:30	50		29						79		17:30	129		148						277	
05:45	45	145	35	110					80	255	17:45	132	558	151	663					283	1221
06:00	68		57						125		18:00	98		104						202	
06:15	98		56						154		18:15	99		122						221	
06:30	92		63						155		18:30	75		67						142	
06:45	129	387	94	270					223	657	18:45	76	348	60	353					136	701
07:00	154		105						259		19:00	65		60						125	
07:15	192		102						294		19:15	51		60						111	
07:30	193		114						307		19:30	35		44						79	
07:45	225	764	109	430					334	1194	19:45	30	181	57	221					87	402
08:00	202		102						304		20:00	31		43						74	
08:15	196		89						285		20:15	26		43						69	
08:30	187		86						273		20:30	28		36						64	
08:45	168	753	87	364					255	1117	20:45	28	113	30	152					58	265
09:00	139		76						215		21:00	26		35						61	
09:15	128		73						201		21:15	19		37						56	
09:30	98		65						163		21:30	24		23						47	
09:45	120	485	76	290					196	775	21:45	16	85	23	118					39	203
10:00	112		74						186		22:00	16		24						40	
10:15	114		67						181		22:15	16		20						36	
10:30	119		52						171		22:30	9		18						27	
10:45	75	420	62	255					137	675	22:45	10	51	19	81					29	132
11:00	70		74						144		23:00	10		9						19	
11:15	69		61						130		23:15	8		10						18	
11:30	101		63						164		23:30	8		2						10	
11:45	83	323	83	281					166	604	23:45	5	31	4	25					9	56
TOTALS		3362		2090						5452	TOTALS		3479		3873						7352
SPLIT %		61.7%		38.3%						42.6%	SPLIT %		47.3%		52.7%						57.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	6,841	5,963	0	0	12,804

AM Peak Hour	07:30	07:00			07:15	PM Peak Hour	16:30	16:30			16:30
AM Pk Volume	816	430			1239	PM Pk Volume	590	689			1279
Pk Hr Factor	0.907	0.943			0.927	Pk Hr Factor	0.983	0.874			0.921
7 - 9 Volume	1517	794	0	0	2311	4 - 6 Volume	1090	1317	0	0	2407
7 - 9 Peak Hour	07:30	07:00			07:15	4 - 6 Peak Hour	16:30	16:30			16:30
7 - 9 Pk Volume	816	430	0	0	1239	4 - 6 Pk Volume	590	689	0	0	1279
Pk Hr Factor	0.907	0.943	0.000	0.000	0.927	Pk Hr Factor	0.983	0.874	0.000	0.000	0.921

Prepared by NDS/ATD

VOLUME

Grant Line Rd Bet. Douglas Rd & Jackson Rd/SR-16

Day: Thursday
Date: 9/28/2017

City: Rancho Cordova
Project #: CA17_7694_028

DAILY TOTALS	NB	SB	EB	WB	Total
	4,555	3,969	0	0	8,524

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	3		2						5		12:00	45		50						95	
00:15	3		3						6		12:15	49		48						97	
00:30	1		2						3		12:30	50		31						81	
00:45	8	15	2	9					10	24	12:45	50	194	42	171					92	365
01:00	2		1						3		13:00	47		46						93	
01:15	3		4						7		13:15	69		51						120	
01:30	3		2						5		13:30	65		41						106	
01:45	4	12	2	9					6	21	13:45	46	227	49	187					95	414
02:00	4		1						5		14:00	46		46						92	
02:15	2		2						4		14:15	46		63						109	
02:30	2		3						5		14:30	60		53						113	
02:45	1	9	2	8					3	17	14:45	60	212	75	237					135	449
03:00	1		1						2		15:00	65		81						146	
03:15	1		4						5		15:15	59		102						161	
03:30	2		1						3		15:30	77		109						186	
03:45	1	5	2	8					3	13	15:45	84	285	127	419					211	704
04:00	4		1						5		16:00	92		114						206	
04:15	11		5						16		16:15	100		162						262	
04:30	10		6						16		16:30	109		154						263	
04:45	13	38	8	20					21	58	16:45	88	389	140	570					228	959
05:00	21		6						27		17:00	107		134						241	
05:15	36		14						50		17:15	103		190						293	
05:30	39		22						61		17:30	96		152						248	
05:45	45	141	24	66					69	207	17:45	93	399	117	593					210	992
06:00	59		32						91		18:00	65		89						154	
06:15	75		44						119		18:15	73		80						153	
06:30	85		35						120		18:30	56		53						109	
06:45	112	331	52	163					164	494	18:45	54	248	43	265					97	513
07:00	114		77						191		19:00	43		38						81	
07:15	117		96						213		19:15	36		34						70	
07:30	161		63						224		19:30	26		24						50	
07:45	166	558	58	294					224	852	19:45	19	124	25	121					44	245
08:00	129		76						205		20:00	18		16						34	
08:15	127		64						191		20:15	23		18						41	
08:30	113		62						175		20:30	25		18						43	
08:45	99	468	41	243					140	711	20:45	20	86	19	71					39	157
09:00	82		35						117		21:00	20		11						31	
09:15	75		41						116		21:15	17		16						33	
09:30	61		38						99		21:30	22		12						34	
09:45	68	286	33	147					101	433	21:45	10	69	11	50					21	119
10:00	70		42						112		22:00	16		15						31	
10:15	50		39						89		22:15	11		7						18	
10:30	41		27						68		22:30	4		3						7	
10:45	48	209	30	138					78	347	22:45	12	43	9	34					21	77
11:00	42		38						80		23:00	6		7						13	
11:15	44		30						74		23:15	7		4						11	
11:30	55		37						92		23:30	4		3						7	
11:45	46	187	24	129					70	316	23:45	3	20	3	17					6	37
TOTALS		2259		1234						3493	TOTALS		2296		2735						5031
SPLIT %		64.7%		35.3%						41.0%	SPLIT %		45.6%		54.4%						59.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	4,555	3,969	0	0	8,524

AM Peak Hour	07:30	07:00			07:15	PM Peak Hour	16:30	16:30			16:30
AM Pk Volume	583	294			866	PM Pk Volume	407	618			1025
Pk Hr Factor	0.878	0.766			0.967	Pk Hr Factor	0.933	0.813			0.875
7 - 9 Volume	1026	537	0	0	1563	4 - 6 Volume	788	1163	0	0	1951
7 - 9 Peak Hour	07:30	07:00			07:15	4 - 6 Peak Hour	16:30	16:30			16:30
7 - 9 Pk Volume	583	294	0	0	866	4 - 6 Pk Volume	407	618	0	0	1025
Pk Hr Factor	0.878	0.766	0.000	0.000	0.967	Pk Hr Factor	0.933	0.813	0.000	0.000	0.875

Prepared by NDS/ATD

VOLUME

Grant Line Rd Bet. Jackson Rd/SR-16 & Sunrise Blvd

Day: Thursday
Date: 9/28/2017

City: Sloughhouse
Project #: CA17_7694_029

DAILY TOTALS	NB	SB	EB	WB	Total
	4,061	3,684	0	0	7,745

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	4		4						8		12:00	39		38						77	
00:15	4		3						7		12:15	41		48						89	
00:30	2		5						7		12:30	41		36						77	
00:45	8	18	3	15					11	33	12:45	40	161	49	171					89	332
01:00	3		1						4		13:00	45		49						94	
01:15	3		4						7		13:15	53		44						97	
01:30	3		1						4		13:30	44		37						81	
01:45	6	15	3	9					9	24	13:45	61	203	47	177					108	380
02:00	1		3						4		14:00	45		51						96	
02:15	2		1						3		14:15	46		56						102	
02:30	2		3						5		14:30	49		65						114	
02:45	2	7	2	9					4	16	14:45	54	194	72	244					126	438
03:00	1		2						3		15:00	69		66						135	
03:15	1		3						4		15:15	49		64						113	
03:30	1		0						1		15:30	87		102						189	
03:45	1	4	4	9					5	13	15:45	90	295	91	323					181	618
04:00	4		4						8		16:00	79		112						191	
04:15	13		6						19		16:15	101		86						187	
04:30	18		4						22		16:30	93		112						205	
04:45	10	45	13	27					23	72	16:45	84	357	98	408					182	765
05:00	22		10						32		17:00	97		119						216	
05:15	38		13						51		17:15	76		111						187	
05:30	38		21						59		17:30	81		115						196	
05:45	48	146	26	70					74	216	17:45	83	337	75	420					158	757
06:00	55		28						83		18:00	60		89						149	
06:15	67		48						115		18:15	76		67						143	
06:30	72		46						118		18:30	56		60						116	
06:45	85	279	54	176					139	455	18:45	70	262	40	256					110	518
07:00	106		67						173		19:00	50		35						85	
07:15	96		89						185		19:15	37		32						69	
07:30	104		71						175		19:30	33		25						58	
07:45	106	412	79	306					185	718	19:45	38	158	27	119					65	277
08:00	73		84						157		20:00	29		19						48	
08:15	90		92						182		20:15	26		17						43	
08:30	93		56						149		20:30	27		23						50	
08:45	74	330	46	278					120	608	20:45	27	109	19	78					46	187
09:00	76		45						121		21:00	22		14						36	
09:15	64		49						113		21:15	23		17						40	
09:30	61		47						108		21:30	17		14						31	
09:45	70	271	43	184					113	455	21:45	14	76	14	59					28	135
10:00	58		44						102		22:00	12		12						24	
10:15	38		34						72		22:15	11		11						22	
10:30	46		36						82		22:30	10		10						20	
10:45	41	183	25	139					66	322	22:45	9	42	10	43					19	85
11:00	33		39						72		23:00	5		8						13	
11:15	31		34						65		23:15	6		8						14	
11:30	35		36						71		23:30	5		4						9	
11:45	38	137	30	139					68	276	23:45	4	20	5	25					9	45
TOTALS		1847		1361						3208	TOTALS		2214		2323						4537
SPLIT %		57.6%		42.4%						41.4%	SPLIT %		48.8%		51.2%						58.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	4,061	3,684	0	0	7,745

AM Peak Hour	07:00	07:30			07:00	PM Peak Hour	16:15	16:45			16:15
AM Pk Volume	412	326			718	PM Pk Volume	375	443			790
Pk Hr Factor	0.972	0.886			0.970	Pk Hr Factor	0.928	0.931			0.914
7 - 9 Volume	742	584	0	0	1326	4 - 6 Volume	694	828	0	0	1522
7 - 9 Peak Hour	07:00	07:30			07:00	4 - 6 Peak Hour	16:15	16:45			16:15
7 - 9 Pk Volume	412	326	0	0	718	4 - 6 Pk Volume	375	443	0	0	790
Pk Hr Factor	0.972	0.886	0.000	0.000	0.970	Pk Hr Factor	0.928	0.931	0.000	0.000	0.914

Appendix B

Analysis Worksheets for Existing (2017) Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	311	249	90	15	319	127	1	190	1644	23	8	61
Future Volume (veh/h)	311	249	90	15	319	127	1	190	1644	23	8	61
Number	3	8	18	7	4	14		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1900		1863
Adj Flow Rate, veh/h	362	290	105	16	351	140		216	1868	26		67
Adj No. of Lanes	1	1	1	1	1	1		1	2	0		1
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91		0.88	0.88	0.88		0.91
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	289	659	560	19	376	319		230	1487	21		85
Arrive On Green	0.16	0.35	0.35	0.01	0.20	0.20		0.13	0.42	0.42		0.05
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583		1774	3573	50		1774
Grp Volume(v), veh/h	362	290	105	16	351	140		216	923	971		67
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583		1774	1770	1853		1774
Q Serve(g_s), s	24.5	17.9	6.9	1.4	27.9	11.7		18.2	62.6	62.6		5.6
Cycle Q Clear(g_c), s	24.5	17.9	6.9	1.4	27.9	11.7		18.2	62.6	62.6		5.6
Prop In Lane	1.00		1.00	1.00		1.00		1.00		0.03		1.00
Lane Grp Cap(c), veh/h	289	659	560	19	376	319		230	736	771		85
V/C Ratio(X)	1.25	0.44	0.19	0.83	0.93	0.44		0.94	1.25	1.26		0.79
Avail Cap(c_a), veh/h	289	659	560	230	404	343		230	736	771		289
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	63.0	37.2	33.7	74.3	59.1	52.6		64.9	43.9	43.9		70.9
Incr Delay (d2), s/veh	139.1	0.2	0.1	26.8	27.0	0.4		42.3	125.1	127.2		6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	23.1	9.3	3.0	0.8	17.2	5.1		11.6	56.1	59.1		2.9
LnGrp Delay(d),s/veh	202.1	37.4	33.7	101.0	86.1	52.9		107.2	169.0	171.1		76.8
LnGrp LOS	F	D	C	F	F	D		F	F	F		E
Approach Vol, veh/h		757			507				2110			
Approach Delay, s/veh		115.6			77.4				163.7			
Approach LOS		F			E				F			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	57.7	30.0	37.7	12.7	70.0	7.1	60.6
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	19.5	62.6	24.5	32.6	24.5	62.6	19.5	* 33
Max Q Clear Time (g_c+I1), s	20.2	27.0	26.5	29.9	7.6	64.6	3.4	19.9
Green Ext Time (p_c), s	0.0	9.0	0.0	0.5	0.1	0.0	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	122.2
HCM 2010 LOS	F

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	643	294
Future Volume (veh/h)	643	294
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	707	0
Adj No. of Lanes	2	1
Peak Hour Factor	0.91	0.91
Percent Heavy Veh, %	2	2
Cap, veh/h	1183	529
Arrive On Green	0.33	0.00
Sat Flow, veh/h	3539	1583
Grp Volume(v), veh/h	707	0
Grp Sat Flow(s),veh/h/ln	1770	1583
Q Serve(g_s), s	25.0	0.0
Cycle Q Clear(g_c), s	25.0	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	1183	529
V/C Ratio(X)	0.60	0.00
Avail Cap(c_a), veh/h	1473	659
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	41.6	0.0
Incr Delay (d2), s/veh	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	0.0
LnGrp Delay(d),s/veh	42.0	0.0
LnGrp LOS	D	
Approach Vol, veh/h	774	
Approach Delay, s/veh	45.0	
Approach LOS	D	
Timer		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	217	21	115	372	7	67	625	126	4	75	47
Future Volume (veh/h)	45	217	21	115	372	7	67	625	126	4	75	47
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	58	278	27	129	418	8	73	679	137	5	88	55
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.78	0.78	0.78	0.89	0.89	0.89	0.92	0.92	0.92	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	705	68	165	953	18	93	539	109	65	367	230
Arrive On Green	0.04	0.22	0.22	0.09	0.27	0.27	0.05	0.36	0.36	0.04	0.34	0.34
Sat Flow, veh/h	1774	3262	314	1774	3552	68	1774	1505	304	1774	1073	671
Grp Volume(v), veh/h	58	150	155	129	208	218	73	0	816	5	0	143
Grp Sat Flow(s),veh/h/ln	1774	1770	1807	1774	1770	1851	1774	0	1809	1774	0	1744
Q Serve(g_s), s	1.9	4.2	4.2	4.1	5.6	5.6	2.3	0.0	20.5	0.2	0.0	3.4
Cycle Q Clear(g_c), s	1.9	4.2	4.2	4.1	5.6	5.6	2.3	0.0	20.5	0.2	0.0	3.4
Prop In Lane	1.00		0.17	1.00		0.04	1.00		0.17	1.00		0.38
Lane Grp Cap(c), veh/h	72	382	391	165	475	497	93	0	647	65	0	597
V/C Ratio(X)	0.80	0.39	0.40	0.78	0.44	0.44	0.79	0.00	1.26	0.08	0.00	0.24
Avail Cap(c_a), veh/h	341	1714	1750	341	1714	1793	341	0	647	341	0	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.3	19.2	19.3	25.4	17.4	17.4	26.8	0.0	18.4	26.7	0.0	13.5
Incr Delay (d2), s/veh	7.5	0.9	0.9	3.0	0.9	0.9	5.5	0.0	129.5	0.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.1	2.2	2.1	2.8	3.0	1.3	0.0	33.4	0.1	0.0	1.7
LnGrp Delay(d),s/veh	34.7	20.2	20.2	28.5	18.3	18.3	32.3	0.0	147.9	26.9	0.0	14.5
LnGrp LOS	C	C	C	C	B	B	C		F	C		B
Approach Vol, veh/h		363			555			889			148	
Approach Delay, s/veh		22.5			20.6			138.5			14.9	
Approach LOS		C			C			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	19.9	7.0	24.1	9.3	16.9	6.1	25.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	11.0	55.5	11.0	20.5	11.0	55.5	11.0	20.5
Max Q Clear Time (g_c+I1), s	3.9	7.6	4.3	5.4	6.1	6.2	2.2	22.5
Green Ext Time (p_c), s	0.0	6.2	0.0	12.4	0.0	6.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	74.1
HCM 2010 LOS	E

Notes

Intersection	
Int Delay, s/veh	17.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	321	4	5	449	1	9	142	31	0	2	12
Future Vol, veh/h	59	321	4	5	449	1	9	142	31	0	2	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	350	-	-	350	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	92	92	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	65	353	4	5	488	1	13	203	44	0	3	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	489	0	0	357	0	0	986	985	355	1085	986	489
Stage 1	-	-	-	-	-	-	485	485	-	499	499	-
Stage 2	-	-	-	-	-	-	501	500	-	586	487	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1074	-	-	1202	-	-	227	248	689	194	248	579
Stage 1	-	-	-	-	-	-	563	552	-	554	544	-
Stage 2	-	-	-	-	-	-	552	543	-	496	550	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1074	-	-	1202	-	-	207	232	689	44	232	579
Mov Cap-2 Maneuver	-	-	-	-	-	-	207	232	-	44	232	-
Stage 1	-	-	-	-	-	-	529	519	-	520	542	-
Stage 2	-	-	-	-	-	-	531	541	-	266	517	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.1	75.7	12.7
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	230	689	1074	-	-	1202	-	-	232	579
HCM Lane V/C Ratio	0.938	0.064	0.06	-	-	0.005	-	-	0.012	0.03
HCM Control Delay (s)	89.1	10.6	8.6	-	-	8	-	-	20.7	11.4
HCM Lane LOS	F	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	8.1	0.2	0.2	-	-	0	-	-	0	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	181	3	21	403	291	7	745	16	126	408	104
Future Volume (veh/h)	110	181	3	21	403	291	7	745	16	126	408	104
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	121	199	3	23	433	313	8	837	18	134	434	111
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.89	0.89	0.89	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	552	469	29	432	367	37	807	17	157	953	938
Arrive On Green	0.08	0.30	0.30	0.02	0.23	0.23	0.02	0.44	0.44	0.09	0.51	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1817	39	1774	1863	1583
Grp Volume(v), veh/h	121	199	3	23	433	313	8	0	855	134	434	111
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	0	1856	1774	1863	1583
Q Serve(g_s), s	9.6	12.1	0.2	1.9	33.2	27.1	0.6	0.0	63.6	10.7	21.3	4.4
Cycle Q Clear(g_c), s	9.6	12.1	0.2	1.9	33.2	27.1	0.6	0.0	63.6	10.7	21.3	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	143	552	469	29	432	367	37	0	824	157	953	938
V/C Ratio(X)	0.84	0.36	0.01	0.80	1.00	0.85	0.22	0.00	1.04	0.85	0.46	0.12
Avail Cap(c_a), veh/h	254	552	469	254	432	367	254	0	824	303	953	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	39.7	35.5	70.3	55.0	52.7	69.0	0.0	39.8	64.4	22.3	12.8
Incr Delay (d2), s/veh	5.1	0.1	0.0	17.2	44.1	16.6	1.1	0.0	41.6	4.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	6.2	0.1	1.0	22.3	13.5	0.3	0.0	42.0	5.5	10.9	1.9
LnGrp Delay(d),s/veh	70.1	39.9	35.5	87.5	99.1	69.3	70.0	0.0	81.4	69.3	22.4	12.8
LnGrp LOS	E	D	D	F	F	E	E		F	E	C	B
Approach Vol, veh/h		323			769			863			679	
Approach Delay, s/veh		51.1			86.6			81.3			30.1	
Approach LOS		D			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.1	40.0	7.5	79.7	6.8	49.3	17.2	70.0
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	20.5	33.2	20.5	* 64	20.5	33.2	24.5	63.6
Max Q Clear Time (g_c+I1), s	11.6	35.2	2.6	23.3	3.9	14.1	12.7	65.6
Green Ext Time (p_c), s	0.0	0.0	0.0	5.4	0.0	2.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	66.0
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	278	0	66	693	66	3	353	25	22	261	30
Future Volume (veh/h)	38	278	0	66	693	66	3	353	25	22	261	30
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	43	316	0	74	779	74	3	380	27	25	293	34
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	674	0	92	640	61	3	392	28	27	311	36
Arrive On Green	0.03	0.36	0.00	0.05	0.38	0.38	0.23	0.23	0.23	0.21	0.21	0.21
Sat Flow, veh/h	1774	1863	0	1774	1675	159	13	1706	121	130	1519	176
Grp Volume(v), veh/h	43	316	0	74	0	853	410	0	0	352	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1774	0	1835	1841	0	0	1825	0	0
Q Serve(g_s), s	4.0	21.6	0.0	6.8	0.0	63.2	36.5	0.0	0.0	31.4	0.0	0.0
Cycle Q Clear(g_c), s	4.0	21.6	0.0	6.8	0.0	63.2	36.5	0.0	0.0	31.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.09	0.01		0.07	0.07		0.10
Lane Grp Cap(c), veh/h	55	674	0	92	0	701	423	0	0	374	0	0
V/C Ratio(X)	0.78	0.47	0.00	0.81	0.00	1.22	0.97	0.00	0.00	0.94	0.00	0.00
Avail Cap(c_a), veh/h	274	716	0	220	0	701	423	0	0	422	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	79.5	40.6	0.0	77.6	0.0	51.1	63.1	0.0	0.0	64.7	0.0	0.0
Incr Delay (d2), s/veh	8.4	0.2	0.0	6.1	0.0	110.2	35.5	0.0	0.0	26.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	11.1	0.0	3.5	0.0	53.4	22.7	0.0	0.0	18.6	0.0	0.0
LnGrp Delay(d),s/veh	87.9	40.8	0.0	83.7	0.0	161.3	98.6	0.0	0.0	91.3	0.0	0.0
LnGrp LOS	F	D		F		F	F			F		
Approach Vol, veh/h		359			927			410			352	
Approach Delay, s/veh		46.4			155.1			98.6			91.3	
Approach LOS		D			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.7	70.0		40.7	13.0	66.6		45.0
Change Period (Y+Rc), s	4.5	6.8		6.8	4.5	* 6.8		7.0
Max Green Setting (Gmax), s	25.5	63.2		38.2	20.5	* 64		38.0
Max Q Clear Time (g_c+I1), s	6.0	65.2		33.4	8.8	23.6		38.5
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	4.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	113.8
HCM 2010 LOS	F

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	122	9	28	686	322	116
Future Volume (veh/h)	122	9	28	686	322	116
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	152	11	30	730	388	140
Adj No. of Lanes	1	1	1	1	1	0
Peak Hour Factor	0.80	0.80	0.94	0.94	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	201	179	38	1030	493	178
Arrive On Green	0.11	0.11	0.02	0.55	0.38	0.38
Sat Flow, veh/h	1774	1583	1774	1863	1308	472
Grp Volume(v), veh/h	152	11	30	730	0	528
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	0	1779
Q Serve(g_s), s	3.0	0.2	0.6	10.3	0.0	9.4
Cycle Q Clear(g_c), s	3.0	0.2	0.6	10.3	0.0	9.4
Prop In Lane	1.00	1.00	1.00			0.27
Lane Grp Cap(c), veh/h	201	179	38	1030	0	671
V/C Ratio(X)	0.76	0.06	0.78	0.71	0.00	0.79
Avail Cap(c_a), veh/h	1722	1537	1045	3344	0	3169
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.3	14.1	17.4	5.9	0.0	9.8
Incr Delay (d2), s/veh	2.2	0.1	12.0	0.3	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.1	0.4	5.2	0.0	4.7
LnGrp Delay(d),s/veh	17.5	14.2	29.3	6.2	0.0	10.6
LnGrp LOS	B	B	C	A		B
Approach Vol, veh/h	163			760	528	
Approach Delay, s/veh	17.3			7.1	10.6	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.3	20.0				26.2		9.4
Change Period (Y+Rc), s	5.5	* 6.5				* 6.5		5.4
Max Green Setting (Gmax), s	21.0	* 64				* 64		34.6
Max Q Clear Time (g_c+I1), s	2.6	11.4				12.3		5.0
Green Ext Time (p_c), s	0.0	2.1				2.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.5
HCM 2010 LOS	A

Notes

Intersection	
Intersection Delay, s/veh	15.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	13	1	126	0	463	18	21	269	0
Future Vol, veh/h	0	0	0	13	1	126	0	463	18	21	269	0
Peak Hour Factor	0.97	0.97	0.97	0.70	0.70	0.70	0.95	0.95	0.95	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	19	1	180	0	487	19	24	306	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	0	10.8	18.6	12.8
HCM LOS	-	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	9%	7%
Vol Thru, %	96%	100%	1%	93%
Vol Right, %	4%	0%	90%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	481	0	140	290
LT Vol	0	0	13	21
Through Vol	463	0	1	269
RT Vol	18	0	126	0
Lane Flow Rate	506	0	200	330
Geometry Grp	1	1	1	1
Degree of Util (X)	0.698	0	0.301	0.475
Departure Headway (Hd)	4.962	6.443	5.424	5.184
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	734	0	662	695
Service Time	2.962	4.505	3.468	3.213
HCM Lane V/C Ratio	0.689	0	0.302	0.475
HCM Control Delay	18.6	9.5	10.8	12.8
HCM Lane LOS	C	N	B	B
HCM 95th-tile Q	5.7	0	1.3	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	686	403	8	0	320	8	7	31	5	3	3	327
Future Volume (veh/h)	686	403	8	0	320	8	7	31	5	3	3	327
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	700	411	0	0	438	11	7	32	5	4	4	389
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.73	0.73	0.73	0.98	0.98	0.98	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	460	1091	927	2	485	12	13	60	9	181	181	726
Arrive On Green	0.26	0.59	0.00	0.00	0.27	0.27	0.05	0.05	0.05	0.20	0.20	0.20
Sat Flow, veh/h	1774	1863	1583	1774	1809	45	287	1313	205	909	909	1583
Grp Volume(v), veh/h	700	411	0	0	0	449	44	0	0	8	0	389
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1855	1805	0	0	1817	0	1583
Q Serve(g_s), s	24.5	11.1	0.0	0.0	0.0	22.1	2.3	0.0	0.0	0.3	0.0	16.6
Cycle Q Clear(g_c), s	24.5	11.1	0.0	0.0	0.0	22.1	2.3	0.0	0.0	0.3	0.0	16.6
Prop In Lane	1.00		1.00	1.00		0.02	0.16		0.11	0.50		1.00
Lane Grp Cap(c), veh/h	460	1091	927	2	0	497	82	0	0	362	0	726
V/C Ratio(X)	1.52	0.38	0.00	0.00	0.00	0.90	0.54	0.00	0.00	0.02	0.00	0.54
Avail Cap(c_a), veh/h	460	1266	1076	366	0	1257	680	0	0	662	0	987
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.0	10.4	0.0	0.0	0.0	33.4	44.1	0.0	0.0	30.4	0.0	18.3
Incr Delay (d2), s/veh	245.5	0.1	0.0	0.0	0.0	2.5	2.0	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	43.3	5.7	0.0	0.0	0.0	11.6	1.2	0.0	0.0	0.2	0.0	7.3
LnGrp Delay(d),s/veh	280.5	10.5	0.0	0.0	0.0	35.9	46.1	0.0	0.0	30.4	0.0	18.6
LnGrp LOS	F	B				D	D			C		B
Approach Vol, veh/h		1111			449			44			397	
Approach Delay, s/veh		180.6			35.9			46.1			18.8	
Approach LOS		F			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	30.0	31.3		24.4	0.0	61.3		8.7
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		4.4
Max Green Setting (Gmax), s	24.5	64.0		* 34	19.5	* 64		35.6
Max Q Clear Time (g_c+I1), s	26.5	24.1		18.6	0.0	13.1		4.3
Green Ext Time (p_c), s	0.0	1.2		0.2	0.0	1.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	113.1
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	354	187	14	1	29	370	427	7	179	47	146	28
Future Volume (veh/h)	354	187	14	1	29	370	427	7	179	47	146	28
Number	1	6	16		5	2	12	3	8	18	7	4
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.98	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900		1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	389	205	15		33	420	485	8	195	51	180	35
Adj No. of Lanes	1	2	0		1	1	1	1	1	0	2	1
Peak Hour Factor	0.91	0.91	0.91		0.88	0.88	0.88	0.92	0.92	0.92	0.81	0.81
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	369	1757	128		41	626	520	11	228	60	250	422
Arrive On Green	0.21	0.53	0.53		0.02	0.34	0.34	0.01	0.16	0.16	0.07	0.23
Sat Flow, veh/h	1774	3346	243		1774	1863	1548	1774	1424	373	3442	1863
Grp Volume(v), veh/h	389	108	112		33	420	485	8	0	246	180	35
Grp Sat Flow(s),veh/h/ln	1774	1770	1820		1774	1863	1548	1774	0	1797	1721	1863
Q Serve(g_s), s	19.5	2.9	2.9		1.7	18.1	28.4	0.4	0.0	12.5	4.8	1.4
Cycle Q Clear(g_c), s	19.5	2.9	2.9		1.7	18.1	28.4	0.4	0.0	12.5	4.8	1.4
Prop In Lane	1.00		0.13		1.00		1.00	1.00		0.21	1.00	
Lane Grp Cap(c), veh/h	369	929	955		41	626	520	11	0	287	250	422
V/C Ratio(X)	1.06	0.12	0.12		0.81	0.67	0.93	0.75	0.00	0.86	0.72	0.08
Avail Cap(c_a), veh/h	369	1227	1262		376	1294	1075	369	0	1248	715	1288
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	11.3	11.3		45.6	26.7	30.1	46.6	0.0	38.4	42.6	28.6
Incr Delay (d2), s/veh	62.2	0.0	0.0		12.9	0.5	3.4	31.5	0.0	2.9	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	1.4	1.5		1.0	9.4	12.5	0.3	0.0	6.4	2.3	0.7
LnGrp Delay(d),s/veh	99.4	11.3	11.3		58.6	27.2	33.6	78.1	0.0	41.3	44.0	28.6
LnGrp LOS	F	B	B		E	C	C	E		D	D	C
Approach Vol, veh/h		609				938			254			301
Approach Delay, s/veh		67.6				31.6			42.4			38.2
Approach LOS		E				C			D			D

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	36.4	6.1	26.4	7.3	54.2	12.3	20.1
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	19.5	* 65	19.5	* 65	* 20	* 65	19.5	* 65
Max Q Clear Time (g_c+I1), s	21.5	30.4	2.4	6.2	3.7	4.9	6.8	14.5
Green Ext Time (p_c), s	0.0	1.1	0.0	0.5	0.0	1.1	0.1	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	44.3
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	70
Future Volume (veh/h)	70
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	86
Adj No. of Lanes	1
Peak Hour Factor	0.81
Percent Heavy Veh, %	2
Cap, veh/h	359
Arrive On Green	0.23
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	86
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	4.2
Cycle Q Clear(g_c), s	4.2
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	359
V/C Ratio(X)	0.24
Avail Cap(c_a), veh/h	1095
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	29.7
Incr Delay (d2), s/veh	0.1
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	1.8
LnGrp Delay(d),s/veh	29.8
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	5	187	95	133	3	64	477	66	6	502	1479	102
Future Volume (veh/h)	5	187	95	133	3	64	477	66	6	502	1479	102
Number		7	4	14		3	8	18		5	2	12
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863		1863	1863	1863		1863	1863	1863
Adj Flow Rate, veh/h		205	104	146		72	536	74		546	1608	111
Adj No. of Lanes		2	3	1		2	2	1		2	3	1
Peak Hour Factor		0.91	0.91	0.91		0.89	0.89	0.89		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		286	1177	366		126	655	293		625	1948	599
Arrive On Green		0.08	0.23	0.23		0.04	0.18	0.18		0.18	0.38	0.38
Sat Flow, veh/h		3442	5085	1583		3442	3539	1583		3442	5085	1563
Grp Volume(v), veh/h		205	104	146		72	536	74		546	1608	111
Grp Sat Flow(s),veh/h/ln		1721	1695	1583		1721	1770	1583		1721	1695	1563
Q Serve(g_s), s		4.7	1.3	6.4		1.7	11.9	3.3		12.6	23.3	3.8
Cycle Q Clear(g_c), s		4.7	1.3	6.4		1.7	11.9	3.3		12.6	23.3	3.8
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		286	1177	366		126	655	293		625	1948	599
V/C Ratio(X)		0.72	0.09	0.40		0.57	0.82	0.25		0.87	0.83	0.19
Avail Cap(c_a), veh/h		823	2077	647		823	1441	645		823	3911	1203
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		36.4	24.6	26.5		38.6	31.9	28.4		32.4	22.7	16.7
Incr Delay (d2), s/veh		1.3	0.0	0.3		1.5	1.0	0.2		6.8	0.3	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.3	0.6	2.8		0.8	5.9	1.4		6.6	10.9	1.7
LnGrp Delay(d),s/veh		37.7	24.6	26.8		40.2	32.9	28.6		39.2	23.0	16.8
LnGrp LOS		D	C	C		D	C	C		D	C	B
Approach Vol, veh/h			455				682				2265	
Approach Delay, s/veh			31.2				33.2				26.6	
Approach LOS			C				C				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	38.6	8.5	25.7	20.3	27.1	12.3	21.9
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	19.5	* 63	19.5	* 33	19.5	* 63	19.5	33.2
Max Q Clear Time (g_c+I1), s	3.9	25.3	3.7	8.4	14.6	10.2	6.7	13.9
Green Ext Time (p_c), s	0.0	6.0	0.0	1.2	0.2	6.0	0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.4
HCM 2010 LOS	C

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	3	64	477	66
Future Volume (veh/h)	3	64	477	66
Number		1	6	16
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863
Adj Flow Rate, veh/h		80	596	82
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.80	0.80	0.80
Percent Heavy Veh, %		2	2	2
Cap, veh/h		138	1227	382
Arrive On Green		0.04	0.24	0.24
Sat Flow, veh/h		3442	5085	1583
Grp Volume(v), veh/h		80	596	82
Grp Sat Flow(s),veh/h/ln		1721	1695	1583
Q Serve(g_s), s		1.9	8.2	3.4
Cycle Q Clear(g_c), s		1.9	8.2	3.4
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		138	1227	382
V/C Ratio(X)		0.58	0.49	0.21
Avail Cap(c_a), veh/h		823	3905	1216
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		38.5	26.6	24.7
Incr Delay (d2), s/veh		1.4	0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.9	3.8	1.5
LnGrp Delay(d),s/veh		39.9	26.7	24.8
LnGrp LOS		D	C	C
Approach Vol, veh/h			758	
Approach Delay, s/veh			27.9	
Approach LOS			C	

Timer

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	228	21	108	487	288	98
Future Volume (veh/h)	228	21	108	487	288	98
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1900
Adj Flow Rate, veh/h	265	24	121	547	335	114
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.86	0.86	0.89	0.89	0.86	0.86
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	324	29	154	974	424	144
Arrive On Green	0.20	0.20	0.09	0.52	0.32	0.32
Sat Flow, veh/h	1605	145	1774	1863	1330	453
Grp Volume(v), veh/h	290	0	121	547	0	449
Grp Sat Flow(s),veh/h/ln	1757	0	1774	1863	0	1783
Q Serve(g_s), s	6.2	0.0	2.6	7.8	0.0	9.0
Cycle Q Clear(g_c), s	6.2	0.0	2.6	7.8	0.0	9.0
Prop In Lane	0.91	0.08	1.00			0.25
Lane Grp Cap(c), veh/h	355	0	154	974	0	569
V/C Ratio(X)	0.82	0.00	0.79	0.56	0.00	0.79
Avail Cap(c_a), veh/h	1578	0	921	3043	0	2899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.0	0.0	17.6	6.3	0.0	12.2
Incr Delay (d2), s/veh	1.8	0.0	3.3	0.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	1.4	4.0	0.0	4.5
LnGrp Delay(d),s/veh	16.8	0.0	20.9	6.5	0.0	13.1
LnGrp LOS	B		C	A		B
Approach Vol, veh/h	290			668	449	
Approach Delay, s/veh	16.8			9.1	13.1	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.0	18.6				26.7		12.6
Change Period (Y+Rc), s	* 4.6	* 6.1				* 6.1		4.7
Max Green Setting (Gmax), s	* 20	* 64				* 64		35.3
Max Q Clear Time (g_c+I1), s	4.6	11.0				9.8		8.2
Green Ext Time (p_c), s	0.0	1.5				1.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	12.0
HCM 2010 LOS	B

Notes

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	2	12	468	194	478	749	23	233	103	464	6	74
Future Volume (veh/h)	2	12	468	194	478	749	23	233	103	464	6	74
Number		1	6	16	5	2	12	3	8	18	7	4
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.98	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863
Adj Flow Rate, veh/h		15	571	0	493	772	24	247	405	397	8	92
Adj No. of Lanes		1	2	1	2	2	0	1	1	1	0	2
Peak Hour Factor		0.82	0.82	0.82	0.97	0.97	0.97	0.77	0.77	0.77	0.80	0.80
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		19	821	367	567	1348	42	443	465	650	22	255
Arrive On Green		0.01	0.23	0.00	0.16	0.38	0.38	0.25	0.25	0.25	0.10	0.10
Sat Flow, veh/h		1774	3539	1583	3442	3501	109	1774	1863	1557	218	2524
Grp Volume(v), veh/h		15	571	0	493	390	406	247	405	397	68	0
Grp Sat Flow(s),veh/h/ln		1774	1770	1583	1721	1770	1841	1774	1863	1557	1852	0
Q Serve(g_s), s		0.7	12.1	0.0	11.4	14.2	14.2	9.9	17.0	16.4	2.8	0.0
Cycle Q Clear(g_c), s		0.7	12.1	0.0	11.4	14.2	14.2	9.9	17.0	16.4	2.8	0.0
Prop In Lane		1.00		1.00	1.00		0.06	1.00		1.00	0.12	
Lane Grp Cap(c), veh/h		19	821	367	567	681	709	443	465	650	187	0
V/C Ratio(X)		0.80	0.70	0.00	0.87	0.57	0.57	0.56	0.87	0.61	0.36	0.00
Avail Cap(c_a), veh/h		428	2829	1266	834	1417	1474	756	794	924	782	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		40.3	28.7	0.0	33.3	19.8	19.8	26.7	29.4	18.8	34.3	0.0
Incr Delay (d2), s/veh		24.0	0.4	0.0	4.8	0.3	0.3	0.4	2.5	0.3	0.4	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.5	5.9	0.0	5.8	7.0	7.3	4.9	9.1	7.1	1.5	0.0
LnGrp Delay(d),s/veh		64.3	29.1	0.0	38.1	20.1	20.1	27.1	31.8	19.1	34.7	0.0
LnGrp LOS		E	C		D	C	C	C	C	B	C	
Approach Vol, veh/h			586			1289			1049			128
Approach Delay, s/veh			30.0			27.0			25.9			34.7
Approach LOS			C			C			C			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	36.1		13.8	18.7	23.7		25.6
Change Period (Y+Rc), s	* 5.3	* 4.7		5.5	* 5.2	* 4.7		5.2
Max Green Setting (Gmax), s	* 20	* 65		34.5	* 20	* 65		34.8
Max Q Clear Time (g_c+I1), s	2.7	16.2		4.8	13.4	14.1		19.0
Green Ext Time (p_c), s	0.0	2.3		0.1	0.0	2.3		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	27.5
HCM 2010 LOS	C

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	22
Future Volume (veh/h)	22
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.94
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	28
Adj No. of Lanes	0
Peak Hour Factor	0.80
Percent Heavy Veh, %	2
Cap, veh/h	79
Arrive On Green	0.10
Sat Flow, veh/h	776
Grp Volume(v), veh/h	60
Grp Sat Flow(s),veh/h/ln	1667
Q Serve(g_s), s	2.7
Cycle Q Clear(g_c), s	2.7
Prop In Lane	0.47
Lane Grp Cap(c), veh/h	169
V/C Ratio(X)	0.36
Avail Cap(c_a), veh/h	704
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	34.2
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	1.3
LnGrp Delay(d),s/veh	34.7
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	996	0	300	0	744	523	0	722	278
Future Volume (veh/h)	0	0	0	996	0	300	0	744	523	0	722	278
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	0	1863	1900	0	1863	1900
Adj Flow Rate, veh/h				754	566	349	0	836	0	0	744	0
Adj No. of Lanes				1	1	0	0	2	0	0	2	0
Peak Hour Factor				0.86	0.86	0.86	0.89	0.89	0.89	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	0	2	2	0	2	2
Cap, veh/h				566	343	211	0	2857	0	0	2857	0
Arrive On Green				0.32	0.32	0.32	0.00	0.81	0.00	0.00	0.81	0.00
Sat Flow, veh/h				1774	1074	662	0	3725	0	0	3725	0
Grp Volume(v), veh/h				754	0	915	0	836	0	0	744	0
Grp Sat Flow(s),veh/h/ln				1774	0	1736	0	1770	0	0	1770	0
Q Serve(g_s), s				35.1	0.0	35.1	0.0	6.6	0.0	0.0	5.6	0.0
Cycle Q Clear(g_c), s				35.1	0.0	35.1	0.0	6.6	0.0	0.0	5.6	0.0
Prop In Lane				1.00		0.38	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				566	0	554	0	2857	0	0	2857	0
V/C Ratio(X)				1.33	0.00	1.65	0.00	0.29	0.00	0.00	0.26	0.00
Avail Cap(c_a), veh/h				566	0	554	0	2857	0	0	2857	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				37.5	0.0	37.5	0.0	2.7	0.0	0.0	2.6	0.0
Incr Delay (d2), s/veh				161.2	0.0	301.2	0.0	0.3	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				42.5	0.0	63.1	0.0	3.2	0.0	0.0	2.8	0.0
LnGrp Delay(d),s/veh				198.7	0.0	338.7	0.0	2.9	0.0	0.0	2.8	0.0
LnGrp LOS				F		F		A			A	
Approach Vol, veh/h					1669			836			744	
Approach Delay, s/veh					275.4			2.9			2.8	
Approach LOS					F			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		94.5				94.5		40.0
Change Period (Y+Rc), s		* 5				5.0		4.9
Max Green Setting (Gmax), s		* 66				65.0		35.1
Max Q Clear Time (g_c+I1), s		7.6				8.6		37.1
Green Ext Time (p_c), s		3.9				3.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	142.9
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	0	1094	0	0	0	0	986	324	0	1471	273
Future Volume (veh/h)	250	0	1094	0	0	0	0	986	324	0	1471	273
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	175	0	1246				0	1120	0	0	1634	0
Adj No. of Lanes	1	0	2				0	3	0	0	2	1
Peak Hour Factor	0.95	0.95	0.95				0.88	0.88	0.88	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	2
Cap, veh/h	558	0	993				0	3791	0	0	2638	1180
Arrive On Green	0.31	0.00	0.31				0.00	0.75	0.00	0.00	0.75	0.00
Sat Flow, veh/h	1774	0	3157				0	5421	0	0	3632	1583
Grp Volume(v), veh/h	175	0	1246				0	1120	0	0	1634	0
Grp Sat Flow(s),veh/h/ln	1774	0	1578				0	1695	0	0	1770	1583
Q Serve(g_s), s	8.3	0.0	34.6				0.0	7.9	0.0	0.0	24.0	0.0
Cycle Q Clear(g_c), s	8.3	0.0	34.6				0.0	7.9	0.0	0.0	24.0	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	558	0	993				0	3791	0	0	2638	1180
V/C Ratio(X)	0.31	0.00	1.25				0.00	0.30	0.00	0.00	0.62	0.00
Avail Cap(c_a), veh/h	558	0	993				0	3791	0	0	2638	1180
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	28.7	0.0	37.7				0.0	4.6	0.0	0.0	6.6	0.0
Incr Delay (d2), s/veh	0.1	0.0	123.0				0.0	0.2	0.0	0.0	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	32.0				0.0	3.7	0.0	0.0	12.0	0.0
LnGrp Delay(d),s/veh	28.8	0.0	160.7				0.0	4.8	0.0	0.0	7.7	0.0
LnGrp LOS	C		F					A			A	
Approach Vol, veh/h		1421						1120			1634	
Approach Delay, s/veh		144.5						4.8			7.7	
Approach LOS		F						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		87.5		40.0		87.5		
Change Period (Y+Rc), s		* 5		* 5.4		5.0		
Max Green Setting (Gmax), s		* 66		* 35		65.0		
Max Q Clear Time (g_c+I1), s		26.0		36.6		9.9		
Green Ext Time (p_c), s		9.9		0.0		10.2		

Intersection Summary	
HCM 2010 Ctrl Delay	53.5
HCM 2010 LOS	D

Notes

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	1016	745	18	85	673	269	62
Future Volume (veh/h)	1016	745	18	85	673	269	62
Number	6	16		5	2	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	1129	0		99	783	313	72
Adj No. of Lanes	3	0		1	3	2	1
Peak Hour Factor	0.90	0.90		0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	3204	0		127	3912	405	187
Arrive On Green	0.63	0.00		0.07	0.77	0.12	0.12
Sat Flow, veh/h	5421	0		1774	5253	3442	1583
Grp Volume(v), veh/h	1129	0		99	783	313	72
Grp Sat Flow(s),veh/h/ln	1695	0		1774	1695	1721	1583
Q Serve(g_s), s	7.9	0.0		4.1	3.2	6.6	3.2
Cycle Q Clear(g_c), s	7.9	0.0		4.1	3.2	6.6	3.2
Prop In Lane		0.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3204	0		127	3912	405	187
V/C Ratio(X)	0.35	0.00		0.78	0.20	0.77	0.39
Avail Cap(c_a), veh/h	4393	0		469	4393	1669	768
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.6	0.0		34.4	2.4	32.2	30.7
Incr Delay (d2), s/veh	0.1	0.0		3.9	0.1	1.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0		2.1	1.5	3.2	1.4
LnGrp Delay(d),s/veh	6.8	0.0		38.3	2.4	33.4	31.2
LnGrp LOS	A			D	A	C	C
Approach Vol, veh/h	1129				882	385	
Approach Delay, s/veh	6.8				6.4	33.0	
Approach LOS	A				A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		62.9			10.5	52.4		12.4
Change Period (Y+Rc), s		5.0			* 5.1	5.0		3.5
Max Green Setting (Gmax), s		65.0			* 20	65.0		36.5
Max Q Clear Time (g_c+I1), s		5.2			6.1	9.9		8.6
Green Ext Time (p_c), s		39.6			0.0	37.5		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	10.9
HCM 2010 LOS	B

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	10	91	382	96	16	101	364	98	19	291	901	116
Future Volume (veh/h)	10	91	382	96	16	101	364	98	19	291	901	116
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1863
Adj Flow Rate, veh/h		101	424	107		109	391	105		303	939	121
Adj No. of Lanes		2	3	0		2	3	1		2	3	1
Peak Hour Factor		0.90	0.90	0.90		0.93	0.93	0.93		0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		173	703	171		184	895	274		622	1844	573
Arrive On Green		0.05	0.17	0.17		0.05	0.18	0.18		0.18	0.36	0.36
Sat Flow, veh/h		3442	4068	990		3442	5085	1554		3442	5085	1579
Grp Volume(v), veh/h		101	351	180		109	391	105		303	939	121
Grp Sat Flow(s),veh/h/ln		1721	1695	1668		1721	1695	1554		1721	1695	1579
Q Serve(g_s), s		1.9	6.3	6.6		2.0	4.5	3.9		5.2	9.5	3.5
Cycle Q Clear(g_c), s		1.9	6.3	6.6		2.0	4.5	3.9		5.2	9.5	3.5
Prop In Lane		1.00		0.59		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		173	586	288		184	895	274		622	1844	573
V/C Ratio(X)		0.58	0.60	0.63		0.59	0.44	0.38		0.49	0.51	0.21
Avail Cap(c_a), veh/h		1015	1754	863		1015	2630	804		1015	4953	1538
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		30.7	25.2	25.4		30.6	24.3	24.1		24.3	16.5	14.5
Incr Delay (d2), s/veh		1.2	0.4	0.8		1.1	0.1	0.3		0.2	0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.9	3.0	3.1		1.0	2.1	1.7		2.5	4.4	1.5
LnGrp Delay(d),s/veh		31.9	25.6	26.2		31.7	24.4	24.4		24.5	16.6	14.6
LnGrp LOS		C	C	C		C	C	C		C	B	B
Approach Vol, veh/h			632				605				1363	
Approach Delay, s/veh			26.8				25.7				18.2	
Approach LOS			C				C				B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.5	22.4	8.8	17.4	10.3	29.6	9.0	17.2
Change Period (Y+Rc), s	5.5	* 5.6	5.5	5.8	5.5	* 5.6	5.5	5.8
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.2	19.5	* 64	19.5	34.2
Max Q Clear Time (g_c+I1), s	7.2	12.0	3.9	6.5	5.0	11.5	4.0	8.6
Green Ext Time (p_c), s	0.2	4.3	0.0	2.0	0.1	4.3	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	5	137	410	227
Future Volume (veh/h)	5	137	410	227
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900
Adj Flow Rate, veh/h		159	477	264
Adj No. of Lanes		2	3	0
Peak Hour Factor		0.86	0.86	0.86
Percent Heavy Veh, %		2	2	2
Cap, veh/h		249	861	397
Arrive On Green		0.07	0.25	0.25
Sat Flow, veh/h		3442	3390	1561
Grp Volume(v), veh/h		159	477	264
Grp Sat Flow(s),veh/h/ln		1721	1695	1561
Q Serve(g_s), s		3.0	8.1	10.0
Cycle Q Clear(g_c), s		3.0	8.1	10.0
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		249	861	397
V/C Ratio(X)		0.64	0.55	0.67
Avail Cap(c_a), veh/h		1015	3302	1521
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		29.8	21.4	22.1
Incr Delay (d2), s/veh		1.0	0.2	0.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.4	3.8	4.4
LnGrp Delay(d),s/veh		30.9	21.6	22.9
LnGrp LOS		C	C	C
Approach Vol, veh/h			900	
Approach Delay, s/veh			23.6	
Approach LOS			C	

Timer

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	3	219	95	10	1	36	116	233	3	53	972	34
Future Volume (veh/h)	3	219	95	10	1	36	116	233	3	53	972	34
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.97		1.00		0.97		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1900
Adj Flow Rate, veh/h		255	110	12		37	120	240		62	1144	40
Adj No. of Lanes		2	3	0		2	1	2		2	3	0
Peak Hour Factor		0.86	0.86	0.86		0.97	0.97	0.97		0.85	0.85	0.85
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		318	1033	109		69	277	1167		106	1629	57
Arrive On Green		0.09	0.22	0.22		0.02	0.15	0.15		0.03	0.32	0.32
Sat Flow, veh/h		3442	4659	491		3548	1863	3062		3442	5044	176
Grp Volume(v), veh/h		255	79	43		37	120	240		62	769	415
Grp Sat Flow(s),veh/h/ln		1721	1695	1760		1774	1863	1531		1721	1695	1830
Q Serve(g_s), s		7.8	2.0	2.1		1.1	6.3	5.7		1.9	21.3	21.3
Cycle Q Clear(g_c), s		7.8	2.0	2.1		1.1	6.3	5.7		1.9	21.3	21.3
Prop In Lane		1.00		0.28		1.00		1.00		1.00		0.10
Lane Grp Cap(c), veh/h		318	752	390		69	277	1167		106	1095	591
V/C Ratio(X)		0.80	0.11	0.11		0.54	0.43	0.21		0.58	0.70	0.70
Avail Cap(c_a), veh/h		625	2020	1049		644	1118	2549		625	2048	1105
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		47.8	33.3	33.4		52.2	41.6	22.9		51.4	31.8	31.8
Incr Delay (d2), s/veh		1.8	0.0	0.0		2.4	0.4	0.0		1.9	0.3	0.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.8	0.9	1.0		0.6	3.3	2.4		0.9	10.0	10.8
LnGrp Delay(d),s/veh		49.6	33.3	33.4		54.6	42.0	22.9		53.3	32.2	32.4
LnGrp LOS		D	C	C		D	D	C		D	C	C
Approach Vol, veh/h			377				397				1246	
Approach Delay, s/veh			44.3				31.6				33.3	
Approach LOS			D				C				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	61.2	15.4	22.0	29.6	40.4	7.6	29.8
Change Period (Y+Rc), s	5.5	* 5.7	5.5	* 6	5.5	* 5.7	5.5	* 6
Max Green Setting (Gmax), s	19.5	* 64	19.5	* 65	24.5	* 65	19.5	* 64
Max Q Clear Time (g_c+I1), s	3.9	48.3	9.8	8.3	24.1	23.3	3.1	4.1
Green Ext Time (p_c), s	0.0	7.2	0.1	0.6	0.0	9.2	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	33.4
HCM 2010 LOS	C

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	685	1319	696
Future Volume (veh/h)	685	1319	696
Number	5	2	12
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863
Adj Flow Rate, veh/h	721	1388	733
Adj No. of Lanes	2	3	1
Peak Hour Factor	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2
Cap, veh/h	773	2628	804
Arrive On Green	0.22	0.52	0.52
Sat Flow, veh/h	3442	5085	1556
Grp Volume(v), veh/h	721	1388	733
Grp Sat Flow(s),veh/h/ln	1721	1695	1556
Q Serve(g_s), s	22.1	19.5	46.3
Cycle Q Clear(g_c), s	22.1	19.5	46.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	773	2628	804
V/C Ratio(X)	0.93	0.53	0.91
Avail Cap(c_a), veh/h	785	3044	931
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	17.3	23.7
Incr Delay (d2), s/veh	17.4	0.1	11.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	9.1	22.2
LnGrp Delay(d),s/veh	58.3	17.3	34.8
LnGrp LOS	E	B	C
Approach Vol, veh/h		2842	
Approach Delay, s/veh		32.2	
Approach LOS		C	
Timer			

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	345	1	913	1076	132	32	1075	457	11	1582	202
Future Volume (vph)	345	1	913	1076	132	32	1075	457	11	1582	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8	6.8	4.6		4.6			4.6	4.0
Lane Util. Factor		0.91	0.86	0.91	0.88		0.86			0.95	1.00
Frpb, ped/bikes		1.00	0.99	0.98	1.00		0.99			1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.95	0.85	0.85		0.95			1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1610	3025	1417	2787		6074			3539	1545
Flt Permitted		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		1610	3025	1417	2787		6074			3539	1545
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.93	0.93	0.93	0.85	0.85
Adj. Flow (vph)	388	1	1026	1209	148	36	1156	491	12	1861	238
RTOR Reduction (vph)	0	0	5	9	16	0	1	0	0	0	0
Lane Group Flow (vph)	0	389	1541	680	168	0	1658	0	0	1861	238
Confl. Peds. (#/hr)	6	6		6	3	3		3	3		6
Confl. Bikes (#/hr)								2	2		3
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		2!		6!			2	
Permitted Phases				4	2						Free
Actuated Green, G (s)		48.2	48.2	48.2	65.4		65.4			65.4	125.0
Effective Green, g (s)		48.2	48.2	48.2	65.4		65.4			65.4	125.0
Actuated g/C Ratio		0.39	0.39	0.39	0.52		0.52			0.52	1.00
Clearance Time (s)		6.8	6.8	6.8	4.6		4.6			4.6	
Vehicle Extension (s)		1.0	1.0	1.0	1.0		1.0			1.0	
Lane Grp Cap (vph)		620	1166	546	1458		3177			1851	1545
v/s Ratio Prot		0.24	c0.51		0.06		0.27			c0.53	
v/s Ratio Perm				0.48							0.15
v/c Ratio		0.63	1.32	1.25	0.12		0.52			1.01	0.15
Uniform Delay, d1		31.1	38.4	38.4	15.1		19.5			29.8	0.0
Progression Factor		1.00	1.00	1.00	1.00		1.00			1.22	1.00
Incremental Delay, d2		1.4	150.8	125.5	0.2		0.6			20.0	0.2
Delay (s)		32.6	189.2	163.9	15.3		20.2			56.2	0.2
Level of Service		C	F	F	B		C			E	A
Approach Delay (s)			159.4				20.2			49.9	
Approach LOS			F				C			D	

Intersection Summary			
HCM 2000 Control Delay	85.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	11.4
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1000	0	161	0	912	637	0	794	346
Future Volume (veh/h)	0	0	0	1000	0	161	0	912	637	0	794	346
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				1099	0	177	0	970	0	0	845	0
Adj No. of Lanes				2	0	1	0	3	2	0	2	1
Peak Hour Factor				0.91	0.91	0.91	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				1153	0	530	0	2918	1599	0	2031	909
Arrive On Green				0.33	0.00	0.33	0.00	0.57	0.00	0.00	0.57	0.00
Sat Flow, veh/h				3442	0	1583	0	5253	2787	0	3632	1583
Grp Volume(v), veh/h				1099	0	177	0	970	0	0	845	0
Grp Sat Flow(s),veh/h/ln				1721	0	1583	0	1695	1393	0	1770	1583
Q Serve(g_s), s				39.0	0.0	10.5	0.0	12.6	0.0	0.0	16.7	0.0
Cycle Q Clear(g_c), s				39.0	0.0	10.5	0.0	12.6	0.0	0.0	16.7	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1153	0	530	0	2918	1599	0	2031	909
V/C Ratio(X)				0.95	0.00	0.33	0.00	0.33	0.00	0.00	0.42	0.00
Avail Cap(c_a), veh/h				1327	0	611	0	2918	1599	0	2031	909
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				40.6	0.0	31.1	0.0	14.0	0.0	0.0	14.9	0.0
Incr Delay (d2), s/veh				13.3	0.0	0.1	0.0	0.3	0.0	0.0	0.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				20.6	0.0	4.6	0.0	5.9	0.0	0.0	8.3	0.0
LnGrp Delay(d),s/veh				54.0	0.0	31.3	0.0	14.3	0.0	0.0	15.5	0.0
LnGrp LOS				D		C		B			B	
Approach Vol, veh/h					1276			970			845	
Approach Delay, s/veh					50.8			14.3			15.5	
Approach LOS					D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		76.3				76.3		48.7
Change Period (Y+Rc), s		4.6				4.6		6.8
Max Green Setting (Gmax), s		65.4				65.4		48.2
Max Q Clear Time (g_c+I1), s		18.7				14.6		41.0
Green Ext Time (p_c), s		4.9				4.9		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	29.7
HCM 2010 LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	45	110	168	78	1	147	301	139	42	309	1200	105
Future Volume (veh/h)	45	110	168	78	1	147	301	139	42	309	1200	105
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.99		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		118	181	84		156	320	148		336	1304	114
Adj No. of Lanes		2	2	1		2	3	1		2	3	1
Peak Hour Factor		0.93	0.93	0.93		0.94	0.94	0.94		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		163	518	227		203	802	248		381	2295	705
Arrive On Green		0.05	0.16	0.16		0.07	0.18	0.18		0.12	0.50	0.50
Sat Flow, veh/h		3097	3185	1397		3097	4577	1418		3097	4577	1406
Grp Volume(v), veh/h		118	181	84		156	320	148		336	1304	114
Grp Sat Flow(s),veh/h/ln		1549	1593	1397		1549	1526	1418		1549	1526	1406
Q Serve(g_s), s		4.8	6.5	6.9		6.4	8.0	12.4		13.7	25.6	5.7
Cycle Q Clear(g_c), s		4.8	6.5	6.9		6.4	8.0	12.4		13.7	25.6	5.7
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		163	518	227		203	802	248		381	2295	705
V/C Ratio(X)		0.72	0.35	0.37		0.77	0.40	0.60		0.88	0.57	0.16
Avail Cap(c_a), veh/h		469	1584	695		469	1209	375		469	2295	705
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		60.0	47.8	48.0		59.2	47.1	48.9		55.5	22.4	17.4
Incr Delay (d2), s/veh		2.3	0.8	2.0		2.3	1.1	7.6		13.4	0.5	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.1	2.9	2.8		2.8	3.5	5.4		6.6	10.9	2.2
LnGrp Delay(d),s/veh		62.3	48.7	50.1		61.5	48.2	56.5		68.9	22.9	17.6
LnGrp LOS		E	D	D		E	D	E		E	C	B
Approach Vol, veh/h			383				624				1754	
Approach Delay, s/veh			53.2				53.5				31.4	
Approach LOS			D				D				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.3	66.5	12.3	28.5	17.5	70.3	13.9	26.9
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	64.0
Max Q Clear Time (g_c+I1), s	15.7	24.9	6.8	14.4	11.9	27.6	8.4	8.9
Green Ext Time (p_c), s	0.1	35.8	0.1	7.8	0.1	33.9	0.1	11.0

Intersection Summary	
HCM 2010 Ctrl Delay	35.7
HCM 2010 LOS	D

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	21	224	925	326
Future Volume (veh/h)	21	224	925	326
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676
Adj Flow Rate, veh/h		243	1005	354
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2
Cap, veh/h		290	2160	662
Arrive On Green		0.09	0.47	0.47
Sat Flow, veh/h		3097	4577	1404
Grp Volume(v), veh/h		243	1005	354
Grp Sat Flow(s),veh/h/ln		1549	1526	1404
Q Serve(g_s), s		9.9	19.1	22.9
Cycle Q Clear(g_c), s		9.9	19.1	22.9
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		290	2160	662
V/C Ratio(X)		0.84	0.47	0.53
Avail Cap(c_a), veh/h		469	2284	700
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		57.4	23.0	24.0
Incr Delay (d2), s/veh		3.5	0.3	1.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.4	8.1	9.1
LnGrp Delay(d),s/veh		60.8	23.3	25.4
LnGrp LOS		E	C	C
Approach Vol, veh/h			1602	
Approach Delay, s/veh			29.5	
Approach LOS			C	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	194	143	69	329	284	166	1	71	1222	115	226	2110
Future Volume (veh/h)	194	143	69	329	284	166	1	71	1222	115	226	2110
Number	3	8	18	7	4	14		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	204	151	73	378	354	172		75	1286	121	246	2293
Adj No. of Lanes	2	2	1	2	2	1		2	4	1	2	3
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87		0.95	0.95	0.95	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	256	558	243	430	761	312		121	2940	725	298	2595
Arrive On Green	0.07	0.16	0.16	0.12	0.20	0.20		0.04	0.46	0.46	0.09	0.51
Sat Flow, veh/h	3442	3539	1544	3548	3725	1529		3442	6408	1579	3442	5085
Grp Volume(v), veh/h	204	151	73	378	354	172		75	1286	121	246	2293
Grp Sat Flow(s),veh/h/ln	1721	1770	1544	1774	1863	1529		1721	1602	1579	1721	1695
Q Serve(g_s), s	7.6	4.9	5.4	13.6	10.8	13.1		2.8	17.6	5.8	9.1	52.2
Cycle Q Clear(g_c), s	7.6	4.9	5.4	13.6	10.8	13.1		2.8	17.6	5.8	9.1	52.2
Prop In Lane	1.00		1.00	1.00		1.00		1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	256	558	243	430	761	312		121	2940	725	298	2595
V/C Ratio(X)	0.80	0.27	0.30	0.88	0.46	0.55		0.62	0.44	0.17	0.83	0.88
Avail Cap(c_a), veh/h	517	930	406	533	976	401		517	3171	782	517	2595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.1	48.1	48.3	56.0	45.4	46.3		61.7	23.8	20.6	58.3	28.3
Incr Delay (d2), s/veh	2.1	0.4	1.0	11.6	0.8	2.6		3.2	0.1	0.1	2.2	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.4	2.4	7.4	5.7	5.7		1.4	7.8	2.5	4.4	25.4
LnGrp Delay(d),s/veh	61.2	48.5	49.3	67.6	46.1	48.8		64.9	23.8	20.6	60.5	32.6
LnGrp LOS	E	D	D	E	D	D		E	C	C	E	C
Approach Vol, veh/h		428			904				1482			2857
Approach Delay, s/veh		54.7			55.6				25.6			33.6
Approach LOS		D			E				C			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	72.0	15.2	32.5	16.7	65.3	21.2	26.4
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	* 6
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	* 34
Max Q Clear Time (g_c+I1), s	4.8	54.2	9.6	15.1	11.1	19.6	15.6	7.4
Green Ext Time (p_c), s	0.1	10.2	0.1	6.3	0.1	39.9	0.1	7.3

Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	293
Future Volume (veh/h)	293
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.99
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	318
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	801
Arrive On Green	0.51
Sat Flow, veh/h	1569
Grp Volume(v), veh/h	318
Grp Sat Flow(s),veh/h/ln	1569
Q Serve(g_s), s	16.1
Cycle Q Clear(g_c), s	16.1
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	801
V/C Ratio(X)	0.40
Avail Cap(c_a), veh/h	801
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	19.5
Incr Delay (d2), s/veh	0.7
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	7.1
LnGrp Delay(d),s/veh	20.2
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1222	0	531	0	0	0	0	1241	464	0	2053	441
Future Volume (veh/h)	1222	0	531	0	0	0	0	1241	464	0	2053	441
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	1300	0	565				0	1293	0	0	2161	0
Adj No. of Lanes	3	0	2				0	4	1	0	3	1
Peak Hour Factor	0.94	0.94	0.94				0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	1404	0	782				0	4588	975	0	3441	975
Arrive On Green	0.28	0.00	0.28				0.00	0.62	0.00	0.00	0.62	0.00
Sat Flow, veh/h	5003	0	2787				0	7451	1583	0	5588	1583
Grp Volume(v), veh/h	1300	0	565				0	1293	0	0	2161	0
Grp Sat Flow(s),veh/h/ln	1668	0	1393				0	1863	1583	0	1863	1583
Q Serve(g_s), s	27.8	0.0	20.1				0.0	8.9	0.0	0.0	26.7	0.0
Cycle Q Clear(g_c), s	27.8	0.0	20.1				0.0	8.9	0.0	0.0	26.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	1404	0	782				0	4588	975	0	3441	975
V/C Ratio(X)	0.93	0.00	0.72				0.00	0.28	0.00	0.00	0.63	0.00
Avail Cap(c_a), veh/h	1514	0	844				0	4588	975	0	3441	975
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	38.5	0.0	35.7				0.0	9.8	0.0	0.0	13.2	0.0
Incr Delay (d2), s/veh	9.3	0.0	2.3				0.0	0.2	0.0	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.0	0.0	8.0				0.0	4.5	0.0	0.0	13.9	0.0
LnGrp Delay(d),s/veh	47.7	0.0	38.0				0.0	10.0	0.0	0.0	14.1	0.0
LnGrp LOS	D		D					A			B	
Approach Vol, veh/h		1865						1293			2161	
Approach Delay, s/veh		44.8						10.0			14.1	
Approach LOS		D						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		72.4		37.6		72.4		
Change Period (Y+Rc), s		* 4.7		6.7		4.7		
Max Green Setting (Gmax), s		* 66		33.3		65.3		
Max Q Clear Time (g_c+I1), s		28.7		29.8		10.9		
Green Ext Time (p_c), s		14.8		1.1		16.3		

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	407	0	427	0	2173	262	0	2097	1520
Future Volume (veh/h)	0	0	0	407	0	427	0	2173	262	0	2097	1520
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				447	0	469	0	2264	0	0	2140	0
Adj No. of Lanes				2	0	2	0	3	1	0	3	2
Peak Hour Factor				0.91	0.91	0.91	0.96	0.96	0.96	0.98	0.98	0.98
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				651	0	527	0	3922	1111	0	3569	1956
Arrive On Green				0.19	0.00	0.19	0.00	0.70	0.00	0.00	0.70	0.00
Sat Flow, veh/h				3442	0	2787	0	5588	1583	0	5253	2787
Grp Volume(v), veh/h				447	0	469	0	2264	0	0	2140	0
Grp Sat Flow(s),veh/h/ln				1721	0	1393	0	1863	1583	0	1695	1393
Q Serve(g_s), s				13.3	0.0	18.1	0.0	22.3	0.0	0.0	23.8	0.0
Cycle Q Clear(g_c), s				13.3	0.0	18.1	0.0	22.3	0.0	0.0	23.8	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				651	0	527	0	3922	1111	0	3569	1956
V/C Ratio(X)				0.69	0.00	0.89	0.00	0.58	0.00	0.00	0.60	0.00
Avail Cap(c_a), veh/h				1032	0	836	0	3922	1111	0	3569	1956
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				41.6	0.0	43.5	0.0	8.2	0.0	0.0	8.4	0.0
Incr Delay (d2), s/veh				0.5	0.0	4.8	0.0	0.6	0.0	0.0	0.8	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.4	0.0	7.3	0.0	11.5	0.0	0.0	11.1	0.0
LnGrp Delay(d),s/veh				42.0	0.0	48.3	0.0	8.8	0.0	0.0	9.2	0.0
LnGrp LOS				D		D		A			A	
Approach Vol, veh/h					916			2264			2140	
Approach Delay, s/veh					45.3			8.8			9.2	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		82.2				82.2		27.8
Change Period (Y+Rc), s		* 5				5.0		7.0
Max Green Setting (Gmax), s		* 65				65.0		33.0
Max Q Clear Time (g_c+I1), s		25.8				24.3		20.1
Green Ext Time (p_c), s		23.3				23.7		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	15.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	112	13	243	34	25	39	34	267	2338	20	36	3279
Future Volume (veh/h)	112	13	243	34	25	39	34	267	2338	20	36	3279
Number	7	4	14	3	8	18		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	129	116	212	43	32	49		275	2410	21	39	3526
Adj No. of Lanes	0	1	1	1	1	0		2	3	0	1	3
Peak Hour Factor	0.87	0.87	0.87	0.79	0.79	0.79		0.97	0.97	0.97	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	152	136	249	119	44	68		328	3033	26	50	2613
Arrive On Green	0.16	0.16	0.16	0.07	0.07	0.07		0.10	0.58	0.58	0.03	0.51
Sat Flow, veh/h	956	859	1571	1774	663	1015		3442	5200	45	1774	5085
Grp Volume(v), veh/h	245	0	212	43	0	81		275	1570	861	39	3526
Grp Sat Flow(s),veh/h/ln	1815	0	1571	1774	0	1678		1721	1695	1855	1774	1695
Q Serve(g_s), s	16.7	0.0	16.7	2.9	0.0	6.0		10.0	45.6	45.8	2.8	65.2
Cycle Q Clear(g_c), s	16.7	0.0	16.7	2.9	0.0	6.0		10.0	45.6	45.8	2.8	65.2
Prop In Lane	0.53		1.00	1.00		0.60		1.00		0.02	1.00	
Lane Grp Cap(c), veh/h	288	0	249	119	0	112		328	1977	1082	50	2613
V/C Ratio(X)	0.85	0.00	0.85	0.36	0.00	0.72		0.84	0.79	0.80	0.78	1.35
Avail Cap(c_a), veh/h	493	0	427	482	0	456		540	1977	1082	282	2613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	0.0	51.9	56.6	0.0	58.0		56.4	20.5	20.6	61.3	30.9
Incr Delay (d2), s/veh	2.8	0.0	3.2	0.7	0.0	3.2		2.7	2.1	3.9	9.4	159.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	7.4	1.5	0.0	2.9		4.9	21.7	24.4	1.5	69.2
LnGrp Delay(d),s/veh	54.7	0.0	55.1	57.3	0.0	61.3		59.1	22.7	24.4	70.7	190.8
LnGrp LOS	D		E	E		E		E	C	C	E	F
Approach Vol, veh/h		457			124				2706			3650
Approach Delay, s/veh		54.9			59.9				26.9			185.4
Approach LOS		D			E				C			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.2	70.1		25.6	8.4	78.9		14.0
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 20	* 65		34.5	* 20	* 65		34.5
Max Q Clear Time (g_c+I1), s	12.0	67.2		18.7	4.8	47.8		8.0
Green Ext Time (p_c), s	0.1	0.0		0.6	0.0	16.2		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	112.8
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	79
Future Volume (veh/h)	79
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.97
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	85
Adj No. of Lanes	1
Peak Hour Factor	0.93
Percent Heavy Veh, %	2
Cap, veh/h	793
Arrive On Green	0.51
Sat Flow, veh/h	1543
Grp Volume(v), veh/h	85
Grp Sat Flow(s),veh/h/ln	1543
Q Serve(g_s), s	3.6
Cycle Q Clear(g_c), s	3.6
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	793
V/C Ratio(X)	0.11
Avail Cap(c_a), veh/h	793
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	15.9
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	1.5
LnGrp Delay(d),s/veh	15.9
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	36	3	10	764	1	408	338
Future Volume (veh/h)	36	3	10	764	1	408	338
Number	7	14	1	6		2	12
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863		1863	1863
Adj Flow Rate, veh/h	44	4	11	878		439	363
Adj No. of Lanes	2	1	1	2		2	1
Peak Hour Factor	0.81	0.81	0.87	0.87		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	114	66	16	1925		1230	603
Arrive On Green	0.03	0.03	0.01	0.54		0.35	0.35
Sat Flow, veh/h	3442	1583	1774	3632		3632	1583
Grp Volume(v), veh/h	44	4	11	878		439	363
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770		1770	1583
Q Serve(g_s), s	0.4	0.1	0.2	4.4		2.7	5.4
Cycle Q Clear(g_c), s	0.4	0.1	0.2	4.4		2.7	5.4
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	114	66	16	1925		1230	603
V/C Ratio(X)	0.39	0.06	0.71	0.46		0.36	0.60
Avail Cap(c_a), veh/h	6397	2957	1180	6446		6410	2920
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	13.9	13.5	14.5	4.1		7.1	7.3
Incr Delay (d2), s/veh	0.8	0.1	19.5	0.1		0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.2	2.1		1.3	2.5
LnGrp Delay(d),s/veh	14.7	13.6	34.0	4.1		7.2	7.7
LnGrp LOS	B	B	C	A		A	A
Approach Vol, veh/h	48			889		802	
Approach Delay, s/veh	14.6			4.5		7.4	
Approach LOS	B			A		A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	5.8	17.1		6.5		22.8		
Change Period (Y+Rc), s	5.5	* 6.9		5.5		* 6.9		
Max Green Setting (Gmax), s	19.5	* 53		54.5		* 53		
Max Q Clear Time (g_c+I1), s	2.2	7.4		2.4		6.4		
Green Ext Time (p_c), s	0.0	2.8		0.0		2.8		

Intersection Summary	
HCM 2010 Ctrl Delay	6.1
HCM 2010 LOS	A

Notes

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Volume (veh/h)	1	566	224	0	343	165	43	441
Future Volume (veh/h)	1	566	224	0	343	165	43	441
Number		1	6		2	12	3	18
Initial Q (Qb), veh		0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00				1.00	1.00	1.00
Parking Bus, Adj		1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h		666	264		399	192	48	490
Adj No. of Lanes		1	2		2	1	1	1
Peak Hour Factor		0.85	0.85		0.86	0.86	0.90	0.90
Percent Heavy Veh, %		2	2		2	2	2	2
Cap, veh/h		584	1908		540	242	579	516
Arrive On Green		0.33	0.54		0.15	0.15	0.33	0.33
Sat Flow, veh/h		1774	3632		3632	1583	1774	1583
Grp Volume(v), veh/h		666	264		399	192	48	490
Grp Sat Flow(s),veh/h/ln		1774	1770		1770	1583	1774	1583
Q Serve(g_s), s		29.8	3.4		9.8	10.6	1.7	27.4
Cycle Q Clear(g_c), s		29.8	3.4		9.8	10.6	1.7	27.4
Prop In Lane		1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h		584	1908		540	242	579	516
V/C Ratio(X)		1.14	0.14		0.74	0.79	0.08	0.95
Avail Cap(c_a), veh/h		584	2478		2474	1107	676	603
HCM Platoon Ratio		1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		30.4	10.4		36.6	37.0	21.1	29.8
Incr Delay (d2), s/veh		82.6	0.0		0.7	2.2	0.0	21.8
Initial Q Delay(d3),s/veh		0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		27.8	1.7		4.8	4.8	0.8	15.0
LnGrp Delay(d),s/veh		113.0	10.4		37.4	39.2	21.2	51.5
LnGrp LOS		F	B		D	D	C	D
Approach Vol, veh/h			930		591		538	
Approach Delay, s/veh			83.9		38.0		48.8	
Approach LOS			F		D		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	35.0	20.5				55.5		35.0
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 30	* 63				* 63		34.5
Max Q Clear Time (g_c+I1), s	31.8	12.6				5.4		29.4
Green Ext Time (p_c), s	0.0	1.2				1.2		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	61.5
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	168	421	198	38	275	86	11	106	750	24	4	198
Future Volume (veh/h)	168	421	198	38	275	86	11	106	750	24	4	198
Number	3	8	18	7	4	14		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1900		1863
Adj Flow Rate, veh/h	179	448	211	41	299	93		115	815	26		208
Adj No. of Lanes	1	1	1	1	1	1		1	2	0		1
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92		0.92	0.92	0.92		0.95
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	203	488	415	53	330	280		138	1378	44		232
Arrive On Green	0.11	0.26	0.26	0.03	0.18	0.18		0.08	0.39	0.39		0.13
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583		1774	3501	112		1774
Grp Volume(v), veh/h	179	448	211	41	299	93		115	412	429		208
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583		1774	1770	1843		1774
Q Serve(g_s), s	13.9	32.8	15.9	3.2	22.1	7.2		9.0	25.8	25.8		16.2
Cycle Q Clear(g_c), s	13.9	32.8	15.9	3.2	22.1	7.2		9.0	25.8	25.8		16.2
Prop In Lane	1.00		1.00	1.00		1.00		1.00		0.06		1.00
Lane Grp Cap(c), veh/h	203	488	415	53	330	280		138	697	726		232
V/C Ratio(X)	0.88	0.92	0.51	0.78	0.91	0.33		0.83	0.59	0.59		0.90
Avail Cap(c_a), veh/h	310	488	415	247	433	368		247	790	823		310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	61.1	50.3	44.1	67.5	56.5	50.4		63.7	33.6	33.6		60.0
Incr Delay (d2), s/veh	12.0	22.1	0.4	8.7	16.4	0.3		4.9	0.4	0.4		19.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	7.5	19.8	7.0	1.7	12.9	3.2		4.6	12.7	13.2		9.1
LnGrp Delay(d),s/veh	73.1	72.4	44.5	76.2	72.9	50.7		68.6	34.0	34.0		79.0
LnGrp LOS	E	E	D	E	E	D		E	C	C		E
Approach Vol, veh/h		838			433				956			
Approach Delay, s/veh		65.5			68.4				38.2			
Approach LOS		E			E				D			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.4	70.0	21.6	32.2	23.8	62.6	9.7	44.1
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	19.5	62.6	24.5	32.6	24.5	62.6	19.5	* 33
Max Q Clear Time (g_c+I1), s	11.0	64.6	15.9	24.1	18.2	27.8	5.2	34.8
Green Ext Time (p_c), s	0.1	0.0	0.1	0.8	0.1	17.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	79.1
HCM 2010 LOS	E

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1711	153
Future Volume (veh/h)	1711	153
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	1801	0
Adj No. of Lanes	2	1
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	2	2
Cap, veh/h	1580	707
Arrive On Green	0.45	0.00
Sat Flow, veh/h	3539	1583
Grp Volume(v), veh/h	1801	0
Grp Sat Flow(s),veh/h/ln	1770	1583
Q Serve(g_s), s	62.6	0.0
Cycle Q Clear(g_c), s	62.6	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	1580	707
V/C Ratio(X)	1.14	0.00
Avail Cap(c_a), veh/h	1580	707
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	38.8	0.0
Incr Delay (d2), s/veh	71.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	46.1	0.0
LnGrp Delay(d),s/veh	109.8	0.0
LnGrp LOS	F	
Approach Vol, veh/h	2009	
Approach Delay, s/veh	106.6	
Approach LOS	F	
Timer		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	450	78	126	295	5	29	87	90	11	537	67
Future Volume (veh/h)	71	450	78	126	295	5	29	87	90	11	537	67
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	72	455	79	143	335	6	34	101	105	12	610	76
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.88	0.88	0.88	0.86	0.86	0.86	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	853	147	181	1183	21	41	259	269	68	526	66
Arrive On Green	0.05	0.28	0.28	0.10	0.33	0.33	0.02	0.31	0.31	0.04	0.32	0.32
Sat Flow, veh/h	1774	3019	521	1774	3557	64	1774	838	871	1774	1625	202
Grp Volume(v), veh/h	72	266	268	143	166	175	34	0	206	12	0	686
Grp Sat Flow(s),veh/h/ln	1774	1770	1771	1774	1770	1852	1774	0	1709	1774	0	1827
Q Serve(g_s), s	2.5	8.0	8.1	5.0	4.4	4.4	1.2	0.0	6.0	0.4	0.0	20.5
Cycle Q Clear(g_c), s	2.5	8.0	8.1	5.0	4.4	4.4	1.2	0.0	6.0	0.4	0.0	20.5
Prop In Lane	1.00		0.29	1.00		0.03	1.00		0.51	1.00		0.11
Lane Grp Cap(c), veh/h	92	500	500	181	589	616	41	0	528	68	0	592
V/C Ratio(X)	0.79	0.53	0.54	0.79	0.28	0.28	0.84	0.00	0.39	0.18	0.00	1.16
Avail Cap(c_a), veh/h	308	1553	1554	308	1553	1624	308	0	554	308	0	592
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.6	19.2	19.2	27.7	15.5	15.6	30.8	0.0	17.2	29.5	0.0	21.4
Incr Delay (d2), s/veh	5.4	1.2	1.3	2.9	0.4	0.4	15.3	0.0	2.2	0.5	0.0	89.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	4.1	4.1	2.6	2.2	2.3	0.8	0.0	3.1	0.2	0.0	24.9
LnGrp Delay(d),s/veh	35.1	20.4	20.5	30.7	15.9	15.9	46.1	0.0	19.4	29.9	0.0	110.6
LnGrp LOS	D	C	C	C	B	B	D		B	C		F
Approach Vol, veh/h		606			484			240			698	
Approach Delay, s/veh		22.2			20.3			23.1			109.2	
Approach LOS		C			C			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	25.5	5.4	25.0	10.4	22.4	6.4	24.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	11.0	55.5	11.0	20.5	11.0	55.5	11.0	20.5
Max Q Clear Time (g_c+I1), s	4.5	6.4	3.2	22.5	7.0	10.1	2.4	8.0
Green Ext Time (p_c), s	0.0	7.8	0.0	0.0	0.0	7.8	0.0	9.9

Intersection Summary	
HCM 2010 Ctrl Delay	51.8
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	20.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	539	0	15	307	2	4	6	1	0	158	115
Future Vol, veh/h	19	539	0	15	307	2	4	6	1	0	158	115
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	350	-	-	350	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	79	79	79	70	70	70	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	580	0	19	389	3	6	9	1	0	216	158

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	391	0	0	580	0	0	1156	1049	580	1053	1048	390
Stage 1	-	-	-	-	-	-	620	620	-	428	428	-
Stage 2	-	-	-	-	-	-	536	429	-	625	620	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1168	-	-	994	-	-	174	227	514	204	228	658
Stage 1	-	-	-	-	-	-	476	480	-	605	585	-
Stage 2	-	-	-	-	-	-	529	584	-	473	480	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1168	-	-	994	-	-	11	219	514	192	220	658
Mov Cap-2 Maneuver	-	-	-	-	-	-	11	219	-	192	220	-
Stage 1	-	-	-	-	-	-	468	472	-	595	574	-
Stage 2	-	-	-	-	-	-	246	573	-	455	472	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	231.2	64.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	26	514	1168	-	-	994	-	-	220	658
HCM Lane V/C Ratio	0.549	0.003	0.017	-	-	0.019	-	-	0.984	0.239
HCM Control Delay (s)	253.1	12	8.1	-	-	8.7	-	-	102.9	12.2
HCM Lane LOS	F	B	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	1.7	0	0.1	-	-	0.1	-	-	8.8	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	453	12	28	250	131	7	285	23	223	815	85
Future Volume (veh/h)	113	453	12	28	250	131	7	285	23	223	815	85
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	120	482	13	30	269	141	7	294	24	228	832	87
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	518	441	37	404	343	47	609	50	256	886	884
Arrive On Green	0.08	0.28	0.28	0.02	0.22	0.22	0.03	0.36	0.36	0.14	0.48	0.48
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1700	139	1774	1863	1583
Grp Volume(v), veh/h	120	482	13	30	269	141	7	0	318	228	832	87
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	0	1838	1774	1863	1583
Q Serve(g_s), s	7.5	28.2	0.7	1.9	14.8	8.6	0.4	0.0	15.1	14.1	47.4	2.9
Cycle Q Clear(g_c), s	7.5	28.2	0.7	1.9	14.8	8.6	0.4	0.0	15.1	14.1	47.4	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	147	518	441	37	404	343	47	0	658	256	886	884
V/C Ratio(X)	0.82	0.93	0.03	0.80	0.67	0.41	0.15	0.00	0.48	0.89	0.94	0.10
Avail Cap(c_a), veh/h	324	552	469	324	552	469	324	0	1043	388	1064	1035
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	39.4	29.4	54.6	40.2	37.7	53.3	0.0	27.9	47.1	27.8	11.6
Incr Delay (d2), s/veh	4.2	21.2	0.0	13.6	0.7	0.3	0.5	0.0	0.2	11.2	12.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	17.5	0.3	1.1	7.7	3.8	0.2	0.0	7.6	7.7	27.4	1.2
LnGrp Delay(d),s/veh	54.8	60.5	29.4	68.2	40.9	38.0	53.8	0.0	28.1	58.2	40.6	11.6
LnGrp LOS	D	E	C	E	D	D	D		C	E	D	B
Approach Vol, veh/h		615			440			325			1147	
Approach Delay, s/veh		58.8			41.8			28.7			41.9	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	31.1	7.5	59.7	6.9	38.0	20.7	46.5
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	20.5	33.2	20.5	* 64	20.5	33.2	24.5	63.6
Max Q Clear Time (g_c+I1), s	9.5	16.8	2.4	49.4	3.9	30.2	16.1	17.1
Green Ext Time (p_c), s	0.0	2.4	0.0	3.9	0.0	1.0	0.1	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	44.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	32	657	3	1	53	338	41	3	324	67	61	378
Future Volume (veh/h)	32	657	3	1	53	338	41	3	324	67	61	378
Number	1	6	16		5	2	12	3	8	18	7	4
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.98	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900		1863	1863	1900	1900	1863	1900	1900	1863
Adj Flow Rate, veh/h	36	738	3		62	393	48	3	352	73	69	430
Adj No. of Lanes	1	1	0		1	1	0	0	1	0	0	1
Peak Hour Factor	0.89	0.89	0.89		0.86	0.86	0.86	0.92	0.92	0.92	0.88	0.88
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	46	684	3		78	628	77	3	328	68	50	312
Arrive On Green	0.03	0.37	0.37		0.04	0.39	0.39	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1774	1854	8		1774	1624	198	13	1487	308	226	1409
Grp Volume(v), veh/h	36	0	741		62	0	441	428	0	0	555	0
Grp Sat Flow(s),veh/h/ln	1774	0	1861		1774	0	1823	1808	0	0	1819	0
Q Serve(g_s), s	3.5	0.0	63.6		6.0	0.0	33.8	38.0	0.0	0.0	38.2	0.0
Cycle Q Clear(g_c), s	3.5	0.0	63.6		6.0	0.0	33.8	38.0	0.0	0.0	38.2	0.0
Prop In Lane	1.00		0.00		1.00		0.11	0.01		0.17	0.12	
Lane Grp Cap(c), veh/h	46	0	686		78	0	705	398	0	0	403	0
V/C Ratio(X)	0.78	0.00	1.08		0.80	0.00	0.63	1.07	0.00	0.00	1.38	0.00
Avail Cap(c_a), veh/h	262	0	686		211	0	705	398	0	0	403	0
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	83.5	0.0	54.4		81.7	0.0	42.8	67.2	0.0	0.0	67.1	0.0
Incr Delay (d2), s/veh	9.8	0.0	57.8		6.7	0.0	1.3	66.5	0.0	0.0	184.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	43.6		3.1	0.0	17.3	26.3	0.0	0.0	39.8	0.0
LnGrp Delay(d),s/veh	93.3	0.0	112.3		88.4	0.0	44.1	133.7	0.0	0.0	252.0	0.0
LnGrp LOS	F		F		F		D	F			F	
Approach Vol, veh/h		777				503			428			555
Approach Delay, s/veh		111.4				49.6			133.7			252.0
Approach LOS		F				D			F			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	73.5		45.0	12.1	70.4		45.0
Change Period (Y+Rc), s	4.5	6.8		6.8	4.5	* 6.8		7.0
Max Green Setting (Gmax), s	25.5	63.2		38.2	20.5	* 64		38.0
Max Q Clear Time (g_c+I1), s	5.5	35.8		40.2	8.0	65.6		40.0
Green Ext Time (p_c), s	0.0	4.4		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	136.4
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	49
Future Volume (veh/h)	49
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	56
Adj No. of Lanes	0
Peak Hour Factor	0.88
Percent Heavy Veh, %	2
Cap, veh/h	41
Arrive On Green	0.22
Sat Flow, veh/h	184
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.10
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	79	29	5	254	754	141
Future Volume (veh/h)	79	29	5	254	754	141
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	86	32	6	295	769	144
Adj No. of Lanes	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.86	0.86	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	127	113	9	1253	836	157
Arrive On Green	0.07	0.07	0.00	0.67	0.55	0.55
Sat Flow, veh/h	1774	1583	1774	1863	1521	285
Grp Volume(v), veh/h	86	32	6	295	0	913
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	0	1805
Q Serve(g_s), s	2.2	0.9	0.2	2.9	0.0	21.4
Cycle Q Clear(g_c), s	2.2	0.9	0.2	2.9	0.0	21.4
Prop In Lane	1.00	1.00	1.00			0.16
Lane Grp Cap(c), veh/h	127	113	9	1253	0	993
V/C Ratio(X)	0.68	0.28	0.70	0.24	0.00	0.92
Avail Cap(c_a), veh/h	1319	1177	800	2561	0	2463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.1	20.5	23.1	3.0	0.0	9.5
Incr Delay (d2), s/veh	2.4	0.5	32.2	0.0	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.4	0.2	1.4	0.0	10.8
LnGrp Delay(d),s/veh	23.4	21.0	55.3	3.0	0.0	11.1
LnGrp LOS	C	C	E	A		B
Approach Vol, veh/h	118			301	913	
Approach Delay, s/veh	22.8			4.0	11.1	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.7	32.1				37.8		8.7
Change Period (Y+Rc), s	5.5	* 6.5				* 6.5		5.4
Max Green Setting (Gmax), s	21.0	* 64				* 64		34.6
Max Q Clear Time (g_c+I1), s	2.2	23.4				4.9		4.2
Green Ext Time (p_c), s	0.0	2.2				2.2		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	10.6
HCM 2010 LOS	B

Notes

Intersection	
Intersection Delay, s/veh	27.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	2	0	14	0	31	0	384	4	176	452	2
Future Vol, veh/h	3	2	0	14	0	31	0	384	4	176	452	2
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.96	0.96	0.96	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	3	0	20	0	44	0	400	4	198	508	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	9.9	13.9	36.6
HCM LOS	A	A	B	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	60%	31%	28%
Vol Thru, %	99%	40%	0%	72%
Vol Right, %	1%	0%	69%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	388	5	45	630
LT Vol	0	3	14	176
Through Vol	384	2	0	452
RT Vol	4	0	31	2
Lane Flow Rate	404	7	64	708
Geometry Grp	1	1	1	1
Degree of Util (X)	0.551	0.013	0.109	0.915
Departure Headway (Hd)	4.904	6.793	6.126	4.654
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	728	530	589	772
Service Time	2.978	4.797	4.126	2.716
HCM Lane V/C Ratio	0.555	0.013	0.109	0.917
HCM Control Delay	13.9	9.9	9.9	36.6
HCM Lane LOS	B	A	A	E
HCM 95th-tile Q	3.4	0	0.4	12.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	352	7	1	443	9	7	9	1	11	31	748
Future Volume (veh/h)	245	352	7	1	443	9	7	9	1	11	31	748
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	263	378	0	1	461	9	8	11	1	12	33	804
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.85	0.85	0.85	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	820	697	2	502	10	22	30	3	160	439	766
Arrive On Green	0.16	0.44	0.00	0.00	0.28	0.28	0.03	0.03	0.03	0.33	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1820	36	724	996	91	490	1348	1550
Grp Volume(v), veh/h	263	378	0	1	0	470	20	0	0	45	0	804
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1856	1811	0	0	1838	0	1550
Q Serve(g_s), s	15.4	15.1	0.0	0.1	0.0	25.9	1.1	0.0	0.0	1.8	0.0	34.4
Cycle Q Clear(g_c), s	15.4	15.1	0.0	0.1	0.0	25.9	1.1	0.0	0.0	1.8	0.0	34.4
Prop In Lane	1.00		1.00	1.00		0.02	0.40		0.05	0.27		1.00
Lane Grp Cap(c), veh/h	292	820	697	2	0	512	54	0	0	599	0	766
V/C Ratio(X)	0.90	0.46	0.00	0.60	0.00	0.92	0.37	0.00	0.00	0.08	0.00	1.05
Avail Cap(c_a), veh/h	412	1132	962	328	0	1124	610	0	0	599	0	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.3	20.8	0.0	52.7	0.0	37.1	50.3	0.0	0.0	24.6	0.0	27.0
Incr Delay (d2), s/veh	14.1	0.2	0.0	85.8	0.0	2.9	1.5	0.0	0.0	0.0	0.0	46.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	7.8	0.0	0.1	0.0	13.7	0.6	0.0	0.0	0.9	0.0	32.0
LnGrp Delay(d),s/veh	57.4	20.9	0.0	138.5	0.0	40.0	51.8	0.0	0.0	24.6	0.0	73.5
LnGrp LOS	E	C		F		D	D			C		F
Approach Vol, veh/h		641			471			20			849	
Approach Delay, s/veh		35.9			40.2			51.8			70.9	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	22.9	35.2		40.0	5.6	52.5		7.6
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		4.4
Max Green Setting (Gmax), s	24.5	64.0		* 34	19.5	* 64		35.6
Max Q Clear Time (g_c+I1), s	17.4	27.9		36.4	2.1	17.1		3.1
Green Ext Time (p_c), s	0.1	1.2		0.0	0.0	1.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	52.1
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	263	18	58	178	200	5	54	29	517	156	362
Future Volume (veh/h)	67	263	18	58	178	200	5	54	29	517	156	362
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	73	286	20	76	234	263	6	68	37	574	173	402
Adj No. of Lanes	1	2	0	1	1	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.76	0.76	0.76	0.79	0.79	0.79	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	734	51	96	397	337	9	124	67	708	577	491
Arrive On Green	0.05	0.22	0.22	0.05	0.21	0.21	0.00	0.11	0.11	0.21	0.31	0.31
Sat Flow, veh/h	1774	3352	233	1774	1863	1583	1774	1136	618	3442	1863	1583
Grp Volume(v), veh/h	73	150	156	76	234	263	6	0	105	574	173	402
Grp Sat Flow(s),veh/h/ln	1774	1770	1815	1774	1863	1583	1774	0	1754	1721	1863	1583
Q Serve(g_s), s	2.0	3.6	3.7	2.1	5.6	7.8	0.2	0.0	2.8	7.9	3.5	11.7
Cycle Q Clear(g_c), s	2.0	3.6	3.7	2.1	5.6	7.8	0.2	0.0	2.8	7.9	3.5	11.7
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	92	387	397	96	397	337	9	0	191	708	577	491
V/C Ratio(X)	0.80	0.39	0.39	0.79	0.59	0.78	0.70	0.00	0.55	0.81	0.30	0.82
Avail Cap(c_a), veh/h	693	2307	2367	707	2433	2068	693	0	2290	1344	2421	2058
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	16.6	16.7	23.3	17.7	18.5	24.8	0.0	21.1	18.9	13.1	15.9
Incr Delay (d2), s/veh	5.8	0.2	0.2	5.5	0.5	1.5	32.5	0.0	0.9	0.9	0.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.8	1.8	1.2	2.9	3.5	0.2	0.0	1.4	3.8	1.8	5.3
LnGrp Delay(d),s/veh	29.2	16.9	16.9	28.8	18.2	20.0	57.3	0.0	22.0	19.8	13.2	17.2
LnGrp LOS	C	B	B	C	B	C	E		C	B	B	B
Approach Vol, veh/h		379			573			111			1149	
Approach Delay, s/veh		19.3			20.4			23.9			17.9	
Approach LOS		B			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	15.5	5.7	20.6	7.8	15.8	15.8	10.5
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	19.5	* 65	19.5	* 65	* 20	* 65	19.5	* 65
Max Q Clear Time (g_c+I1), s	4.0	9.8	2.2	13.7	4.1	5.7	9.9	4.8
Green Ext Time (p_c), s	0.0	0.8	0.0	0.6	0.0	0.8	0.3	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	19.1
HCM 2010 LOS	B

Notes

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	5	58	305	417	114	107	104	3	155	543	96	3
Future Volume (veh/h)	5	58	305	417	114	107	104	3	155	543	96	3
Number		7	4	14	3	8	18		5	2	12	
Initial Q (Qb), veh		0	0	0	0	0	0		0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln		1863	1863	1863	1863	1863	1863		1863	1863	1863	
Adj Flow Rate, veh/h		60	318	434	139	130	127		170	597	105	
Adj No. of Lanes		2	3	1	2	2	1		2	3	1	
Peak Hour Factor		0.96	0.96	0.96	0.82	0.82	0.82		0.91	0.91	0.91	
Percent Heavy Veh, %		2	2	2	2	2	2		2	2	2	
Cap, veh/h		101	1418	442	194	1082	478		226	1830	563	
Arrive On Green		0.03	0.28	0.28	0.06	0.31	0.31		0.07	0.36	0.36	
Sat Flow, veh/h		3442	5085	1583	3442	3539	1563		3442	5085	1563	
Grp Volume(v), veh/h		60	318	434	139	130	127		170	597	105	
Grp Sat Flow(s),veh/h/ln		1721	1695	1583	1721	1770	1563		1721	1695	1563	
Q Serve(g_s), s		2.1	5.7	32.5	4.7	3.2	7.3		5.8	10.2	5.5	
Cycle Q Clear(g_c), s		2.1	5.7	32.5	4.7	3.2	7.3		5.8	10.2	5.5	
Prop In Lane		1.00		1.00	1.00		1.00		1.00		1.00	
Lane Grp Cap(c), veh/h		101	1418	442	194	1082	478		226	1830	563	
V/C Ratio(X)		0.59	0.22	0.98	0.72	0.12	0.27		0.75	0.33	0.19	
Avail Cap(c_a), veh/h		562	1418	442	562	1082	478		562	2670	821	
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Uniform Delay (d), s/veh		57.2	33.1	42.8	55.4	29.9	31.3		54.8	27.7	26.2	
Incr Delay (d2), s/veh		2.0	0.0	38.1	1.8	0.0	0.1		1.9	0.0	0.1	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.0	2.7	18.9	2.3	1.6	3.2		2.8	4.8	2.4	
LnGrp Delay(d),s/veh		59.3	33.2	80.9	57.2	29.9	31.4		56.7	27.8	26.3	
LnGrp LOS		E	C	F	E	C	C		E	C	C	
Approach Vol, veh/h			812			396				872		
Approach Delay, s/veh			60.6			40.0				33.2		
Approach LOS			E			D				C		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.7	50.4	12.2	40.1	13.3	53.7	9.0	43.3
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	19.5	* 63	19.5	* 33	19.5	* 63	19.5	33.2
Max Q Clear Time (g_c+I1), s	11.1	12.2	6.7	34.5	7.8	40.1	4.1	9.3
Green Ext Time (p_c), s	0.1	6.7	0.1	0.0	0.1	6.2	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.5
HCM 2010 LOS	D

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	243	1586	124
Future Volume (veh/h)	243	1586	124
Number	1	6	16
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863
Adj Flow Rate, veh/h	267	1743	136
Adj No. of Lanes	2	3	1
Peak Hour Factor	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2
Cap, veh/h	323	1973	614
Arrive On Green	0.09	0.39	0.39
Sat Flow, veh/h	3442	5085	1583
Grp Volume(v), veh/h	267	1743	136
Grp Sat Flow(s),veh/h/ln	1721	1695	1583
Q Serve(g_s), s	9.1	38.1	6.9
Cycle Q Clear(g_c), s	9.1	38.1	6.9
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	323	1973	614
V/C Ratio(X)	0.83	0.88	0.22
Avail Cap(c_a), veh/h	562	2666	830
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	34.0	24.5
Incr Delay (d2), s/veh	2.1	2.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	18.2	3.0
LnGrp Delay(d),s/veh	55.2	36.4	24.5
LnGrp LOS	E	D	C
Approach Vol, veh/h		2146	
Approach Delay, s/veh		38.0	
Approach LOS		D	
Timer			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	174	120	37	403	501	155
Future Volume (veh/h)	174	120	37	403	501	155
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1900
Adj Flow Rate, veh/h	193	133	40	433	611	189
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.90	0.90	0.93	0.93	0.82	0.82
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	221	153	48	1104	664	206
Arrive On Green	0.22	0.22	0.03	0.59	0.49	0.49
Sat Flow, veh/h	998	688	1774	1863	1366	422
Grp Volume(v), veh/h	327	0	40	433	0	800
Grp Sat Flow(s),veh/h/ln	1691	0	1774	1863	0	1788
Q Serve(g_s), s	10.9	0.0	1.3	7.2	0.0	24.2
Cycle Q Clear(g_c), s	10.9	0.0	1.3	7.2	0.0	24.2
Prop In Lane	0.59	0.41	1.00			0.24
Lane Grp Cap(c), veh/h	375	0	48	1104	0	870
V/C Ratio(X)	0.87	0.00	0.83	0.39	0.00	0.92
Avail Cap(c_a), veh/h	1026	0	622	2055	0	1963
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	28.2	6.3	0.0	13.9
Incr Delay (d2), s/veh	2.5	0.0	12.7	0.1	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	0.8	3.6	0.0	12.2
LnGrp Delay(d),s/veh	24.3	0.0	40.8	6.4	0.0	15.7
LnGrp LOS	C		D	A		B
Approach Vol, veh/h	327			473	800	
Approach Delay, s/veh	24.3			9.3	15.7	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.2	34.4				40.6		17.6
Change Period (Y+Rc), s	* 4.6	* 6.1				* 6.1		4.7
Max Green Setting (Gmax), s	* 20	* 64				* 64		35.3
Max Q Clear Time (g_c+I1), s	3.3	26.2				9.2		12.9
Green Ext Time (p_c), s	0.0	2.1				2.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	15.6
HCM 2010 LOS	B

Notes

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	2	20	907	178	392	659	27	180	167	687	18	54
Future Volume (veh/h)	2	20	907	178	392	659	27	180	167	687	18	54
Number		1	6	16	5	2	12	3	8	18	7	4
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.97	1.00		0.96	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863
Adj Flow Rate, veh/h		24	1093	0	431	724	30	202	476	494	24	72
Adj No. of Lanes		1	2	1	2	2	0	1	1	1	0	2
Peak Hour Factor		0.83	0.83	0.83	0.91	0.91	0.91	0.87	0.87	0.87	0.75	0.75
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		30	1194	534	476	1585	66	456	479	609	79	240
Arrive On Green		0.02	0.34	0.00	0.14	0.46	0.46	0.26	0.26	0.26	0.12	0.12
Sat Flow, veh/h		1774	3539	1583	3442	3459	143	1774	1863	1518	690	2085
Grp Volume(v), veh/h		24	1093	0	431	370	384	202	476	494	64	0
Grp Sat Flow(s),veh/h/ln		1774	1770	1583	1721	1770	1833	1774	1863	1518	1828	0
Q Serve(g_s), s		1.8	40.1	0.0	16.7	19.4	19.4	12.9	34.5	34.8	4.3	0.0
Cycle Q Clear(g_c), s		1.8	40.1	0.0	16.7	19.4	19.4	12.9	34.5	34.8	4.3	0.0
Prop In Lane		1.00		1.00	1.00		0.08	1.00		1.00	0.38	
Lane Grp Cap(c), veh/h		30	1194	534	476	811	840	456	479	609	210	0
V/C Ratio(X)		0.80	0.92	0.00	0.91	0.46	0.46	0.44	0.99	0.81	0.30	0.00
Avail Cap(c_a), veh/h		258	1707	764	503	855	885	456	479	609	466	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		66.3	43.0	0.0	57.5	25.1	25.1	42.2	50.2	36.7	54.9	0.0
Incr Delay (d2), s/veh		16.7	4.9	0.0	18.6	0.1	0.1	0.3	39.5	7.6	0.3	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	20.4	0.0	9.2	9.5	9.8	6.4	23.0	17.7	2.2	0.0
LnGrp Delay(d),s/veh		83.1	47.9	0.0	76.1	25.3	25.3	42.4	89.6	44.3	55.2	0.0
LnGrp LOS		F	D		E	C	C	D	F	D	E	
Approach Vol, veh/h			1117			1185			1172			120
Approach Delay, s/veh			48.6			43.8			62.4			55.2
Approach LOS			D			D			E			E

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	66.7		21.1	23.9	50.4		40.0
Change Period (Y+Rc), s	* 5.3	* 4.7		5.5	* 5.2	* 4.7		5.2
Max Green Setting (Gmax), s	* 20	* 65		34.5	* 20	* 65		34.8
Max Q Clear Time (g_c+I1), s	3.8	21.4		6.3	18.7	42.1		36.8
Green Ext Time (p_c), s	0.0	3.7		0.1	0.0	3.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.7
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	18
Future Volume (veh/h)	18
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.90
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	24
Adj No. of Lanes	0
Peak Hour Factor	0.75
Percent Heavy Veh, %	2
Cap, veh/h	81
Arrive On Green	0.12
Sat Flow, veh/h	701
Grp Volume(v), veh/h	56
Grp Sat Flow(s),veh/h/ln	1648
Q Serve(g_s), s	4.2
Cycle Q Clear(g_c), s	4.2
Prop In Lane	0.43
Lane Grp Cap(c), veh/h	190
V/C Ratio(X)	0.30
Avail Cap(c_a), veh/h	420
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	54.9
Incr Delay (d2), s/veh	0.3
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	2.0
LnGrp Delay(d),s/veh	55.2
LnGrp LOS	E
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	343	0	310	0	1098	1055	0	562	326
Future Volume (veh/h)	0	0	0	343	0	310	0	1098	1055	0	562	326
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	0	1863	1900	0	1863	1900
Adj Flow Rate, veh/h				371	27	352	0	1132	0	0	677	0
Adj No. of Lanes				1	1	0	0	2	0	0	2	0
Peak Hour Factor				0.88	0.88	0.88	0.97	0.97	0.97	0.83	0.83	0.83
Percent Heavy Veh, %				2	2	2	0	2	2	0	2	2
Cap, veh/h				463	29	380	0	2297	0	0	2297	0
Arrive On Green				0.26	0.26	0.26	0.00	0.65	0.00	0.00	0.65	0.00
Sat Flow, veh/h				1774	112	1456	0	3725	0	0	3725	0
Grp Volume(v), veh/h				371	0	379	0	1132	0	0	677	0
Grp Sat Flow(s),veh/h/ln				1774	0	1568	0	1770	0	0	1770	0
Q Serve(g_s), s				21.5	0.0	25.9	0.0	18.2	0.0	0.0	9.1	0.0
Cycle Q Clear(g_c), s				21.5	0.0	25.9	0.0	18.2	0.0	0.0	9.1	0.0
Prop In Lane				1.00		0.93	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				463	0	409	0	2297	0	0	2297	0
V/C Ratio(X)				0.80	0.00	0.93	0.00	0.49	0.00	0.00	0.29	0.00
Avail Cap(c_a), veh/h				566	0	500	0	2297	0	0	2297	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				38.0	0.0	39.6	0.0	10.0	0.0	0.0	8.4	0.0
Incr Delay (d2), s/veh				5.4	0.0	19.3	0.0	0.8	0.0	0.0	0.3	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.2	0.0	13.4	0.0	9.0	0.0	0.0	4.5	0.0
LnGrp Delay(d),s/veh				43.4	0.0	58.9	0.0	10.7	0.0	0.0	8.7	0.0
LnGrp LOS				D		E		B			A	
Approach Vol, veh/h					750			1132			677	
Approach Delay, s/veh					51.2			10.7			8.7	
Approach LOS					D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		76.4				76.4		33.6
Change Period (Y+Rc), s		* 5				5.0		4.9
Max Green Setting (Gmax), s		* 66				65.0		35.1
Max Q Clear Time (g_c+I1), s		11.1				20.2		27.9
Green Ext Time (p_c), s		4.8				4.8		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	534	0	608	0	0	0	0	1519	828	0	658	215
Future Volume (veh/h)	534	0	608	0	0	0	0	1519	828	0	658	215
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	816	0	437				0	1766	0	0	700	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.90	0.90	0.90				0.86	0.86	0.86	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	2
Cap, veh/h	1041	0	463				0	3112	0	0	2166	969
Arrive On Green	0.29	0.00	0.29				0.00	0.61	0.00	0.00	0.61	0.00
Sat Flow, veh/h	3548	0	1578				0	5421	0	0	3632	1583
Grp Volume(v), veh/h	816	0	437				0	1766	0	0	700	0
Grp Sat Flow(s),veh/h/ln	1774	0	1578				0	1695	0	0	1770	1583
Q Serve(g_s), s	23.2	0.0	29.8				0.0	22.7	0.0	0.0	10.5	0.0
Cycle Q Clear(g_c), s	23.2	0.0	29.8				0.0	22.7	0.0	0.0	10.5	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	1041	0	463				0	3112	0	0	2166	969
V/C Ratio(X)	0.78	0.00	0.94				0.00	0.57	0.00	0.00	0.32	0.00
Avail Cap(c_a), veh/h	1116	0	497				0	3112	0	0	2166	969
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	35.7	0.0	38.0				0.0	12.7	0.0	0.0	10.3	0.0
Incr Delay (d2), s/veh	3.1	0.0	25.3				0.0	0.8	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	0.0	16.2				0.0	10.7	0.0	0.0	5.2	0.0
LnGrp Delay(d),s/veh	38.7	0.0	63.3				0.0	13.4	0.0	0.0	10.7	0.0
LnGrp LOS	D		E					B			B	
Approach Vol, veh/h		1253						1766			700	
Approach Delay, s/veh		47.3						13.4			10.7	
Approach LOS		D						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		72.3		37.7		72.3		
Change Period (Y+Rc), s		* 5		* 5.4		5.0		
Max Green Setting (Gmax), s		* 66		* 35		65.0		
Max Q Clear Time (g_c+I1), s		12.5		31.8		24.7		
Green Ext Time (p_c), s		8.2		0.5		8.1		

Intersection Summary	
HCM 2010 Ctrl Delay	24.3
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	693	234	7	142	1115	623	102
Future Volume (veh/h)	693	234	7	142	1115	623	102
Number	6	16		5	2	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	806	0		160	1253	890	146
Adj No. of Lanes	3	0		1	3	2	1
Peak Hour Factor	0.86	0.86		0.89	0.89	0.70	0.70
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2459	0		190	3255	955	439
Arrive On Green	0.48	0.00		0.11	0.64	0.28	0.28
Sat Flow, veh/h	5421	0		1774	5253	3442	1583
Grp Volume(v), veh/h	806	0		160	1253	890	146
Grp Sat Flow(s),veh/h/ln	1695	0		1774	1695	1721	1583
Q Serve(g_s), s	10.0	0.0		9.1	12.1	26.0	7.6
Cycle Q Clear(g_c), s	10.0	0.0		9.1	12.1	26.0	7.6
Prop In Lane		0.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2459	0		190	3255	955	439
V/C Ratio(X)	0.33	0.00		0.84	0.38	0.93	0.33
Avail Cap(c_a), veh/h	3207	0		343	3255	1219	561
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	0.0		45.2	8.9	36.3	29.6
Incr Delay (d2), s/veh	0.2	0.0		3.8	0.2	9.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0		4.7	5.6	13.7	3.3
LnGrp Delay(d),s/veh	16.5	0.0		49.0	9.0	46.2	29.8
LnGrp LOS	B			D	A	D	C
Approach Vol, veh/h	806				1413	1036	
Approach Delay, s/veh	16.5				13.5	43.9	
Approach LOS	B				B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		71.0			16.1	54.8		32.1
Change Period (Y+Rc), s		5.0			* 5.1	5.0		3.5
Max Green Setting (Gmax), s		65.0			* 20	65.0		36.5
Max Q Clear Time (g_c+I1), s		14.1			11.1	12.0		28.0
Green Ext Time (p_c), s		38.2			0.0	37.8		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	14	321	423	253	30	184	468	149	14	112	460	75
Future Volume (veh/h)	14	321	423	253	30	184	468	149	14	112	460	75
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.97		1.00		0.96		1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1863
Adj Flow Rate, veh/h		401	529	316		224	571	182		117	479	78
Adj No. of Lanes		2	3	0		2	3	1		2	3	1
Peak Hour Factor		0.80	0.80	0.80		0.82	0.82	0.82		0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		473	905	410		296	1096	328		423	1666	505
Arrive On Green		0.14	0.27	0.27		0.09	0.22	0.22		0.12	0.33	0.33
Sat Flow, veh/h		3442	3390	1537		3442	5085	1520		3442	5085	1541
Grp Volume(v), veh/h		401	529	316		224	571	182		117	479	78
Grp Sat Flow(s),veh/h/ln		1721	1695	1537		1721	1695	1520		1721	1695	1541
Q Serve(g_s), s		10.6	12.6	17.6		5.9	9.2	9.9		2.9	6.5	3.3
Cycle Q Clear(g_c), s		10.6	12.6	17.6		5.9	9.2	9.9		2.9	6.5	3.3
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		473	905	410		296	1096	328		423	1666	505
V/C Ratio(X)		0.85	0.58	0.77		0.76	0.52	0.56		0.28	0.29	0.15
Avail Cap(c_a), veh/h		723	1249	566		723	1874	560		723	3528	1069
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		39.1	29.6	31.4		41.5	32.2	32.4		37.0	23.2	22.1
Incr Delay (d2), s/veh		3.7	0.2	2.7		1.5	0.1	0.5		0.1	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.3	5.9	7.8		2.9	4.3	4.2		1.4	3.0	1.4
LnGrp Delay(d),s/veh		42.7	29.8	34.1		42.9	32.3	33.0		37.1	23.2	22.2
LnGrp LOS		D	C	C		D	C	C		D	C	C
Approach Vol, veh/h			1246				977				674	
Approach Delay, s/veh			35.0				34.9				25.5	
Approach LOS			D				C				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.9	31.9	18.2	25.8	12.7	36.0	13.5	30.6
Change Period (Y+Rc), s	5.5	* 5.6	5.5	5.8	5.5	* 5.6	5.5	5.8
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.2	19.5	* 64	19.5	34.2
Max Q Clear Time (g_c+I1), s	4.9	21.4	12.6	11.9	7.2	8.5	7.9	19.6
Green Ext Time (p_c), s	0.1	4.0	0.2	3.4	0.1	4.0	0.1	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	32.9
HCM 2010 LOS	C

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	8	173	843	162
Future Volume (veh/h)	8	173	843	162
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900
Adj Flow Rate, veh/h		197	958	184
Adj No. of Lanes		2	3	0
Peak Hour Factor		0.88	0.88	0.88
Percent Heavy Veh, %		2	2	2
Cap, veh/h		269	1206	231
Arrive On Green		0.08	0.28	0.28
Sat Flow, veh/h		3442	4263	816
Grp Volume(v), veh/h		197	761	381
Grp Sat Flow(s),veh/h/ln		1721	1695	1689
Q Serve(g_s), s		5.2	19.3	19.4
Cycle Q Clear(g_c), s		5.2	19.3	19.4
Prop In Lane		1.00		0.48
Lane Grp Cap(c), veh/h		269	959	478
V/C Ratio(X)		0.73	0.79	0.80
Avail Cap(c_a), veh/h		723	2352	1171
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		41.8	30.8	30.8
Incr Delay (d2), s/veh		1.5	0.6	1.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.5	9.1	9.1
LnGrp Delay(d),s/veh		43.3	31.4	32.0
LnGrp LOS		D	C	C
Approach Vol, veh/h			1339	
Approach Delay, s/veh			33.3	
Approach LOS			C	

Timer

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	1	476	230	22	3	68	174	649	43	1137	11	337
Future Volume (veh/h)	1	476	230	22	3	68	174	649	43	1137	11	337
Number		3	8	18		7	4	14	1	6	16	5
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99		1.00		0.97	1.00		0.98	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863	1863	1863	1900	1863
Adj Flow Rate, veh/h		501	242	23		78	200	746	46	1223	12	347
Adj No. of Lanes		2	3	0		2	1	2	2	3	0	2
Peak Hour Factor		0.95	0.95	0.95		0.87	0.87	0.87	0.93	0.93	0.93	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		551	1728	161		127	449	1112	81	1511	15	404
Arrive On Green		0.16	0.37	0.37		0.04	0.24	0.24	0.02	0.29	0.29	0.12
Sat Flow, veh/h		3442	4730	440		3548	1863	3074	3442	5192	51	3442
Grp Volume(v), veh/h		501	172	93		78	200	746	46	799	436	347
Grp Sat Flow(s),veh/h/ln		1721	1695	1780		1774	1863	1537	1721	1695	1853	1721
Q Serve(g_s), s		17.0	4.0	4.2		2.6	10.9	24.5	1.6	26.0	26.0	11.8
Cycle Q Clear(g_c), s		17.0	4.0	4.2		2.6	10.9	24.5	1.6	26.0	26.0	11.8
Prop In Lane		1.00		0.25		1.00		1.00	1.00		0.03	1.00
Lane Grp Cap(c), veh/h		551	1238	650		127	449	1112	81	987	539	404
V/C Ratio(X)		0.91	0.14	0.14		0.61	0.45	0.67	0.57	0.81	0.81	0.86
Avail Cap(c_a), veh/h		564	1822	957		581	1009	2036	564	1848	1010	708
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		49.2	25.3	25.3		56.6	38.4	32.4	57.5	39.2	39.2	51.6
Incr Delay (d2), s/veh		18.0	0.0	0.0		1.8	0.3	0.3	2.3	0.6	1.1	2.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		9.5	1.9	2.0		1.3	5.6	10.4	0.8	12.3	13.5	5.7
LnGrp Delay(d),s/veh		67.2	25.3	25.4		58.4	38.7	32.7	59.8	39.8	40.3	53.7
LnGrp LOS		E	C	C		E	D	C	E	D	D	D
Approach Vol, veh/h			766				1024			1281		
Approach Delay, s/veh			52.7				35.8			40.7		
Approach LOS			D				D			D		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	51.5	24.6	34.7	19.5	40.4	9.8	49.5
Change Period (Y+Rc), s	5.5	* 5.7	5.5	* 6	5.5	* 5.7	5.5	* 6
Max Green Setting (Gmax), s	19.5	* 64	19.5	* 65	24.5	* 65	19.5	* 64
Max Q Clear Time (g_c+I1), s	3.6	20.5	19.0	26.5	13.8	28.0	4.6	6.2
Green Ext Time (p_c), s	0.0	6.7	0.0	1.5	0.2	6.6	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	39.1
HCM 2010 LOS	D

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	995	237
Future Volume (veh/h)	995	237
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		0.99
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	1026	244
Adj No. of Lanes	3	1
Peak Hour Factor	0.97	0.97
Percent Heavy Veh, %	2	2
Cap, veh/h	1957	604
Arrive On Green	0.38	0.38
Sat Flow, veh/h	5085	1569
Grp Volume(v), veh/h	1026	244
Grp Sat Flow(s),veh/h/ln	1695	1569
Q Serve(g_s), s	18.5	13.5
Cycle Q Clear(g_c), s	18.5	13.5
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	1957	604
V/C Ratio(X)	0.52	0.40
Avail Cap(c_a), veh/h	2746	847
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	28.2	26.7
Incr Delay (d2), s/veh	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	5.9
LnGrp Delay(d),s/veh	28.3	26.9
LnGrp LOS	C	C
Approach Vol, veh/h	1617	
Approach Delay, s/veh	33.5	
Approach LOS	C	

Timer

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	658	1	120	622	870	119	1812	411	4	996	135
Future Volume (vph)	658	1	120	622	870	119	1812	411	4	996	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8	6.8	6.8	4.6		4.6			4.6	4.0
Lane Util. Factor	0.95	0.95	0.95	0.95	0.88		0.86			0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	0.98	1.00		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.90	0.85	0.85		0.97			1.00	0.85
Flt Protected	0.95	0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1681	1681	1562	1469	2787		6198			3539	1540
Flt Permitted	0.95	0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)	1681	1681	1562	1469	2787		6198			3539	1540
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.86	0.86	0.88	0.88	0.88	0.92	0.92
Adj. Flow (vph)	693	1	126	655	1012	138	2059	467	5	1083	147
RTOR Reduction (vph)	0	0	47	47	12	0	0	0	0	0	0
Lane Group Flow (vph)	346	348	354	333	1138	0	2531	0	0	1083	147
Confl. Peds. (#/hr)	11	11		11	3	3		3	3		11
Confl. Bikes (#/hr)								8	8		5
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		2!		6!			2	
Permitted Phases				4	2						Free
Actuated Green, G (s)	34.8	34.8	34.8	34.8	78.8		78.8			78.8	125.0
Effective Green, g (s)	34.8	34.8	34.8	34.8	78.8		78.8			78.8	125.0
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.63		0.63			0.63	1.00
Clearance Time (s)	6.8	6.8	6.8	6.8	4.6		4.6			4.6	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0			1.0	
Lane Grp Cap (vph)	467	467	434	408	1756		3907			2230	1540
v/s Ratio Prot	0.21	0.21	0.23		0.41		c0.41			0.31	
v/s Ratio Perm				c0.23							0.10
v/c Ratio	0.74	0.75	0.82	0.82	0.65		0.65			0.49	0.10
Uniform Delay, d1	41.0	41.1	42.1	42.1	14.4		14.4			12.3	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00			1.21	1.00
Incremental Delay, d2	5.5	5.6	10.7	11.3	1.9		0.8			0.7	0.1
Delay (s)	46.5	46.7	52.8	53.5	16.3		15.3			15.6	0.1
Level of Service	D	D	D	D	B		B			B	A
Approach Delay (s)			50.0				15.3			13.8	
Approach LOS			D				B			B	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	11.4
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	398	0	293	1	0	1627	1720	0	710
Future Volume (veh/h)	0	0	0	398	0	293	1	0	1627	1720	0	710
Number				3	8	18		1	6	16	5	2
Initial Q (Qb), veh				0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863		0	1863	1863	0	1863
Adj Flow Rate, veh/h				428	0	315		0	1660	0	0	747
Adj No. of Lanes				2	0	1		0	3	2	0	2
Peak Hour Factor				0.93	0.93	0.93		0.98	0.98	0.98	0.95	0.95
Percent Heavy Veh, %				2	0	2		0	2	2	0	2
Cap, veh/h				740	0	340		0	3528	1933	0	2456
Arrive On Green				0.21	0.00	0.21		0.00	0.69	0.00	0.00	0.69
Sat Flow, veh/h				3442	0	1583		0	5253	2787	0	3632
Grp Volume(v), veh/h				428	0	315		0	1660	0	0	747
Grp Sat Flow(s),veh/h/ln				1721	0	1583		0	1695	1393	0	1770
Q Serve(g_s), s				13.9	0.0	24.4		0.0	18.5	0.0	0.0	10.2
Cycle Q Clear(g_c), s				13.9	0.0	24.4		0.0	18.5	0.0	0.0	10.2
Prop In Lane				1.00		1.00		0.00		1.00	0.00	
Lane Grp Cap(c), veh/h				740	0	340		0	3528	1933	0	2456
V/C Ratio(X)				0.58	0.00	0.93		0.00	0.47	0.00	0.00	0.30
Avail Cap(c_a), veh/h				1327	0	611		0	3528	1933	0	2456
HCM Platoon Ratio				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				44.0	0.0	48.1		0.0	8.7	0.0	0.0	7.4
Incr Delay (d2), s/veh				0.3	0.0	6.1		0.0	0.5	0.0	0.0	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.7	0.0	11.2		0.0	8.8	0.0	0.0	5.1
LnGrp Delay(d),s/veh				44.3	0.0	54.2		0.0	9.2	0.0	0.0	7.7
LnGrp LOS				D		D			A			A
Approach Vol, veh/h					743				1660			747
Approach Delay, s/veh					48.5				9.2			7.7
Approach LOS					D				A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		91.3				91.3		33.7
Change Period (Y+Rc), s		4.6				4.6		6.8
Max Green Setting (Gmax), s		65.4				65.4		48.2
Max Q Clear Time (g_c+I1), s		12.2				20.5		26.4
Green Ext Time (p_c), s		7.8				7.8		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	500
Future Volume (veh/h)	500
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	0
Adj No. of Lanes	1
Peak Hour Factor	0.95
Percent Heavy Veh, %	2
Cap, veh/h	1099
Arrive On Green	0.00
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	1099
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	1099
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	35	251	565	245	11	242	297	213	71	218	867	212
Future Volume (veh/h)	35	251	565	245	11	242	297	213	71	218	867	212
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99		1.00		1.00		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		295	665	288		299	367	263		240	953	233
Adj No. of Lanes		2	2	1		2	3	1		2	3	1
Peak Hour Factor		0.85	0.85	0.85		0.81	0.81	0.81		0.91	0.91	0.91
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		330	889	395		334	1284	399		276	1733	537
Arrive On Green		0.11	0.28	0.28		0.11	0.28	0.28		0.09	0.38	0.38
Sat Flow, veh/h		3097	3185	1416		3097	4577	1422		3097	4577	1418
Grp Volume(v), veh/h		295	665	288		299	367	263		240	953	233
Grp Sat Flow(s),veh/h/ln		1549	1593	1416		1549	1526	1422		1549	1526	1418
Q Serve(g_s), s		15.5	31.3	30.2		15.7	10.3	26.8		12.6	26.8	20.1
Cycle Q Clear(g_c), s		15.5	31.3	30.2		15.7	10.3	26.8		12.6	26.8	20.1
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		330	889	395		334	1284	399		276	1733	537
V/C Ratio(X)		0.89	0.75	0.73		0.90	0.29	0.66		0.87	0.55	0.43
Avail Cap(c_a), veh/h		368	1241	551		368	1284	399		368	1794	556
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		72.5	54.0	53.6		72.4	46.2	52.2		73.9	40.0	37.9
Incr Delay (d2), s/veh		20.5	2.8	5.5		21.0	0.4	6.9		12.8	0.6	1.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		7.6	14.1	12.4		7.7	4.4	11.3		5.9	11.4	8.0
LnGrp Delay(d),s/veh		93.0	56.8	59.0		93.4	46.7	59.1		86.7	40.7	39.1
LnGrp LOS		F	E	E		F	D	E		F	D	D
Approach Vol, veh/h			1248				929				1426	
Approach Delay, s/veh			65.8				65.2				48.1	
Approach LOS			E				E				D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.1	69.1	23.0	52.1	21.2	68.0	23.2	51.9
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	64.0
Max Q Clear Time (g_c+I1), s	14.6	45.5	17.5	28.8	15.6	28.8	17.7	33.3
Green Ext Time (p_c), s	0.1	17.8	0.1	4.5	0.1	32.6	0.1	12.6

Intersection Summary	
HCM 2010 Ctrl Delay	56.5
HCM 2010 LOS	E

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	36	226	1199	132
Future Volume (veh/h)	36	226	1199	132
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676
Adj Flow Rate, veh/h		260	1378	152
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.87	0.87	0.87
Percent Heavy Veh, %		2	2	2
Cap, veh/h		296	1763	546
Arrive On Green		0.10	0.39	0.39
Sat Flow, veh/h		3097	4577	1418
Grp Volume(v), veh/h		260	1378	152
Grp Sat Flow(s),veh/h/ln		1549	1526	1418
Q Serve(g_s), s		13.6	43.5	12.1
Cycle Q Clear(g_c), s		13.6	43.5	12.1
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		296	1763	546
V/C Ratio(X)		0.88	0.78	0.28
Avail Cap(c_a), veh/h		368	1788	554
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		73.4	44.4	34.8
Incr Delay (d2), s/veh		15.8	2.6	0.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.5	18.8	4.9
LnGrp Delay(d),s/veh		89.2	47.1	35.4
LnGrp LOS		F	D	D
Approach Vol, veh/h			1790	
Approach Delay, s/veh			52.2	
Approach LOS			D	

Timer

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	422	401	90	1	187	266	247	2	50	1119	154	1
Future Volume (veh/h)	422	401	90	1	187	266	247	2	50	1119	154	1
Number	3	8	18		7	4	14		1	6	16	
Initial Q (Qb), veh	0	0	0		0	0	0		0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1863	1863	1863		1863	1863	1863		1863	1863	1863	
Adj Flow Rate, veh/h	474	451	101		203	412	186		66	1472	203	
Adj No. of Lanes	2	2	1		2	2	1		2	4	1	
Peak Hour Factor	0.89	0.89	0.89		0.92	0.92	0.92		0.76	0.76	0.76	
Percent Heavy Veh, %	2	2	2		2	2	2		2	2	2	
Cap, veh/h	486	912	401		254	701	291		108	2711	661	
Arrive On Green	0.14	0.26	0.26		0.07	0.19	0.19		0.03	0.42	0.42	
Sat Flow, veh/h	3442	3539	1554		3548	3725	1546		3442	6408	1562	
Grp Volume(v), veh/h	474	451	101		203	412	186		66	1472	203	
Grp Sat Flow(s),veh/h/ln	1721	1770	1554		1774	1863	1546		1721	1602	1562	
Q Serve(g_s), s	18.9	15.0	7.1		7.8	13.9	15.3		2.6	23.8	11.9	
Cycle Q Clear(g_c), s	18.9	15.0	7.1		7.8	13.9	15.3		2.6	23.8	11.9	
Prop In Lane	1.00		1.00		1.00		1.00		1.00		1.00	
Lane Grp Cap(c), veh/h	486	912	401		254	701	291		108	2711	661	
V/C Ratio(X)	0.98	0.49	0.25		0.80	0.59	0.64		0.61	0.54	0.31	
Avail Cap(c_a), veh/h	486	912	401		501	917	381		486	2979	726	
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Uniform Delay (d), s/veh	59.0	43.6	40.7		63.1	51.2	51.7		66.1	29.8	26.4	
Incr Delay (d2), s/veh	34.2	0.6	0.5		2.2	1.3	4.0		3.4	0.1	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	11.3	7.4	3.1		3.9	7.3	6.9		1.3	10.5	5.1	
LnGrp Delay(d),s/veh	93.3	44.2	41.2		65.3	52.5	55.7		69.5	29.9	26.6	
LnGrp LOS	F	D	D		E	D	E		E	C	C	
Approach Vol, veh/h		1026				801				1741		
Approach Delay, s/veh		66.6				56.5				31.0		
Approach LOS		E				E				C		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	71.3	25.0	32.0	16.9	64.2	15.4	41.6
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	* 6
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	* 34
Max Q Clear Time (g_c+I1), s	4.6	27.5	20.9	17.3	11.3	25.8	9.8	17.0
Green Ext Time (p_c), s	0.1	32.5	0.0	7.7	0.1	32.7	0.1	9.2

Intersection Summary	
HCM 2010 Ctrl Delay	41.5
HCM 2010 LOS	D

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	216	1215	257
Future Volume (veh/h)	216	1215	257
Number	5	2	12
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863
Adj Flow Rate, veh/h	235	1321	279
Adj No. of Lanes	2	3	1
Peak Hour Factor	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2
Cap, veh/h	284	2412	748
Arrive On Green	0.08	0.47	0.47
Sat Flow, veh/h	3442	5085	1578
Grp Volume(v), veh/h	235	1321	279
Grp Sat Flow(s),veh/h/ln	1721	1695	1578
Q Serve(g_s), s	9.3	25.5	15.6
Cycle Q Clear(g_c), s	9.3	25.5	15.6
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	284	2412	748
V/C Ratio(X)	0.83	0.55	0.37
Avail Cap(c_a), veh/h	486	2412	748
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	25.8	23.2
Incr Delay (d2), s/veh	2.4	0.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	12.0	6.9
LnGrp Delay(d),s/veh	64.8	26.2	23.8
LnGrp LOS	E	C	C
Approach Vol, veh/h		1835	
Approach Delay, s/veh		30.8	
Approach LOS		C	
Timer			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1230	0	322	0	0	0	0	1590	179	0	1362	403
Future Volume (veh/h)	1230	0	322	0	0	0	0	1590	179	0	1362	403
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	1337	0	350				0	1787	0	0	1480	0
Adj No. of Lanes	3	0	2				0	4	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.89	0.89	0.89	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	1431	0	797				0	4548	966	0	3411	966
Arrive On Green	0.29	0.00	0.29				0.00	0.61	0.00	0.00	0.61	0.00
Sat Flow, veh/h	5003	0	2787				0	7451	1583	0	5588	1583
Grp Volume(v), veh/h	1337	0	350				0	1787	0	0	1480	0
Grp Sat Flow(s),veh/h/ln	1668	0	1393				0	1863	1583	0	1863	1583
Q Serve(g_s), s	28.6	0.0	11.3				0.0	13.5	0.0	0.0	15.4	0.0
Cycle Q Clear(g_c), s	28.6	0.0	11.3				0.0	13.5	0.0	0.0	15.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	1431	0	797				0	4548	966	0	3411	966
V/C Ratio(X)	0.93	0.00	0.44				0.00	0.39	0.00	0.00	0.43	0.00
Avail Cap(c_a), veh/h	1514	0	844				0	4548	966	0	3411	966
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	38.3	0.0	32.1				0.0	11.0	0.0	0.0	11.4	0.0
Incr Delay (d2), s/veh	10.4	0.0	0.1				0.0	0.3	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.5	0.0	4.3				0.0	7.0	0.0	0.0	7.9	0.0
LnGrp Delay(d),s/veh	48.7	0.0	32.2				0.0	11.2	0.0	0.0	11.8	0.0
LnGrp LOS	D		C					B			B	
Approach Vol, veh/h		1687						1787			1480	
Approach Delay, s/veh		45.3						11.2			11.8	
Approach LOS		D						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		71.8		38.2		71.8		
Change Period (Y+Rc), s		* 4.7		6.7		4.7		
Max Green Setting (Gmax), s		* 66		33.3		65.3		
Max Q Clear Time (g_c+I1), s		17.4		30.6		15.5		
Green Ext Time (p_c), s		13.8		0.8		13.9		

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	417	0	453	0	2431	359	0	1413	1217
Future Volume (veh/h)	0	0	0	417	0	453	0	2431	359	0	1413	1217
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				496	0	539	0	2731	0	0	1519	0
Adj No. of Lanes				2	0	2	0	3	1	0	3	2
Peak Hour Factor				0.84	0.84	0.84	0.89	0.89	0.89	0.93	0.93	0.93
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				737	0	597	0	3782	1071	0	3441	1886
Arrive On Green				0.21	0.00	0.21	0.00	0.68	0.00	0.00	0.68	0.00
Sat Flow, veh/h				3442	0	2787	0	5588	1583	0	5253	2787
Grp Volume(v), veh/h				496	0	539	0	2731	0	0	1519	0
Grp Sat Flow(s),veh/h/ln				1721	0	1393	0	1863	1583	0	1695	1393
Q Serve(g_s), s				14.6	0.0	20.7	0.0	34.0	0.0	0.0	15.1	0.0
Cycle Q Clear(g_c), s				14.6	0.0	20.7	0.0	34.0	0.0	0.0	15.1	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				737	0	597	0	3782	1071	0	3441	1886
V/C Ratio(X)				0.67	0.00	0.90	0.00	0.72	0.00	0.00	0.44	0.00
Avail Cap(c_a), veh/h				1032	0	836	0	3782	1071	0	3441	1886
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				39.7	0.0	42.1	0.0	11.2	0.0	0.0	8.2	0.0
Incr Delay (d2), s/veh				0.4	0.0	8.2	0.0	1.2	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.9	0.0	8.7	0.0	17.6	0.0	0.0	7.2	0.0
LnGrp Delay(d),s/veh				40.1	0.0	50.3	0.0	12.5	0.0	0.0	8.6	0.0
LnGrp LOS				D		D		B			A	
Approach Vol, veh/h					1035			2731			1519	
Approach Delay, s/veh					45.4			12.5			8.6	
Approach LOS					D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		79.4				79.4		30.6
Change Period (Y+Rc), s		* 5				5.0		7.0
Max Green Setting (Gmax), s		* 65				65.0		33.0
Max Q Clear Time (g_c+I1), s		17.1				36.0		22.7
Green Ext Time (p_c), s		25.1				19.0		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	186	36	173	61	23	57	33	151	2609	23	2	62
Future Volume (veh/h)	186	36	173	61	23	57	33	151	2609	23	2	62
Number	7	4	14	3	8	18		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900		1863
Adj Flow Rate, veh/h	224	43	208	79	30	74		162	2805	25		68
Adj No. of Lanes	0	1	1	1	1	0		2	3	0		1
Peak Hour Factor	0.83	0.83	0.83	0.77	0.77	0.77		0.93	0.93	0.93		0.91
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	260	50	272	181	47	117		214	2685	24		87
Arrive On Green	0.17	0.17	0.17	0.10	0.10	0.10		0.06	0.52	0.52		0.05
Sat Flow, veh/h	1500	288	1567	1774	464	1145		3442	5198	46		1774
Grp Volume(v), veh/h	267	0	208	79	0	104		162	1827	1003		68
Grp Sat Flow(s),veh/h/ln	1788	0	1567	1774	0	1609		1721	1695	1854		1774
Q Serve(g_s), s	18.9	0.0	16.5	5.4	0.0	8.1		6.0	67.2	67.2		4.9
Cycle Q Clear(g_c), s	18.9	0.0	16.5	5.4	0.0	8.1		6.0	67.2	67.2		4.9
Prop In Lane	0.84		1.00	1.00		0.71		1.00		0.02		1.00
Lane Grp Cap(c), veh/h	310	0	272	181	0	164		214	1751	958		87
V/C Ratio(X)	0.86	0.00	0.76	0.44	0.00	0.63		0.76	1.04	1.05		0.79
Avail Cap(c_a), veh/h	474	0	415	470	0	426		526	1751	958		275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	52.2	0.0	51.2	54.9	0.0	56.1		60.1	31.5	31.5		61.2
Incr Delay (d2), s/veh	6.4	0.0	1.7	0.6	0.0	1.5		2.1	33.7	42.4		5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	7.3	2.7	0.0	3.7		2.9	39.6	45.6		2.6
LnGrp Delay(d),s/veh	58.6	0.0	53.0	55.5	0.0	57.6		62.1	65.2	73.8		67.0
LnGrp LOS	E		D	E		E		E	F	F		E
Approach Vol, veh/h		475			183				2992			
Approach Delay, s/veh		56.1			56.7				67.9			
Approach LOS		E			E				E			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.2	70.1		28.1	11.2	72.1		18.8
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 20	* 65		34.5	* 20	* 65		34.5
Max Q Clear Time (g_c+I1), s	8.0	67.0		20.9	6.9	69.2		10.1
Green Ext Time (p_c), s	0.1	0.0		0.6	0.0	0.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	58.6
HCM 2010 LOS	E

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2314	96
Future Volume (veh/h)	2314	96
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		0.99
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	2543	105
Adj No. of Lanes	3	1
Peak Hour Factor	0.91	0.91
Percent Heavy Veh, %	2	2
Cap, veh/h	2548	787
Arrive On Green	0.50	0.50
Sat Flow, veh/h	5085	1571
Grp Volume(v), veh/h	2543	105
Grp Sat Flow(s),veh/h/ln	1695	1571
Q Serve(g_s), s	65.0	4.7
Cycle Q Clear(g_c), s	65.0	4.7
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	2548	787
V/C Ratio(X)	1.00	0.13
Avail Cap(c_a), veh/h	2548	787
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	32.4	17.4
Incr Delay (d2), s/veh	17.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	34.5	2.0
LnGrp Delay(d),s/veh	49.8	17.4
LnGrp LOS	D	B
Approach Vol, veh/h	2716	
Approach Delay, s/veh	49.0	
Approach LOS	D	

Timer

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	689	22	6	586	0	687	46
Future Volume (veh/h)	689	22	6	586	0	687	46
Number	7	14	1	6		2	12
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863		1863	1863
Adj Flow Rate, veh/h	861	28	6	604		799	53
Adj No. of Lanes	2	1	1	2		2	1
Peak Hour Factor	0.80	0.80	0.97	0.97		0.86	0.86
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	1012	473	9	1536		1093	954
Arrive On Green	0.29	0.29	0.00	0.43		0.31	0.31
Sat Flow, veh/h	3442	1583	1774	3632		3632	1583
Grp Volume(v), veh/h	861	28	6	604		799	53
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770		1770	1583
Q Serve(g_s), s	10.7	0.6	0.2	5.3		9.2	0.6
Cycle Q Clear(g_c), s	10.7	0.6	0.2	5.3		9.2	0.6
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	1012	473	9	1536		1093	954
V/C Ratio(X)	0.85	0.06	0.70	0.39		0.73	0.06
Avail Cap(c_a), veh/h	4111	1899	758	4142		4119	2309
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	15.2	11.4	22.7	8.8		14.1	3.7
Incr Delay (d2), s/veh	0.8	0.0	32.1	0.1		0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.6	0.1	2.6		4.5	0.5
LnGrp Delay(d),s/veh	16.0	11.4	54.8	8.9		14.4	3.7
LnGrp LOS	B	B	D	A		B	A
Approach Vol, veh/h	889			610		852	
Approach Delay, s/veh	15.8			9.3		13.8	
Approach LOS	B			A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	5.7	21.0		18.9		26.7		
Change Period (Y+Rc), s	5.5	* 6.9		5.5		* 6.9		
Max Green Setting (Gmax), s	19.5	* 53		54.5		* 53		
Max Q Clear Time (g_c+I1), s	2.2	11.2		12.7		7.3		
Green Ext Time (p_c), s	0.0	2.9		0.7		2.9		

Intersection Summary	
HCM 2010 Ctrl Delay	13.4
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	659	643	3	208	115	143	464
Future Volume (veh/h)	659	643	3	208	115	143	464
Number	1	6		2	12	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h	716	699		257	142	155	504
Adj No. of Lanes	1	2		2	1	1	1
Peak Hour Factor	0.92	0.92		0.81	0.81	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	599	1862		458	205	595	531
Arrive On Green	0.34	0.53		0.13	0.13	0.34	0.34
Sat Flow, veh/h	1774	3632		3632	1583	1774	1583
Grp Volume(v), veh/h	716	699		257	142	155	504
Grp Sat Flow(s),veh/h/ln	1774	1770		1770	1583	1774	1583
Q Serve(g_s), s	29.8	10.3		6.0	7.6	5.6	27.4
Cycle Q Clear(g_c), s	29.8	10.3		6.0	7.6	5.6	27.4
Prop In Lane	1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h	599	1862		458	205	595	531
V/C Ratio(X)	1.19	0.38		0.56	0.69	0.26	0.95
Avail Cap(c_a), veh/h	599	2543		2539	1136	694	619
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	12.3		36.0	36.7	21.3	28.6
Incr Delay (d2), s/veh	103.3	0.0		0.4	1.6	0.1	21.4
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	31.7	5.0		3.0	3.4	2.8	15.0
LnGrp Delay(d),s/veh	132.5	12.4		36.4	38.3	21.4	50.0
LnGrp LOS	F	B		D	D	C	D
Approach Vol, veh/h		1415		399		659	
Approach Delay, s/veh		73.2		37.1		43.3	
Approach LOS		E		D		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	35.0	18.1				53.1		35.1
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 30	* 63				* 63		34.5
Max Q Clear Time (g_c+I1), s	31.8	9.6				12.3		29.4
Green Ext Time (p_c), s	0.0	1.9				1.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	59.4
HCM 2010 LOS	E

Notes

Appendix C

Analysis Worksheets for
Existing (2017) plus Proposed Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	311	251	90	15	324	127	1	190	1644	23	8	61
Future Volume (veh/h)	311	251	90	15	324	127	1	190	1644	23	8	61
Number	3	8	18	7	4	14		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1900		1863
Adj Flow Rate, veh/h	362	292	105	16	356	140		216	1868	26		67
Adj No. of Lanes	1	1	1	1	1	1		1	2	0		1
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91		0.88	0.88	0.88		0.91
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	288	662	563	19	380	323		229	1482	21		85
Arrive On Green	0.16	0.36	0.36	0.01	0.20	0.20		0.13	0.41	0.41		0.05
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583		1774	3573	50		1774
Grp Volume(v), veh/h	362	292	105	16	356	140		216	923	971		67
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583		1774	1770	1853		1774
Q Serve(g_s), s	24.5	18.1	6.9	1.4	28.4	11.7		18.2	62.6	62.6		5.6
Cycle Q Clear(g_c), s	24.5	18.1	6.9	1.4	28.4	11.7		18.2	62.6	62.6		5.6
Prop In Lane	1.00		1.00	1.00		1.00		1.00		0.03		1.00
Lane Grp Cap(c), veh/h	288	662	563	19	380	323		229	734	769		85
V/C Ratio(X)	1.26	0.44	0.19	0.83	0.94	0.43		0.94	1.26	1.26		0.79
Avail Cap(c_a), veh/h	288	662	563	229	402	342		229	734	769		288
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	63.2	37.2	33.6	74.5	59.1	52.5		65.1	44.2	44.2		71.1
Incr Delay (d2), s/veh	140.7	0.2	0.1	26.7	28.0	0.3		43.1	126.7	128.8		6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	23.3	9.4	3.0	0.8	17.6	5.1		11.7	56.4	59.5		2.9
LnGrp Delay(d),s/veh	203.9	37.3	33.6	101.2	87.1	52.8		108.2	170.9	173.0		77.1
LnGrp LOS	F	D	C	F	F	D		F	F	F		E
Approach Vol, veh/h		759			512				2110			
Approach Delay, s/veh		116.3			78.2				165.4			
Approach LOS		F			E				F			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	57.7	30.0	38.2	12.7	70.0	7.1	61.0
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	19.5	62.6	24.5	32.6	24.5	62.6	19.5	* 33
Max Q Clear Time (g_c+I1), s	20.2	27.1	26.5	30.4	7.6	64.6	3.4	20.1
Green Ext Time (p_c), s	0.0	9.0	0.0	0.4	0.1	0.0	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	123.3
HCM 2010 LOS	F

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	643	294
Future Volume (veh/h)	643	294
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	707	0
Adj No. of Lanes	2	1
Peak Hour Factor	0.91	0.91
Percent Heavy Veh, %	2	2
Cap, veh/h	1180	528
Arrive On Green	0.33	0.00
Sat Flow, veh/h	3539	1583
Grp Volume(v), veh/h	707	0
Grp Sat Flow(s),veh/h/ln	1770	1583
Q Serve(g_s), s	25.1	0.0
Cycle Q Clear(g_c), s	25.1	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	1180	528
V/C Ratio(X)	0.60	0.00
Avail Cap(c_a), veh/h	1468	657
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	41.9	0.0
Incr Delay (d2), s/veh	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	0.0
LnGrp Delay(d),s/veh	42.3	0.0
LnGrp LOS	D	
Approach Vol, veh/h	774	
Approach Delay, s/veh	45.3	
Approach LOS	D	
Timer		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	219	21	120	377	7	67	625	128	4	75	47
Future Volume (veh/h)	45	219	21	120	377	7	67	625	128	4	75	47
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	58	281	27	135	424	8	73	679	139	5	88	55
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.78	0.78	0.78	0.89	0.89	0.89	0.92	0.92	0.92	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	710	68	172	972	18	93	533	109	64	364	227
Arrive On Green	0.04	0.22	0.22	0.10	0.27	0.27	0.05	0.35	0.35	0.04	0.34	0.34
Sat Flow, veh/h	1774	3266	311	1774	3554	67	1774	1501	307	1774	1073	671
Grp Volume(v), veh/h	58	151	157	135	211	221	73	0	818	5	0	143
Grp Sat Flow(s),veh/h/ln	1774	1770	1808	1774	1770	1851	1774	0	1809	1774	0	1744
Q Serve(g_s), s	1.9	4.2	4.3	4.3	5.7	5.7	2.3	0.0	20.5	0.2	0.0	3.4
Cycle Q Clear(g_c), s	1.9	4.2	4.3	4.3	5.7	5.7	2.3	0.0	20.5	0.2	0.0	3.4
Prop In Lane	1.00		0.17	1.00		0.04	1.00		0.17	1.00		0.38
Lane Grp Cap(c), veh/h	72	385	393	172	484	506	93	0	642	64	0	591
V/C Ratio(X)	0.80	0.39	0.40	0.78	0.44	0.44	0.79	0.00	1.27	0.08	0.00	0.24
Avail Cap(c_a), veh/h	338	1701	1737	338	1701	1779	338	0	642	338	0	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.5	19.3	19.4	25.5	17.3	17.3	27.1	0.0	18.6	26.9	0.0	13.7
Incr Delay (d2), s/veh	7.5	0.9	0.9	2.9	0.9	0.8	5.5	0.0	135.3	0.2	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.2	2.2	2.2	2.9	3.0	1.3	0.0	34.1	0.1	0.0	1.8
LnGrp Delay(d),s/veh	34.9	20.3	20.3	28.4	18.2	18.1	32.5	0.0	153.9	27.1	0.0	14.7
LnGrp LOS	C	C	C	C	B	B	C		F	C		B
Approach Vol, veh/h		366			567			891			148	
Approach Delay, s/veh		22.6			20.6			143.9			15.1	
Approach LOS		C			C			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	20.3	7.0	24.1	9.6	17.0	6.1	25.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	11.0	55.5	11.0	20.5	11.0	55.5	11.0	20.5
Max Q Clear Time (g_c+I1), s	3.9	7.7	4.3	5.4	6.3	6.3	2.2	22.5
Green Ext Time (p_c), s	0.0	6.2	0.0	12.4	0.0	6.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	76.3
HCM 2010 LOS	E

Notes

Intersection	
Int Delay, s/veh	18.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	325	4	5	459	1	9	142	31	0	2	12
Future Vol, veh/h	59	325	4	5	459	1	9	142	31	0	2	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	350	-	-	350	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	92	92	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	65	357	4	5	499	1	13	203	44	0	3	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	500	0	0	362	0	0	1001	1000	359	1100	1001	499
Stage 1	-	-	-	-	-	-	489	489	-	510	510	-
Stage 2	-	-	-	-	-	-	512	511	-	590	491	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1064	-	-	1197	-	-	222	243	685	190	243	572
Stage 1	-	-	-	-	-	-	561	549	-	546	538	-
Stage 2	-	-	-	-	-	-	545	537	-	494	548	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1064	-	-	1197	-	-	203	227	685	39	227	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	203	227	-	39	227	-
Stage 1	-	-	-	-	-	-	527	515	-	513	536	-
Stage 2	-	-	-	-	-	-	524	535	-	263	515	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.1	80.9	12.9
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	225	685	1064	-	-	1197	-	-	227	572
HCM Lane V/C Ratio	0.959	0.065	0.061	-	-	0.005	-	-	0.013	0.03
HCM Control Delay (s)	95.3	10.6	8.6	-	-	8	-	-	21.1	11.5
HCM Lane LOS	F	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	8.4	0.2	0.2	-	-	0	-	-	0	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	181	3	21	403	293	7	761	16	131	450	114
Future Volume (veh/h)	114	181	3	21	403	293	7	761	16	131	450	114
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	125	199	3	23	433	315	8	855	18	139	479	121
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.89	0.89	0.89	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	554	471	29	429	365	37	802	17	162	953	942
Arrive On Green	0.08	0.30	0.30	0.02	0.23	0.23	0.02	0.44	0.44	0.09	0.51	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1818	38	1774	1863	1583
Grp Volume(v), veh/h	125	199	3	23	433	315	8	0	873	139	479	121
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	0	1856	1774	1863	1583
Q Serve(g_s), s	10.0	12.1	0.2	1.9	33.2	27.5	0.6	0.0	63.6	11.1	24.4	4.8
Cycle Q Clear(g_c), s	10.0	12.1	0.2	1.9	33.2	27.5	0.6	0.0	63.6	11.1	24.4	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	147	554	471	29	429	365	37	0	819	162	953	942
V/C Ratio(X)	0.85	0.36	0.01	0.80	1.01	0.86	0.22	0.00	1.07	0.86	0.50	0.13
Avail Cap(c_a), veh/h	252	554	471	252	429	365	252	0	819	302	953	942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.2	39.9	35.7	70.7	55.5	53.3	69.4	0.0	40.3	64.6	23.1	12.8
Incr Delay (d2), s/veh	5.1	0.1	0.0	17.2	45.7	18.1	1.1	0.0	50.5	5.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	6.3	0.1	1.1	22.5	13.9	0.3	0.0	44.0	5.7	12.6	2.1
LnGrp Delay(d),s/veh	70.3	40.0	35.7	87.9	101.2	71.4	70.5	0.0	90.8	69.5	23.3	12.8
LnGrp LOS	E	D	D	F	F	E	E		F	E	C	B
Approach Vol, veh/h		327			771			881			739	
Approach Delay, s/veh		51.5			88.6			90.6			30.3	
Approach LOS		D			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	40.0	7.5	80.2	6.8	49.6	17.7	70.0
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	20.5	33.2	20.5	* 64	20.5	33.2	24.5	63.6
Max Q Clear Time (g_c+I1), s	12.0	35.2	2.6	26.4	3.9	14.1	13.1	65.6
Green Ext Time (p_c), s	0.0	0.0	0.0	5.8	0.0	2.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	68.9
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	283	0	66	695	66	3	353	25	22	261	30
Future Volume (veh/h)	38	283	0	66	695	66	3	353	25	22	261	30
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	43	322	0	74	781	74	3	380	27	25	293	34
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	674	0	92	641	61	3	392	28	27	311	36
Arrive On Green	0.03	0.36	0.00	0.05	0.38	0.38	0.23	0.23	0.23	0.21	0.21	0.21
Sat Flow, veh/h	1774	1863	0	1774	1676	159	13	1706	121	130	1519	176
Grp Volume(v), veh/h	43	322	0	74	0	855	410	0	0	352	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1774	0	1835	1841	0	0	1825	0	0
Q Serve(g_s), s	4.0	22.1	0.0	6.8	0.0	63.2	36.5	0.0	0.0	31.4	0.0	0.0
Cycle Q Clear(g_c), s	4.0	22.1	0.0	6.8	0.0	63.2	36.5	0.0	0.0	31.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.09	0.01		0.07	0.07		0.10
Lane Grp Cap(c), veh/h	55	674	0	92	0	701	423	0	0	374	0	0
V/C Ratio(X)	0.78	0.48	0.00	0.81	0.00	1.22	0.97	0.00	0.00	0.94	0.00	0.00
Avail Cap(c_a), veh/h	274	716	0	220	0	701	423	0	0	422	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	79.5	40.7	0.0	77.6	0.0	51.1	63.1	0.0	0.0	64.7	0.0	0.0
Incr Delay (d2), s/veh	8.4	0.2	0.0	6.1	0.0	111.3	35.5	0.0	0.0	26.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	11.4	0.0	3.5	0.0	53.6	22.7	0.0	0.0	18.6	0.0	0.0
LnGrp Delay(d),s/veh	87.9	40.9	0.0	83.7	0.0	162.4	98.6	0.0	0.0	91.3	0.0	0.0
LnGrp LOS	F	D		F		F	F			F		
Approach Vol, veh/h		365			929			410			352	
Approach Delay, s/veh		46.5			156.2			98.6			91.3	
Approach LOS		D			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.7	70.0		40.7	13.0	66.6		45.0
Change Period (Y+Rc), s	4.5	6.8		6.8	4.5	* 6.8		7.0
Max Green Setting (Gmax), s	25.5	63.2		38.2	20.5	* 64		38.0
Max Q Clear Time (g_c+I1), s	6.0	65.2		33.4	8.8	24.1		38.5
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	4.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	114.1
HCM 2010 LOS	F

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	200	0	0	519	0	0
Future Volume (veh/h)	200	0	0	519	0	0
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	217	0	0	564	0	0
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1176	0	0	1176	15	13
Arrive On Green	0.63	0.00	0.00	0.63	0.00	0.00
Sat Flow, veh/h	1863	0	0	1863	1774	1583
Grp Volume(v), veh/h	217	0	0	564	0	0
Grp Sat Flow(s),veh/h/ln	1863	0	0	1863	1774	1583
Q Serve(g_s), s	0.6	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.0	2.0	0.0	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1176	0	0	1176	15	13
V/C Ratio(X)	0.18	0.00	0.00	0.48	0.00	0.00
Avail Cap(c_a), veh/h	2747	0	0	2747	727	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.9	0.0	0.0	1.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.0	0.0	0.0
LnGrp Delay(d),s/veh	1.0	0.0	0.0	1.5	0.0	0.0
LnGrp LOS	A			A		
Approach Vol, veh/h	217			564	0	
Approach Delay, s/veh	1.0			1.5	0.0	
Approach LOS	A			A		

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		0.0		12.2				12.2
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		5.0		18.0				18.0
Max Q Clear Time (g_c+I1), s		0.0		2.6				4.0
Green Ext Time (p_c), s		0.0		4.5				4.3

Intersection Summary	
HCM 2010 Ctrl Delay	1.4
HCM 2010 LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	128	9	28	696	348	132
Future Volume (veh/h)	128	9	28	696	348	132
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	160	11	30	740	419	159
Adj No. of Lanes	1	1	1	1	1	0
Peak Hour Factor	0.80	0.80	0.94	0.94	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	210	188	38	1057	516	196
Arrive On Green	0.12	0.12	0.02	0.57	0.40	0.40
Sat Flow, veh/h	1774	1583	1774	1863	1288	489
Grp Volume(v), veh/h	160	11	30	740	0	578
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	0	1777
Q Serve(g_s), s	3.3	0.2	0.6	10.8	0.0	10.9
Cycle Q Clear(g_c), s	3.3	0.2	0.6	10.8	0.0	10.9
Prop In Lane	1.00	1.00	1.00			0.28
Lane Grp Cap(c), veh/h	210	188	38	1057	0	712
V/C Ratio(X)	0.76	0.06	0.79	0.70	0.00	0.81
Avail Cap(c_a), veh/h	1621	1446	984	3147	0	2978
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	14.8	18.4	5.9	0.0	10.1
Incr Delay (d2), s/veh	2.1	0.0	12.5	0.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.1	0.4	5.4	0.0	5.5
LnGrp Delay(d),s/veh	18.3	14.9	30.9	6.2	0.0	11.0
LnGrp LOS	B	B	C	A		B
Approach Vol, veh/h	171			770	578	
Approach Delay, s/veh	18.1			7.2	11.0	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.3	21.7				28.0		9.9
Change Period (Y+Rc), s	5.5	* 6.5				* 6.5		5.4
Max Green Setting (Gmax), s	21.0	* 64				* 64		34.6
Max Q Clear Time (g_c+I1), s	2.6	12.9				12.8		5.3
Green Ext Time (p_c), s	0.0	2.2				2.2		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Notes

Intersection	
Intersection Delay, s/veh	15.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	13	1	126	0	463	18	21	269	0
Future Vol, veh/h	0	0	0	13	1	126	0	463	18	21	269	0
Peak Hour Factor	0.97	0.97	0.97	0.70	0.70	0.70	0.95	0.95	0.95	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	19	1	180	0	487	19	24	306	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	0	10.8	18.6	12.8
HCM LOS	-	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	9%	7%
Vol Thru, %	96%	100%	1%	93%
Vol Right, %	4%	0%	90%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	481	0	140	290
LT Vol	0	0	13	21
Through Vol	463	0	1	269
RT Vol	18	0	126	0
Lane Flow Rate	506	0	200	330
Geometry Grp	1	1	1	1
Degree of Util (X)	0.698	0	0.301	0.475
Departure Headway (Hd)	4.962	6.443	5.424	5.184
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	734	0	662	695
Service Time	2.962	4.505	3.468	3.213
HCM Lane V/C Ratio	0.689	0	0.302	0.475
HCM Control Delay	18.6	9.5	10.8	12.8
HCM Lane LOS	C	N	B	B
HCM 95th-tile Q	5.7	0	1.3	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	694	403	8	0	320	8	7	33	5	3	8	348
Future Volume (veh/h)	694	403	8	0	320	8	7	33	5	3	8	348
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	708	411	0	0	438	11	7	34	5	4	10	414
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.73	0.73	0.73	0.98	0.98	0.98	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	448	1074	913	2	484	12	13	61	9	111	278	736
Arrive On Green	0.25	0.58	0.00	0.00	0.27	0.27	0.05	0.05	0.05	0.21	0.21	0.21
Sat Flow, veh/h	1774	1863	1583	1774	1809	45	275	1336	196	525	1312	1583
Grp Volume(v), veh/h	708	411	0	0	0	449	46	0	0	14	0	414
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1855	1808	0	0	1837	0	1583
Q Serve(g_s), s	24.5	11.6	0.0	0.0	0.0	22.7	2.4	0.0	0.0	0.6	0.0	18.4
Cycle Q Clear(g_c), s	24.5	11.6	0.0	0.0	0.0	22.7	2.4	0.0	0.0	0.6	0.0	18.4
Prop In Lane	1.00		1.00	1.00		0.02	0.15		0.11	0.29		1.00
Lane Grp Cap(c), veh/h	448	1074	913	2	0	496	83	0	0	390	0	736
V/C Ratio(X)	1.58	0.38	0.00	0.00	0.00	0.91	0.55	0.00	0.00	0.04	0.00	0.56
Avail Cap(c_a), veh/h	448	1233	1048	357	0	1224	664	0	0	651	0	962
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.2	11.1	0.0	0.0	0.0	34.3	45.3	0.0	0.0	30.3	0.0	18.8
Incr Delay (d2), s/veh	271.3	0.1	0.0	0.0	0.0	2.6	2.1	0.0	0.0	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	45.7	6.0	0.0	0.0	0.0	12.0	1.3	0.0	0.0	0.3	0.0	8.1
LnGrp Delay(d),s/veh	307.6	11.2	0.0	0.0	0.0	37.0	47.4	0.0	0.0	30.3	0.0	19.1
LnGrp LOS	F	B				D	D			C		B
Approach Vol, veh/h		1119			449			46			428	
Approach Delay, s/veh		198.7			37.0			47.4			19.4	
Approach LOS		F			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	30.0	31.9		26.2	0.0	61.9		8.9
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		4.4
Max Green Setting (Gmax), s	24.5	64.0		* 34	19.5	* 64		35.6
Max Q Clear Time (g_c+I1), s	26.5	24.7		20.4	0.0	13.6		4.4
Green Ext Time (p_c), s	0.0	1.2		0.2	0.0	1.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	122.2
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	354	197	14	1	29	396	432	7	179	47	148	28
Future Volume (veh/h)	354	197	14	1	29	396	432	7	179	47	148	28
Number	1	6	16		5	2	12	3	8	18	7	4
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.98	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900		1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	389	216	15		33	450	491	8	195	51	183	35
Adj No. of Lanes	1	2	0		1	1	1	1	1	0	2	1
Peak Hour Factor	0.91	0.91	0.91		0.88	0.88	0.88	0.92	0.92	0.92	0.81	0.81
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	365	1770	122		41	633	526	11	227	59	253	423
Arrive On Green	0.21	0.53	0.53		0.02	0.34	0.34	0.01	0.16	0.16	0.07	0.23
Sat Flow, veh/h	1774	3360	232		1774	1863	1548	1774	1424	373	3442	1863
Grp Volume(v), veh/h	389	113	118		33	450	491	8	0	246	183	35
Grp Sat Flow(s),veh/h/ln	1774	1770	1822		1774	1863	1548	1774	0	1797	1721	1863
Q Serve(g_s), s	19.5	3.1	3.1		1.8	19.9	29.1	0.4	0.0	12.6	4.9	1.4
Cycle Q Clear(g_c), s	19.5	3.1	3.1		1.8	19.9	29.1	0.4	0.0	12.6	4.9	1.4
Prop In Lane	1.00		0.13		1.00		1.00	1.00		0.21	1.00	
Lane Grp Cap(c), veh/h	365	932	960		41	633	526	11	0	287	253	423
V/C Ratio(X)	1.07	0.12	0.12		0.81	0.71	0.93	0.75	0.00	0.86	0.72	0.08
Avail Cap(c_a), veh/h	365	1215	1251		372	1281	1064	365	0	1235	708	1275
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	11.3	11.4		46.1	27.2	30.2	47.1	0.0	38.8	43.0	28.9
Incr Delay (d2), s/veh	65.9	0.0	0.0		12.9	0.6	3.4	31.6	0.0	2.9	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.2	1.5	1.5		1.0	10.3	12.9	0.3	0.0	6.5	2.4	0.7
LnGrp Delay(d),s/veh	103.5	11.4	11.4		59.0	27.8	33.7	78.7	0.0	41.7	44.5	28.9
LnGrp LOS	F	B	B		E	C	C	E		D	D	C
Approach Vol, veh/h		620				974			254			304
Approach Delay, s/veh		69.2				31.8			42.9			38.6
Approach LOS		E				C			D			D

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	37.1	6.1	26.6	7.3	54.9	12.5	20.2
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	19.5	* 65	19.5	* 65	* 20	* 65	19.5	* 65
Max Q Clear Time (g_c+I1), s	21.5	31.1	2.4	6.2	3.8	5.1	6.9	14.6
Green Ext Time (p_c), s	0.0	1.2	0.0	0.5	0.0	1.2	0.1	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	44.8
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	70
Future Volume (veh/h)	70
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	86
Adj No. of Lanes	1
Peak Hour Factor	0.81
Percent Heavy Veh, %	2
Cap, veh/h	359
Arrive On Green	0.23
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	86
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	4.2
Cycle Q Clear(g_c), s	4.2
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	359
V/C Ratio(X)	0.24
Avail Cap(c_a), veh/h	1083
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	30.0
Incr Delay (d2), s/veh	0.1
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	1.9
LnGrp Delay(d),s/veh	30.1
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	5	187	95	145	3	72	477	66	6	533	1875	122
Future Volume (veh/h)	5	187	95	145	3	72	477	66	6	533	1875	122
Number		7	4	14		3	8	18		5	2	12
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863		1863	1863	1863		1863	1863	1863
Adj Flow Rate, veh/h		205	104	159		81	536	74		579	2038	133
Adj No. of Lanes		2	3	1		2	2	1		2	3	1
Peak Hour Factor		0.91	0.91	0.91		0.89	0.89	0.89		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		270	1107	345		133	629	282		636	2344	721
Arrive On Green		0.08	0.22	0.22		0.04	0.18	0.18		0.18	0.46	0.46
Sat Flow, veh/h		3442	5085	1583		3442	3539	1583		3442	5085	1564
Grp Volume(v), veh/h		205	104	159		81	536	74		579	2038	133
Grp Sat Flow(s),veh/h/ln		1721	1695	1583		1721	1770	1583		1721	1695	1564
Q Serve(g_s), s		6.0	1.7	9.0		2.4	15.1	4.2		17.0	37.2	5.2
Cycle Q Clear(g_c), s		6.0	1.7	9.0		2.4	15.1	4.2		17.0	37.2	5.2
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		270	1107	345		133	629	282		636	2344	721
V/C Ratio(X)		0.76	0.09	0.46		0.61	0.85	0.26		0.91	0.87	0.18
Avail Cap(c_a), veh/h		651	1643	512		651	1140	510		651	3093	951
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		46.5	32.2	35.1		48.8	41.1	36.5		41.2	25.0	16.4
Incr Delay (d2), s/veh		1.7	0.0	0.4		1.7	1.3	0.2		16.4	1.8	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.9	0.8	3.9		1.2	7.5	1.8		9.5	17.8	2.2
LnGrp Delay(d),s/veh		48.2	32.2	35.4		50.4	42.3	36.7		57.6	26.8	16.4
LnGrp LOS		D	C	D		D	D	D		E	C	B
Approach Vol, veh/h			468				691				2750	
Approach Delay, s/veh			40.3				42.7				32.8	
Approach LOS			D				D				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	54.9	9.5	29.2	24.5	39.8	13.6	25.1
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	19.5	* 63	19.5	* 33	19.5	* 63	19.5	33.2
Max Q Clear Time (g_c+I1), s	4.4	39.2	4.4	11.0	19.0	14.9	8.0	17.1
Green Ext Time (p_c), s	0.0	8.4	0.0	1.2	0.0	9.4	0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	34.4
HCM 2010 LOS	C

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	3	64	629	66
Future Volume (veh/h)	3	64	629	66
Number		1	6	16
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863
Adj Flow Rate, veh/h		80	786	82
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.80	0.80	0.80
Percent Heavy Veh, %		2	2	2
Cap, veh/h		132	1600	498
Arrive On Green		0.04	0.31	0.31
Sat Flow, veh/h		3442	5085	1583
Grp Volume(v), veh/h		80	786	82
Grp Sat Flow(s),veh/h/ln		1721	1695	1583
Q Serve(g_s), s		2.4	12.9	3.9
Cycle Q Clear(g_c), s		2.4	12.9	3.9
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		132	1600	498
V/C Ratio(X)		0.61	0.49	0.16
Avail Cap(c_a), veh/h		651	3088	962
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		48.8	28.6	25.5
Incr Delay (d2), s/veh		1.7	0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.2	6.1	1.7
LnGrp Delay(d),s/veh		50.5	28.7	25.6
LnGrp LOS		D	C	C
Approach Vol, veh/h			948	
Approach Delay, s/veh			30.3	
Approach LOS			C	

Timer

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	243	21	108	487	288	104
Future Volume (veh/h)	243	21	108	487	288	104
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1900
Adj Flow Rate, veh/h	283	24	121	547	335	121
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.86	0.86	0.89	0.89	0.86	0.86
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	343	29	154	972	420	152
Arrive On Green	0.21	0.21	0.09	0.52	0.32	0.32
Sat Flow, veh/h	1615	137	1774	1863	1307	472
Grp Volume(v), veh/h	308	0	121	547	0	456
Grp Sat Flow(s),veh/h/ln	1758	0	1774	1863	0	1779
Q Serve(g_s), s	6.8	0.0	2.7	8.1	0.0	9.5
Cycle Q Clear(g_c), s	6.8	0.0	2.7	8.1	0.0	9.5
Prop In Lane	0.92	0.08	1.00			0.27
Lane Grp Cap(c), veh/h	373	0	154	972	0	572
V/C Ratio(X)	0.83	0.00	0.78	0.56	0.00	0.80
Avail Cap(c_a), veh/h	1529	0	892	2947	0	2802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	18.2	6.6	0.0	12.6
Incr Delay (d2), s/veh	1.8	0.0	3.3	0.2	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	1.5	4.2	0.0	4.7
LnGrp Delay(d),s/veh	17.1	0.0	21.4	6.8	0.0	13.6
LnGrp LOS	B		C	A		B
Approach Vol, veh/h	308			668	456	
Approach Delay, s/veh	17.1			9.4	13.6	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.1	19.1				27.3		13.3
Change Period (Y+Rc), s	* 4.6	* 6.1				* 6.1		4.7
Max Green Setting (Gmax), s	* 20	* 64				* 64		35.3
Max Q Clear Time (g_c+I1), s	4.7	11.5				10.1		8.8
Green Ext Time (p_c), s	0.0	1.5				1.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

Notes

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	2	12	468	196	478	749	23	238	103	464	6	74
Future Volume (veh/h)	2	12	468	196	478	749	23	238	103	464	6	74
Number		1	6	16	5	2	12	3	8	18	7	4
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.98	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863
Adj Flow Rate, veh/h		15	571	0	493	772	24	251	407	398	8	92
Adj No. of Lanes		1	2	1	2	2	0	1	1	1	0	2
Peak Hour Factor		0.82	0.82	0.82	0.97	0.97	0.97	0.77	0.77	0.77	0.80	0.80
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		19	821	367	567	1347	42	445	467	651	22	255
Arrive On Green		0.01	0.23	0.00	0.16	0.38	0.38	0.25	0.25	0.25	0.10	0.10
Sat Flow, veh/h		1774	3539	1583	3442	3501	109	1774	1863	1557	218	2524
Grp Volume(v), veh/h		15	571	0	493	390	406	251	407	398	68	0
Grp Sat Flow(s),veh/h/ln		1774	1770	1583	1721	1770	1841	1774	1863	1557	1852	0
Q Serve(g_s), s		0.7	12.1	0.0	11.4	14.2	14.3	10.1	17.1	16.4	2.8	0.0
Cycle Q Clear(g_c), s		0.7	12.1	0.0	11.4	14.2	14.3	10.1	17.1	16.4	2.8	0.0
Prop In Lane		1.00		1.00	1.00		0.06	1.00		1.00	0.12	
Lane Grp Cap(c), veh/h		19	821	367	567	681	708	445	467	651	187	0
V/C Ratio(X)		0.80	0.70	0.00	0.87	0.57	0.57	0.56	0.87	0.61	0.36	0.00
Avail Cap(c_a), veh/h		427	2823	1263	832	1414	1470	754	792	922	780	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		40.4	28.8	0.0	33.3	19.9	19.9	26.8	29.4	18.8	34.3	0.0
Incr Delay (d2), s/veh		24.0	0.4	0.0	4.9	0.3	0.3	0.4	2.6	0.3	0.4	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.5	5.9	0.0	5.8	7.0	7.3	5.0	9.2	7.1	1.5	0.0
LnGrp Delay(d),s/veh		64.4	29.2	0.0	38.2	20.2	20.2	27.2	32.0	19.1	34.8	0.0
LnGrp LOS		E	C		D	C	C	C	C	B	C	
Approach Vol, veh/h			586			1289			1056			128
Approach Delay, s/veh			30.1			27.1			26.0			34.8
Approach LOS			C			C			C			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	36.2		13.8	18.7	23.7		25.7
Change Period (Y+Rc), s	* 5.3	* 4.7		5.5	* 5.2	* 4.7		5.2
Max Green Setting (Gmax), s	* 20	* 65		34.5	* 20	* 65		34.8
Max Q Clear Time (g_c+I1), s	2.7	16.3		4.8	13.4	14.1		19.1
Green Ext Time (p_c), s	0.0	2.3		0.1	0.0	2.3		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	27.6
HCM 2010 LOS	C

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	22
Future Volume (veh/h)	22
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.94
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	28
Adj No. of Lanes	0
Peak Hour Factor	0.80
Percent Heavy Veh, %	2
Cap, veh/h	78
Arrive On Green	0.10
Sat Flow, veh/h	776
Grp Volume(v), veh/h	60
Grp Sat Flow(s),veh/h/ln	1667
Q Serve(g_s), s	2.8
Cycle Q Clear(g_c), s	2.8
Prop In Lane	0.47
Lane Grp Cap(c), veh/h	168
V/C Ratio(X)	0.36
Avail Cap(c_a), veh/h	702
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	34.3
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	1.3
LnGrp Delay(d),s/veh	34.8
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	996	0	300	0	749	528	0	724	278
Future Volume (veh/h)	0	0	0	996	0	300	0	749	528	0	724	278
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	0	1863	1900	0	1863	1900
Adj Flow Rate, veh/h				754	566	349	0	842	0	0	746	0
Adj No. of Lanes				1	1	0	0	2	0	0	2	0
Peak Hour Factor				0.86	0.86	0.86	0.89	0.89	0.89	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	0	2	2	0	2	2
Cap, veh/h				566	343	211	0	2857	0	0	2857	0
Arrive On Green				0.32	0.32	0.32	0.00	0.81	0.00	0.00	0.81	0.00
Sat Flow, veh/h				1774	1074	662	0	3725	0	0	3725	0
Grp Volume(v), veh/h				754	0	915	0	842	0	0	746	0
Grp Sat Flow(s),veh/h/ln				1774	0	1736	0	1770	0	0	1770	0
Q Serve(g_s), s				35.1	0.0	35.1	0.0	6.6	0.0	0.0	5.7	0.0
Cycle Q Clear(g_c), s				35.1	0.0	35.1	0.0	6.6	0.0	0.0	5.7	0.0
Prop In Lane				1.00		0.38	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				566	0	554	0	2857	0	0	2857	0
V/C Ratio(X)				1.33	0.00	1.65	0.00	0.29	0.00	0.00	0.26	0.00
Avail Cap(c_a), veh/h				566	0	554	0	2857	0	0	2857	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				37.5	0.0	37.5	0.0	2.7	0.0	0.0	2.6	0.0
Incr Delay (d2), s/veh				161.2	0.0	301.2	0.0	0.3	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				42.5	0.0	63.1	0.0	3.3	0.0	0.0	2.8	0.0
LnGrp Delay(d),s/veh				198.7	0.0	338.7	0.0	2.9	0.0	0.0	2.8	0.0
LnGrp LOS				F		F		A			A	
Approach Vol, veh/h					1669			842			746	
Approach Delay, s/veh					275.4			2.9			2.8	
Approach LOS					F			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		94.5				94.5		40.0
Change Period (Y+Rc), s		* 5				5.0		4.9
Max Green Setting (Gmax), s		* 66				65.0		35.1
Max Q Clear Time (g_c+I1), s		7.7				8.6		37.1
Green Ext Time (p_c), s		3.9				3.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	142.5
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	0	1096	0	0	0	0	996	324	0	1473	273
Future Volume (veh/h)	250	0	1096	0	0	0	0	996	324	0	1473	273
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	175	0	1248				0	1132	0	0	1637	0
Adj No. of Lanes	1	0	2				0	3	0	0	2	1
Peak Hour Factor	0.95	0.95	0.95				0.88	0.88	0.88	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	2
Cap, veh/h	558	0	993				0	3791	0	0	2638	1180
Arrive On Green	0.31	0.00	0.31				0.00	0.75	0.00	0.00	0.75	0.00
Sat Flow, veh/h	1774	0	3157				0	5421	0	0	3632	1583
Grp Volume(v), veh/h	175	0	1248				0	1132	0	0	1637	0
Grp Sat Flow(s),veh/h/ln	1774	0	1578				0	1695	0	0	1770	1583
Q Serve(g_s), s	8.3	0.0	34.6				0.0	8.0	0.0	0.0	24.1	0.0
Cycle Q Clear(g_c), s	8.3	0.0	34.6				0.0	8.0	0.0	0.0	24.1	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	558	0	993				0	3791	0	0	2638	1180
V/C Ratio(X)	0.31	0.00	1.26				0.00	0.30	0.00	0.00	0.62	0.00
Avail Cap(c_a), veh/h	558	0	993				0	3791	0	0	2638	1180
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	28.7	0.0	37.7				0.0	4.6	0.0	0.0	6.6	0.0
Incr Delay (d2), s/veh	0.1	0.0	123.9				0.0	0.2	0.0	0.0	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	32.1				0.0	3.7	0.0	0.0	12.0	0.0
LnGrp Delay(d),s/veh	28.8	0.0	161.6				0.0	4.8	0.0	0.0	7.7	0.0
LnGrp LOS	C		F					A			A	
Approach Vol, veh/h		1423						1132			1637	
Approach Delay, s/veh		145.3						4.8			7.7	
Approach LOS		F						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		87.5		40.0		87.5		
Change Period (Y+Rc), s		* 5		* 5.4		5.0		
Max Green Setting (Gmax), s		* 66		* 35		65.0		
Max Q Clear Time (g_c+I1), s		26.1		36.6		10.0		
Green Ext Time (p_c), s		10.0		0.0		10.3		

Intersection Summary	
HCM 2010 Ctrl Delay	53.6
HCM 2010 LOS	D

Notes

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	1020	745	18	85	683	269	62
Future Volume (veh/h)	1020	745	18	85	683	269	62
Number	6	16		5	2	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	1133	0		99	794	313	72
Adj No. of Lanes	3	0		1	3	2	1
Peak Hour Factor	0.90	0.90		0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	3210	0		127	3916	405	186
Arrive On Green	0.63	0.00		0.07	0.77	0.12	0.12
Sat Flow, veh/h	5421	0		1774	5253	3442	1583
Grp Volume(v), veh/h	1133	0		99	794	313	72
Grp Sat Flow(s),veh/h/ln	1695	0		1774	1695	1721	1583
Q Serve(g_s), s	8.0	0.0		4.2	3.2	6.7	3.2
Cycle Q Clear(g_c), s	8.0	0.0		4.2	3.2	6.7	3.2
Prop In Lane		0.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3210	0		127	3916	405	186
V/C Ratio(X)	0.35	0.00		0.78	0.20	0.77	0.39
Avail Cap(c_a), veh/h	4369	0		467	4369	1660	764
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.6	0.0		34.5	2.4	32.4	30.9
Incr Delay (d2), s/veh	0.1	0.0		3.9	0.1	1.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0		2.2	1.5	3.2	1.4
LnGrp Delay(d),s/veh	6.8	0.0		38.4	2.4	33.6	31.3
LnGrp LOS	A			D	A	C	C
Approach Vol, veh/h	1133				893	385	
Approach Delay, s/veh	6.8				6.4	33.2	
Approach LOS	A				A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		63.3			10.5	52.8		12.4
Change Period (Y+Rc), s		5.0			* 5.1	5.0		3.5
Max Green Setting (Gmax), s		65.0			* 20	65.0		36.5
Max Q Clear Time (g_c+I1), s		5.2			6.2	10.0		8.7
Green Ext Time (p_c), s		39.9			0.0	37.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	10	91	392	96	16	101	389	202	19	291	901	116
Future Volume (veh/h)	10	91	392	96	16	101	389	202	19	291	901	116
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1863
Adj Flow Rate, veh/h		101	436	107		109	418	217		303	939	121
Adj No. of Lanes		2	3	0		2	3	1		2	3	1
Peak Hour Factor		0.90	0.90	0.90		0.93	0.93	0.93		0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		172	807	192		183	1020	312		598	1716	533
Arrive On Green		0.05	0.20	0.20		0.05	0.20	0.20		0.17	0.34	0.34
Sat Flow, veh/h		3442	4092	971		3442	5085	1556		3442	5085	1579
Grp Volume(v), veh/h		101	359	184		109	418	217		303	939	121
Grp Sat Flow(s),veh/h/ln		1721	1695	1673		1721	1695	1556		1721	1695	1579
Q Serve(g_s), s		2.0	6.5	6.8		2.1	4.9	8.9		5.5	10.3	3.8
Cycle Q Clear(g_c), s		2.0	6.5	6.8		2.1	4.9	8.9		5.5	10.3	3.8
Prop In Lane		1.00		0.58		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		172	669	330		183	1020	312		598	1716	533
V/C Ratio(X)		0.59	0.54	0.56		0.60	0.41	0.70		0.51	0.55	0.23
Avail Cap(c_a), veh/h		974	1683	831		974	2525	772		974	4754	1476
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		32.0	24.8	24.9		31.9	24.0	25.6		25.8	18.5	16.4
Incr Delay (d2), s/veh		1.2	0.2	0.6		1.2	0.1	1.0		0.2	0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	3.1	3.2		1.0	2.3	3.9		2.6	4.8	1.6
LnGrp Delay(d),s/veh		33.2	25.1	25.5		33.0	24.1	26.6		26.0	18.6	16.5
LnGrp LOS		C	C	C		C	C	C		C	B	B
Approach Vol, veh/h			644				744				1363	
Approach Delay, s/veh			26.5				26.1				20.1	
Approach LOS			C				C				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.5	22.9	8.9	19.6	11.5	28.8	9.2	19.4
Change Period (Y+Rc), s	5.5	* 5.6	5.5	5.8	5.5	* 5.6	5.5	5.8
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.2	19.5	* 64	19.5	34.2
Max Q Clear Time (g_c+I1), s	7.5	12.5	4.0	10.9	6.0	12.3	4.1	8.8
Green Ext Time (p_c), s	0.2	4.3	0.0	2.1	0.1	4.3	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	23.7
HCM 2010 LOS	C

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	5	177	410	227
Future Volume (veh/h)	5	177	410	227
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900
Adj Flow Rate, veh/h		206	477	264
Adj No. of Lanes		2	3	0
Peak Hour Factor		0.86	0.86	0.86
Percent Heavy Veh, %		2	2	2
Cap, veh/h		299	850	391
Arrive On Green		0.09	0.25	0.25
Sat Flow, veh/h		3442	3390	1561
Grp Volume(v), veh/h		206	477	264
Grp Sat Flow(s),veh/h/ln		1721	1695	1561
Q Serve(g_s), s		4.0	8.5	10.5
Cycle Q Clear(g_c), s		4.0	8.5	10.5
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		299	850	391
V/C Ratio(X)		0.69	0.56	0.67
Avail Cap(c_a), veh/h		974	3170	1459
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		30.5	22.5	23.3
Incr Delay (d2), s/veh		1.1	0.2	0.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.9	4.0	4.6
LnGrp Delay(d),s/veh		31.6	22.7	24.0
LnGrp LOS		C	C	C
Approach Vol, veh/h			947	
Approach Delay, s/veh			25.0	
Approach LOS			C	

Timer

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	3	219	95	10	1	36	116	233	3	53	1076	34
Future Volume (veh/h)	3	219	95	10	1	36	116	233	3	53	1076	34
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.97		1.00		0.97		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1900
Adj Flow Rate, veh/h		255	110	12		37	120	240		62	1266	40
Adj No. of Lanes		2	3	0		2	1	2		2	3	0
Peak Hour Factor		0.86	0.86	0.86		0.97	0.97	0.97		0.85	0.85	0.85
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		316	1019	107		69	272	1153		106	1685	53
Arrive On Green		0.09	0.22	0.22		0.02	0.15	0.15		0.03	0.33	0.33
Sat Flow, veh/h		3442	4659	491		3548	1863	3060		3442	5063	160
Grp Volume(v), veh/h		255	79	43		37	120	240		62	848	458
Grp Sat Flow(s),veh/h/ln		1721	1695	1760		1774	1863	1530		1721	1695	1833
Q Serve(g_s), s		8.0	2.1	2.2		1.1	6.5	5.9		2.0	24.5	24.5
Cycle Q Clear(g_c), s		8.0	2.1	2.2		1.1	6.5	5.9		2.0	24.5	24.5
Prop In Lane		1.00		0.28		1.00		1.00		1.00		0.09
Lane Grp Cap(c), veh/h		316	742	385		69	272	1153		106	1128	610
V/C Ratio(X)		0.81	0.11	0.11		0.54	0.44	0.21		0.59	0.75	0.75
Avail Cap(c_a), veh/h		610	1972	1024		629	1092	2499		610	2000	1081
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		49.0	34.4	34.4		53.5	42.9	23.8		52.6	32.6	32.6
Incr Delay (d2), s/veh		1.9	0.0	0.0		2.4	0.4	0.0		1.9	0.4	0.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.9	1.0	1.1		0.6	3.4	2.5		1.0	11.5	12.5
LnGrp Delay(d),s/veh		50.8	34.4	34.5		55.9	43.3	23.8		54.5	33.0	33.4
LnGrp LOS		D	C	C		E	D	C		D	C	C
Approach Vol, veh/h			377				397				1368	
Approach Delay, s/veh			45.5				32.7				34.1	
Approach LOS			D				C				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	63.4	15.6	22.1	30.0	42.3	7.6	30.1
Change Period (Y+Rc), s	5.5	* 5.7	5.5	* 6	5.5	* 5.7	5.5	* 6
Max Green Setting (Gmax), s	19.5	* 64	19.5	* 65	24.5	* 65	19.5	* 64
Max Q Clear Time (g_c+I1), s	4.0	48.6	10.0	8.5	24.7	26.5	3.1	4.2
Green Ext Time (p_c), s	0.0	7.7	0.1	0.6	0.0	10.1	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	33.9
HCM 2010 LOS	C

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	685	1359	696
Future Volume (veh/h)	685	1359	696
Number	5	2	12
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863
Adj Flow Rate, veh/h	721	1431	733
Adj No. of Lanes	2	3	1
Peak Hour Factor	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2
Cap, veh/h	766	2669	816
Arrive On Green	0.22	0.52	0.52
Sat Flow, veh/h	3442	5085	1556
Grp Volume(v), veh/h	721	1431	733
Grp Sat Flow(s),veh/h/ln	1721	1695	1556
Q Serve(g_s), s	22.7	20.5	46.6
Cycle Q Clear(g_c), s	22.7	20.5	46.6
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	766	2669	816
V/C Ratio(X)	0.94	0.54	0.90
Avail Cap(c_a), veh/h	766	2972	909
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	17.3	23.5
Incr Delay (d2), s/veh	19.3	0.1	10.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	9.6	22.1
LnGrp Delay(d),s/veh	61.3	17.3	33.7
LnGrp LOS	E	B	C
Approach Vol, veh/h		2885	
Approach Delay, s/veh		32.5	
Approach LOS		C	
Timer			

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	345	1	913	1110	132	32	1179	457	11	1588	202
Future Volume (vph)	345	1	913	1110	132	32	1179	457	11	1588	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8	6.8	4.6		4.6			4.6	4.0
Lane Util. Factor		0.91	0.86	0.91	0.88		0.86			0.95	1.00
Frpb, ped/bikes		1.00	0.99	0.98	1.00		0.99			1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.95	0.85	0.85		0.96			1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1610	3022	1417	2787		6095			3539	1545
Flt Permitted		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		1610	3022	1417	2787		6095			3539	1545
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.93	0.93	0.93	0.85	0.85
Adj. Flow (vph)	388	1	1026	1247	148	36	1268	491	12	1868	238
RTOR Reduction (vph)	0	0	5	9	16	0	0	0	0	0	0
Lane Group Flow (vph)	0	389	1557	702	168	0	1771	0	0	1868	238
Confl. Peds. (#/hr)	6	6		6	3	3		3	3		6
Confl. Bikes (#/hr)								2	2		3
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		2!		6!			2	
Permitted Phases				4	2						Free
Actuated Green, G (s)		48.2	48.2	48.2	65.4		65.4			65.4	125.0
Effective Green, g (s)		48.2	48.2	48.2	65.4		65.4			65.4	125.0
Actuated g/C Ratio		0.39	0.39	0.39	0.52		0.52			0.52	1.00
Clearance Time (s)		6.8	6.8	6.8	4.6		4.6			4.6	
Vehicle Extension (s)		1.0	1.0	1.0	1.0		1.0			1.0	
Lane Grp Cap (vph)		620	1165	546	1458		3188			1851	1545
v/s Ratio Prot		0.24	c0.52		0.06		0.29			c0.53	
v/s Ratio Perm				0.50							0.15
v/c Ratio		0.63	1.34	1.29	0.12		0.56			1.01	0.15
Uniform Delay, d1		31.1	38.4	38.4	15.1		20.0			29.8	0.0
Progression Factor		1.00	1.00	1.00	1.00		1.00			1.07	1.00
Incremental Delay, d2		1.4	157.4	142.3	0.2		0.7			20.9	0.2
Delay (s)		32.6	195.8	180.7	15.3		20.7			52.7	0.2
Level of Service		C	F	F	B		C			D	A
Approach Delay (s)			167.9				20.7			46.8	
Approach LOS			F				C			D	

Intersection Summary			
HCM 2000 Control Delay	87.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	11.4
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1000	0	161	0	928	725	0	800	346
Future Volume (veh/h)	0	0	0	1000	0	161	0	928	725	0	800	346
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				1099	0	177	0	987	0	0	851	0
Adj No. of Lanes				2	0	1	0	3	2	0	2	1
Peak Hour Factor				0.91	0.91	0.91	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				1153	0	530	0	2918	1599	0	2031	909
Arrive On Green				0.33	0.00	0.33	0.00	0.57	0.00	0.00	0.57	0.00
Sat Flow, veh/h				3442	0	1583	0	5253	2787	0	3632	1583
Grp Volume(v), veh/h				1099	0	177	0	987	0	0	851	0
Grp Sat Flow(s),veh/h/ln				1721	0	1583	0	1695	1393	0	1770	1583
Q Serve(g_s), s				39.0	0.0	10.5	0.0	12.8	0.0	0.0	16.9	0.0
Cycle Q Clear(g_c), s				39.0	0.0	10.5	0.0	12.8	0.0	0.0	16.9	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1153	0	530	0	2918	1599	0	2031	909
V/C Ratio(X)				0.95	0.00	0.33	0.00	0.34	0.00	0.00	0.42	0.00
Avail Cap(c_a), veh/h				1327	0	611	0	2918	1599	0	2031	909
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				40.6	0.0	31.1	0.0	14.1	0.0	0.0	14.9	0.0
Incr Delay (d2), s/veh				13.3	0.0	0.1	0.0	0.3	0.0	0.0	0.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				20.6	0.0	4.6	0.0	6.0	0.0	0.0	8.3	0.0
LnGrp Delay(d),s/veh				54.0	0.0	31.3	0.0	14.4	0.0	0.0	15.6	0.0
LnGrp LOS				D		C		B			B	
Approach Vol, veh/h					1276			987			851	
Approach Delay, s/veh					50.8			14.4			15.6	
Approach LOS					D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		76.3				76.3		48.7
Change Period (Y+Rc), s		4.6				4.6		6.8
Max Green Setting (Gmax), s		65.4				65.4		48.2
Max Q Clear Time (g_c+I1), s		18.9				14.8		41.0
Green Ext Time (p_c), s		5.0				5.0		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	29.6
HCM 2010 LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	45	110	168	82	1	149	301	139	42	319	1421	110
Future Volume (veh/h)	45	110	168	82	1	149	301	139	42	319	1421	110
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.99		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		118	181	88		159	320	148		347	1545	120
Adj No. of Lanes		2	2	1		2	3	1		2	3	1
Peak Hour Factor		0.93	0.93	0.93		0.94	0.94	0.94		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		163	519	228		205	809	251		391	2299	706
Arrive On Green		0.05	0.16	0.16		0.07	0.18	0.18		0.13	0.50	0.50
Sat Flow, veh/h		3097	3185	1397		3097	4577	1418		3097	4577	1406
Grp Volume(v), veh/h		118	181	88		159	320	148		347	1545	120
Grp Sat Flow(s),veh/h/ln		1549	1593	1397		1549	1526	1418		1549	1526	1406
Q Serve(g_s), s		4.9	6.6	7.3		6.6	8.1	12.5		14.4	33.0	6.1
Cycle Q Clear(g_c), s		4.9	6.6	7.3		6.6	8.1	12.5		14.4	33.0	6.1
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		163	519	228		205	809	251		391	2299	706
V/C Ratio(X)		0.73	0.35	0.39		0.78	0.40	0.59		0.89	0.67	0.17
Avail Cap(c_a), veh/h		464	1565	686		464	1195	370		464	2299	706
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		60.8	48.4	48.7		59.9	47.5	49.3		56.0	24.3	17.6
Incr Delay (d2), s/veh		2.3	0.8	2.2		2.4	1.1	7.4		15.0	1.0	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.1	2.9	3.0		2.9	3.5	5.4		7.0	14.1	2.4
LnGrp Delay(d),s/veh		63.1	49.2	50.9		62.2	48.5	56.7		71.0	25.4	17.9
LnGrp LOS		E	D	D		E	D	E		E	C	B
Approach Vol, veh/h			387				627				2012	
Approach Delay, s/veh			53.8				53.9				32.8	
Approach LOS			D				D				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	66.9	12.3	29.0	17.7	71.2	14.1	27.2
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	64.0
Max Q Clear Time (g_c+I1), s	16.4	25.3	6.9	14.5	12.1	35.0	8.6	9.3
Green Ext Time (p_c), s	0.1	35.8	0.1	7.8	0.1	28.3	0.1	11.1

Intersection Summary	
HCM 2010 Ctrl Delay	36.4
HCM 2010 LOS	D

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	21	224	1009	326
Future Volume (veh/h)	21	224	1009	326
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676
Adj Flow Rate, veh/h		243	1097	354
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2
Cap, veh/h		289	2148	659
Arrive On Green		0.09	0.47	0.47
Sat Flow, veh/h		3097	4577	1404
Grp Volume(v), veh/h		243	1097	354
Grp Sat Flow(s),veh/h/ln		1549	1526	1404
Q Serve(g_s), s		10.1	21.8	23.3
Cycle Q Clear(g_c), s		10.1	21.8	23.3
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		289	2148	659
V/C Ratio(X)		0.84	0.51	0.54
Avail Cap(c_a), veh/h		464	2256	692
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		58.1	24.1	24.5
Incr Delay (d2), s/veh		3.9	0.4	1.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.5	9.2	9.2
LnGrp Delay(d),s/veh		62.0	24.5	26.0
LnGrp LOS		E	C	C
Approach Vol, veh/h			1694	
Approach Delay, s/veh			30.2	
Approach LOS			C	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	194	143	73	333	284	166	1	81	1402	125	226	2178
Future Volume (veh/h)	194	143	73	333	284	166	1	81	1402	125	226	2178
Number	3	8	18	7	4	14		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	204	151	77	383	354	172		85	1476	132	246	2367
Adj No. of Lanes	2	2	1	2	2	1		2	4	1	2	3
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87		0.95	0.95	0.95	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	256	559	244	435	768	315		133	2941	725	297	2577
Arrive On Green	0.07	0.16	0.16	0.12	0.21	0.21		0.04	0.46	0.46	0.09	0.51
Sat Flow, veh/h	3442	3539	1544	3548	3725	1529		3442	6408	1579	3442	5085
Grp Volume(v), veh/h	204	151	77	383	354	172		85	1476	132	246	2367
Grp Sat Flow(s),veh/h/ln	1721	1770	1544	1774	1863	1529		1721	1602	1579	1721	1695
Q Serve(g_s), s	7.6	4.9	5.8	13.9	10.9	13.2		3.2	21.2	6.5	9.2	56.2
Cycle Q Clear(g_c), s	7.6	4.9	5.8	13.9	10.9	13.2		3.2	21.2	6.5	9.2	56.2
Prop In Lane	1.00		1.00	1.00		1.00		1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	256	559	244	435	768	315		133	2941	725	297	2577
V/C Ratio(X)	0.80	0.27	0.32	0.88	0.46	0.55		0.64	0.50	0.18	0.83	0.92
Avail Cap(c_a), veh/h	513	922	402	528	967	397		513	3142	774	513	2577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	48.5	48.8	56.5	45.6	46.5		62.0	24.9	20.9	58.8	29.8
Incr Delay (d2), s/veh	2.2	0.4	1.1	12.3	0.7	2.5		3.1	0.1	0.1	2.3	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.4	2.5	7.6	5.7	5.8		1.6	9.3	2.8	4.5	27.5
LnGrp Delay(d),s/veh	61.8	48.9	49.9	68.8	46.3	49.0		65.1	25.0	21.0	61.1	35.9
LnGrp LOS	E	D	D	E	D	D		E	C	C	E	D
Approach Vol, veh/h		432			909				1693			2931
Approach Delay, s/veh		55.2			56.3				26.7			36.4
Approach LOS		E			E				C			D

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	72.1	15.2	33.0	16.8	65.9	21.5	26.7
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	* 6
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	* 34
Max Q Clear Time (g_c+I1), s	5.2	58.2	9.6	15.2	11.2	23.2	15.9	7.8
Green Ext Time (p_c), s	0.1	6.1	0.1	6.3	0.1	36.9	0.1	7.2

Intersection Summary	
HCM 2010 Ctrl Delay	38.0
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	293
Future Volume (veh/h)	293
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.99
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	318
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	795
Arrive On Green	0.51
Sat Flow, veh/h	1569
Grp Volume(v), veh/h	318
Grp Sat Flow(s),veh/h/ln	1569
Q Serve(g_s), s	16.4
Cycle Q Clear(g_c), s	16.4
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	795
V/C Ratio(X)	0.40
Avail Cap(c_a), veh/h	795
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	20.0
Incr Delay (d2), s/veh	0.7
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	7.3
LnGrp Delay(d),s/veh	20.6
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1222	0	531	0	0	0	0	1348	537	0	2121	441
Future Volume (veh/h)	1222	0	531	0	0	0	0	1348	537	0	2121	441
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	1300	0	565				0	1404	0	0	2233	0
Adj No. of Lanes	3	0	2				0	4	1	0	3	1
Peak Hour Factor	0.94	0.94	0.94				0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	1404	0	782				0	4588	975	0	3441	975
Arrive On Green	0.28	0.00	0.28				0.00	0.62	0.00	0.00	0.62	0.00
Sat Flow, veh/h	5003	0	2787				0	7451	1583	0	5588	1583
Grp Volume(v), veh/h	1300	0	565				0	1404	0	0	2233	0
Grp Sat Flow(s),veh/h/ln	1668	0	1393				0	1863	1583	0	1863	1583
Q Serve(g_s), s	27.8	0.0	20.1				0.0	9.8	0.0	0.0	28.1	0.0
Cycle Q Clear(g_c), s	27.8	0.0	20.1				0.0	9.8	0.0	0.0	28.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	1404	0	782				0	4588	975	0	3441	975
V/C Ratio(X)	0.93	0.00	0.72				0.00	0.31	0.00	0.00	0.65	0.00
Avail Cap(c_a), veh/h	1514	0	844				0	4588	975	0	3441	975
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	38.5	0.0	35.7				0.0	10.0	0.0	0.0	13.5	0.0
Incr Delay (d2), s/veh	9.3	0.0	2.3				0.0	0.2	0.0	0.0	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.0	0.0	8.0				0.0	5.0	0.0	0.0	14.6	0.0
LnGrp Delay(d),s/veh	47.7	0.0	38.0				0.0	10.2	0.0	0.0	14.5	0.0
LnGrp LOS	D		D					B			B	
Approach Vol, veh/h		1865						1404			2233	
Approach Delay, s/veh		44.8						10.2			14.5	
Approach LOS		D						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		72.4		37.6		72.4		
Change Period (Y+Rc), s		* 4.7		6.7		4.7		
Max Green Setting (Gmax), s		* 66		33.3		65.3		
Max Q Clear Time (g_c+I1), s		30.1		29.8		11.8		
Green Ext Time (p_c), s		16.0		1.1		18.1		

Intersection Summary	
HCM 2010 Ctrl Delay	23.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	435	0	427	0	2280	262	0	2137	1520
Future Volume (veh/h)	0	0	0	435	0	427	0	2280	262	0	2137	1520
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				478	0	469	0	2375	0	0	2181	0
Adj No. of Lanes				2	0	2	0	3	1	0	3	2
Peak Hour Factor				0.91	0.91	0.91	0.96	0.96	0.96	0.98	0.98	0.98
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				651	0	527	0	3921	1111	0	3568	1955
Arrive On Green				0.19	0.00	0.19	0.00	0.70	0.00	0.00	0.70	0.00
Sat Flow, veh/h				3442	0	2787	0	5588	1583	0	5253	2787
Grp Volume(v), veh/h				478	0	469	0	2375	0	0	2181	0
Grp Sat Flow(s),veh/h/ln				1721	0	1393	0	1863	1583	0	1695	1393
Q Serve(g_s), s				14.4	0.0	18.0	0.0	24.3	0.0	0.0	24.6	0.0
Cycle Q Clear(g_c), s				14.4	0.0	18.0	0.0	24.3	0.0	0.0	24.6	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				651	0	527	0	3921	1111	0	3568	1955
V/C Ratio(X)				0.73	0.00	0.89	0.00	0.61	0.00	0.00	0.61	0.00
Avail Cap(c_a), veh/h				1032	0	836	0	3921	1111	0	3568	1955
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				42.0	0.0	43.5	0.0	8.5	0.0	0.0	8.6	0.0
Incr Delay (d2), s/veh				0.6	0.0	4.8	0.0	0.7	0.0	0.0	0.8	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.9	0.0	7.3	0.0	12.6	0.0	0.0	11.6	0.0
LnGrp Delay(d),s/veh				42.6	0.0	48.3	0.0	9.2	0.0	0.0	9.4	0.0
LnGrp LOS				D		D		A			A	
Approach Vol, veh/h					947			2375			2181	
Approach Delay, s/veh					45.4			9.2			9.4	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		82.2				82.2		27.8
Change Period (Y+Rc), s		* 5				5.0		7.0
Max Green Setting (Gmax), s		* 65				65.0		33.0
Max Q Clear Time (g_c+I1), s		26.6				26.3		20.0
Green Ext Time (p_c), s		24.3				24.4		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	112	13	245	34	25	39	34	272	2440	20	36	3317
Future Volume (veh/h)	112	13	245	34	25	39	34	272	2440	20	36	3317
Number	7	4	14	3	8	18		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	129	118	213	43	32	49		280	2515	21	39	3567
Adj No. of Lanes	0	1	1	1	1	0		2	3	0	1	3
Peak Hour Factor	0.87	0.87	0.87	0.79	0.79	0.79		0.97	0.97	0.97	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	151	138	251	119	44	68		333	3032	25	50	2604
Arrive On Green	0.16	0.16	0.16	0.07	0.07	0.07		0.10	0.58	0.58	0.03	0.51
Sat Flow, veh/h	948	867	1571	1774	663	1015		3442	5202	43	1774	5085
Grp Volume(v), veh/h	247	0	213	43	0	81		280	1638	898	39	3567
Grp Sat Flow(s),veh/h/ln	1815	0	1571	1774	0	1678		1721	1695	1855	1774	1695
Q Serve(g_s), s	16.9	0.0	16.8	3.0	0.0	6.0		10.2	49.6	49.9	2.8	65.2
Cycle Q Clear(g_c), s	16.9	0.0	16.8	3.0	0.0	6.0		10.2	49.6	49.9	2.8	65.2
Prop In Lane	0.52		1.00	1.00		0.60		1.00		0.02	1.00	
Lane Grp Cap(c), veh/h	289	0	251	119	0	112		333	1976	1081	50	2604
V/C Ratio(X)	0.85	0.00	0.85	0.36	0.00	0.72		0.84	0.83	0.83	0.78	1.37
Avail Cap(c_a), veh/h	492	0	426	481	0	455		538	1976	1081	281	2604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	0.0	52.0	56.8	0.0	58.2		56.6	21.4	21.5	61.5	31.1
Incr Delay (d2), s/veh	2.9	0.0	3.1	0.7	0.0	3.2		3.2	2.9	5.3	9.4	169.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	7.5	1.5	0.0	2.9		5.0	23.8	27.0	1.5	71.1
LnGrp Delay(d),s/veh	55.0	0.0	55.2	57.5	0.0	61.5		59.8	24.3	26.7	70.9	200.0
LnGrp LOS	D		E	E		E		E	C	C	E	F
Approach Vol, veh/h		460			124				2816			3691
Approach Delay, s/veh		55.1			60.1				28.6			194.4
Approach LOS		E			E				C			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.4	70.1		25.8	8.4	79.1		14.0
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 20	* 65		34.5	* 20	* 65		34.5
Max Q Clear Time (g_c+I1), s	12.2	67.2		18.9	4.8	51.9		8.0
Green Ext Time (p_c), s	0.1	0.0		0.6	0.0	12.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	117.2
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	79
Future Volume (veh/h)	79
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.97
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	85
Adj No. of Lanes	1
Peak Hour Factor	0.93
Percent Heavy Veh, %	2
Cap, veh/h	790
Arrive On Green	0.51
Sat Flow, veh/h	1543
Grp Volume(v), veh/h	85
Grp Sat Flow(s),veh/h/ln	1543
Q Serve(g_s), s	3.6
Cycle Q Clear(g_c), s	3.6
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	790
V/C Ratio(X)	0.11
Avail Cap(c_a), veh/h	790
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	16.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	1.5
LnGrp Delay(d),s/veh	16.1
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	36	3	10	779	1	414	338
Future Volume (veh/h)	36	3	10	779	1	414	338
Number	7	14	1	6		2	12
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863		1863	1863
Adj Flow Rate, veh/h	44	4	11	895		445	363
Adj No. of Lanes	2	1	1	2		2	1
Peak Hour Factor	0.81	0.81	0.87	0.87		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	114	66	16	1929		1235	605
Arrive On Green	0.03	0.03	0.01	0.54		0.35	0.35
Sat Flow, veh/h	3442	1583	1774	3632		3632	1583
Grp Volume(v), veh/h	44	4	11	895		445	363
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770		1770	1583
Q Serve(g_s), s	0.4	0.1	0.2	4.5		2.8	5.4
Cycle Q Clear(g_c), s	0.4	0.1	0.2	4.5		2.8	5.4
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	114	66	16	1929		1235	605
V/C Ratio(X)	0.39	0.06	0.71	0.46		0.36	0.60
Avail Cap(c_a), veh/h	6383	2950	1177	6432		6396	2914
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	13.9	13.5	14.5	4.1		7.1	7.3
Incr Delay (d2), s/veh	0.8	0.1	19.5	0.1		0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.2	2.1		1.3	2.5
LnGrp Delay(d),s/veh	14.7	13.7	34.0	4.1		7.2	7.6
LnGrp LOS	B	B	C	A		A	A
Approach Vol, veh/h	48			906		808	
Approach Delay, s/veh	14.6			4.5		7.4	
Approach LOS	B			A		A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	5.8	17.2		6.5		22.9		
Change Period (Y+Rc), s	5.5	* 6.9		5.5		* 6.9		
Max Green Setting (Gmax), s	19.5	* 53		54.5		* 53		
Max Q Clear Time (g_c+I1), s	2.2	7.4		2.4		6.5		
Green Ext Time (p_c), s	0.0	2.9		0.0		2.9		

Intersection Summary	
HCM 2010 Ctrl Delay	6.1
HCM 2010 LOS	A

Notes

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Volume (veh/h)	1	571	234	0	347	165	43	443
Future Volume (veh/h)	1	571	234	0	347	165	43	443
Number		1	6		2	12	3	18
Initial Q (Qb), veh		0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00				1.00	1.00	1.00
Parking Bus, Adj		1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h		672	275		403	192	48	492
Adj No. of Lanes		1	2		2	1	1	1
Peak Hour Factor		0.85	0.85		0.86	0.86	0.90	0.90
Percent Heavy Veh, %		2	2		2	2	2	2
Cap, veh/h		582	1905		541	242	581	518
Arrive On Green		0.33	0.54		0.15	0.15	0.33	0.33
Sat Flow, veh/h		1774	3632		3632	1583	1774	1583
Grp Volume(v), veh/h		672	275		403	192	48	492
Grp Sat Flow(s),veh/h/ln		1774	1770		1770	1583	1774	1583
Q Serve(g_s), s		29.8	3.5		9.9	10.6	1.7	27.5
Cycle Q Clear(g_c), s		29.8	3.5		9.9	10.6	1.7	27.5
Prop In Lane		1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h		582	1905		541	242	581	518
V/C Ratio(X)		1.15	0.14		0.74	0.79	0.08	0.95
Avail Cap(c_a), veh/h		582	2471		2467	1104	674	602
HCM Platoon Ratio		1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		30.5	10.5		36.8	37.1	21.1	29.8
Incr Delay (d2), s/veh		87.7	0.0		0.8	2.2	0.0	22.0
Initial Q Delay(d3),s/veh		0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		28.7	1.7		4.9	4.8	0.8	15.2
LnGrp Delay(d),s/veh		118.2	10.5		37.5	39.3	21.1	51.8
LnGrp LOS		F	B		D	D	C	D
Approach Vol, veh/h			947		595		540	
Approach Delay, s/veh			87.0		38.1		49.1	
Approach LOS			F		D		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	35.0	20.6				55.6		35.2
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 30	* 63				* 63		34.5
Max Q Clear Time (g_c+I1), s	31.8	12.6				5.5		29.5
Green Ext Time (p_c), s	0.0	1.3				1.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	63.2
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	168	427	198	38	279	86	11	106	750	24	4	198
Future Volume (veh/h)	168	427	198	38	279	86	11	106	750	24	4	198
Number	3	8	18	7	4	14		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1900		1863
Adj Flow Rate, veh/h	179	454	211	41	303	93		115	815	26		208
Adj No. of Lanes	1	1	1	1	1	1		1	2	0		1
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92		0.92	0.92	0.92		0.95
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	203	491	418	53	334	284		138	1373	44		232
Arrive On Green	0.11	0.26	0.26	0.03	0.18	0.18		0.08	0.39	0.39		0.13
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583		1774	3501	112		1774
Grp Volume(v), veh/h	179	454	211	41	303	93		115	412	429		208
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583		1774	1770	1843		1774
Q Serve(g_s), s	14.0	33.4	15.9	3.2	22.4	7.2		9.0	25.9	25.9		16.2
Cycle Q Clear(g_c), s	14.0	33.4	15.9	3.2	22.4	7.2		9.0	25.9	25.9		16.2
Prop In Lane	1.00		1.00	1.00		1.00		1.00		0.06		1.00
Lane Grp Cap(c), veh/h	203	491	418	53	334	284		138	694	723		232
V/C Ratio(X)	0.88	0.92	0.51	0.78	0.91	0.33		0.83	0.59	0.59		0.90
Avail Cap(c_a), veh/h	309	491	418	246	432	367		246	788	820		309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	61.3	50.4	44.0	67.7	56.6	50.3		63.9	33.8	33.8		60.2
Incr Delay (d2), s/veh	12.1	22.9	0.4	8.7	17.0	0.2		4.9	0.5	0.4		19.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	7.5	20.3	7.0	1.7	13.1	3.2		4.6	12.8	13.3		9.2
LnGrp Delay(d),s/veh	73.5	73.3	44.4	76.4	73.6	50.6		68.9	34.3	34.3		79.3
LnGrp LOS	E	E	D	E	E	D		E	C	C		E
Approach Vol, veh/h		844			437				956			
Approach Delay, s/veh		66.1			69.0				38.5			
Approach LOS		E			E				D			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.4	70.0	21.6	32.6	23.9	62.6	9.7	44.5
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	19.5	62.6	24.5	32.6	24.5	62.6	19.5	* 33
Max Q Clear Time (g_c+I1), s	11.0	64.6	16.0	24.4	18.2	27.9	5.2	35.4
Green Ext Time (p_c), s	0.1	0.0	0.1	0.8	0.1	16.9	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	80.1
HCM 2010 LOS	F

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1711	153
Future Volume (veh/h)	1711	153
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	1801	0
Adj No. of Lanes	2	1
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	2	2
Cap, veh/h	1576	705
Arrive On Green	0.45	0.00
Sat Flow, veh/h	3539	1583
Grp Volume(v), veh/h	1801	0
Grp Sat Flow(s),veh/h/ln	1770	1583
Q Serve(g_s), s	62.6	0.0
Cycle Q Clear(g_c), s	62.6	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	1576	705
V/C Ratio(X)	1.14	0.00
Avail Cap(c_a), veh/h	1576	705
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	39.0	0.0
Incr Delay (d2), s/veh	72.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	46.3	0.0
LnGrp Delay(d),s/veh	111.5	0.0
LnGrp LOS	F	
Approach Vol, veh/h	2009	
Approach Delay, s/veh	108.2	
Approach LOS	F	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	456	78	130	299	5	29	87	96	11	537	67
Future Volume (veh/h)	71	456	78	130	299	5	29	87	96	11	537	67
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	72	461	79	148	340	6	34	101	112	12	610	76
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.88	0.88	0.88	0.86	0.86	0.86	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	860	147	186	1202	21	41	248	274	67	522	65
Arrive On Green	0.05	0.28	0.28	0.11	0.34	0.34	0.02	0.31	0.31	0.04	0.32	0.32
Sat Flow, veh/h	1774	3026	516	1774	3559	63	1774	808	896	1774	1625	202
Grp Volume(v), veh/h	72	269	271	148	169	177	34	0	213	12	0	686
Grp Sat Flow(s),veh/h/ln	1774	1770	1772	1774	1770	1852	1774	0	1705	1774	0	1827
Q Serve(g_s), s	2.6	8.2	8.3	5.2	4.5	4.5	1.2	0.0	6.3	0.4	0.0	20.5
Cycle Q Clear(g_c), s	2.6	8.2	8.3	5.2	4.5	4.5	1.2	0.0	6.3	0.4	0.0	20.5
Prop In Lane	1.00		0.29	1.00		0.03	1.00		0.53	1.00		0.11
Lane Grp Cap(c), veh/h	92	503	504	186	598	625	41	0	522	67	0	587
V/C Ratio(X)	0.78	0.53	0.54	0.79	0.28	0.28	0.84	0.00	0.41	0.18	0.00	1.17
Avail Cap(c_a), veh/h	306	1539	1541	306	1539	1611	306	0	548	306	0	587
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	19.3	19.3	27.9	15.5	15.5	31.1	0.0	17.5	29.7	0.0	21.7
Incr Delay (d2), s/veh	5.4	1.3	1.3	2.9	0.4	0.3	15.2	0.0	2.4	0.5	0.0	93.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	4.1	4.2	2.7	2.2	2.3	0.8	0.0	3.3	0.2	0.0	25.5
LnGrp Delay(d),s/veh	35.3	20.5	20.6	30.8	15.8	15.8	46.2	0.0	19.9	30.2	0.0	114.9
LnGrp LOS	D	C	C	C	B	B	D		B	C		F
Approach Vol, veh/h		612			494			247			698	
Approach Delay, s/veh		22.3			20.3			23.5			113.4	
Approach LOS		C			C			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	26.1	5.5	25.0	10.7	22.6	6.4	24.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	11.0	55.5	11.0	20.5	11.0	55.5	11.0	20.5
Max Q Clear Time (g_c+I1), s	4.6	6.5	3.2	22.5	7.2	10.3	2.4	8.3
Green Ext Time (p_c), s	0.0	7.9	0.0	0.0	0.0	7.9	0.0	9.7

Intersection Summary	
HCM 2010 Ctrl Delay	53.0
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	18.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	551	0	15	315	2	4	6	1	0	158	115
Future Vol, veh/h	19	551	0	15	315	2	4	6	1	0	158	115
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	350	-	-	350	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	79	79	79	70	70	70	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	592	0	19	399	3	6	9	1	0	216	158

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	401	0	0	592	0	0	1179	1072	592	1076	1071	400
Stage 1	-	-	-	-	-	-	633	633	-	438	438	-
Stage 2	-	-	-	-	-	-	546	439	-	638	633	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1158	-	-	984	-	-	167	220	506	197	221	650
Stage 1	-	-	-	-	-	-	468	473	-	597	579	-
Stage 2	-	-	-	-	-	-	522	578	-	465	473	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1158	-	-	984	-	-	-	212	506	185	~ 213	650
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	212	-	185	~ 213	-
Stage 1	-	-	-	-	-	-	460	465	-	587	568	-
Stage 2	-	-	-	-	-	-	240	567	-	447	465	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4		70.9
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	506	1158	-	-	984	-	-	213	650
HCM Lane V/C Ratio	-	0.003	0.018	-	-	0.019	-	-	1.016	0.242
HCM Control Delay (s)	-	12.1	8.2	-	-	8.7	-	-	113.5	12.3
HCM Lane LOS	-	B	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	-	0	0.1	-	-	0.1	-	-	9.2	0.9

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	453	12	28	250	137	7	331	23	227	844	93
Future Volume (veh/h)	125	453	12	28	250	137	7	331	23	227	844	93
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	133	482	13	30	269	147	7	341	24	232	861	95
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	512	435	38	384	327	46	633	45	259	910	916
Arrive On Green	0.09	0.28	0.28	0.02	0.21	0.21	0.03	0.37	0.37	0.15	0.49	0.49
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1720	121	1774	1863	1583
Grp Volume(v), veh/h	133	482	13	30	269	147	7	0	365	232	861	95
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	0	1841	1774	1863	1583
Q Serve(g_s), s	8.6	29.6	0.7	2.0	15.7	9.5	0.5	0.0	18.3	15.0	51.4	3.1
Cycle Q Clear(g_c), s	8.6	29.6	0.7	2.0	15.7	9.5	0.5	0.0	18.3	15.0	51.4	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	159	512	435	38	384	327	46	0	678	259	910	916
V/C Ratio(X)	0.83	0.94	0.03	0.80	0.70	0.45	0.15	0.00	0.54	0.90	0.95	0.10
Avail Cap(c_a), veh/h	311	529	449	311	529	449	311	0	1001	372	1019	1009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	41.5	31.0	57.0	43.1	40.6	55.7	0.0	29.1	49.1	28.5	11.1
Incr Delay (d2), s/veh	4.3	24.4	0.0	13.3	1.0	0.4	0.6	0.0	0.2	14.1	15.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	18.7	0.3	1.1	8.2	4.2	0.2	0.0	9.4	8.4	30.2	1.4
LnGrp Delay(d),s/veh	56.7	65.9	31.0	70.3	44.1	41.0	56.3	0.0	29.4	63.2	43.8	11.1
LnGrp LOS	E	E	C	E	D	D	E		C	E	D	B
Approach Vol, veh/h		628			446			372			1188	
Approach Delay, s/veh		63.2			44.8			29.9			44.9	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	30.9	7.5	63.5	7.0	39.0	21.6	49.4
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	20.5	33.2	20.5	* 64	20.5	33.2	24.5	63.6
Max Q Clear Time (g_c+I1), s	10.6	17.7	2.5	53.4	4.0	31.6	17.0	20.3
Green Ext Time (p_c), s	0.0	2.4	0.0	3.7	0.0	0.6	0.1	5.1

Intersection Summary	
HCM 2010 Ctrl Delay	47.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	32	661	3	1	53	344	41	3	324	67	61	378
Future Volume (veh/h)	32	661	3	1	53	344	41	3	324	67	61	378
Number	1	6	16		5	2	12	3	8	18	7	4
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.98	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900		1863	1863	1900	1900	1863	1900	1900	1863
Adj Flow Rate, veh/h	36	743	3		62	400	48	3	352	73	69	430
Adj No. of Lanes	1	1	0		1	1	0	0	1	0	0	1
Peak Hour Factor	0.89	0.89	0.89		0.86	0.86	0.86	0.92	0.92	0.92	0.88	0.88
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	46	684	3		78	629	76	3	328	68	50	312
Arrive On Green	0.03	0.37	0.37		0.04	0.39	0.39	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1774	1854	7		1774	1628	195	13	1487	308	226	1409
Grp Volume(v), veh/h	36	0	746		62	0	448	428	0	0	555	0
Grp Sat Flow(s),veh/h/ln	1774	0	1861		1774	0	1823	1808	0	0	1819	0
Q Serve(g_s), s	3.5	0.0	63.6		6.0	0.0	34.5	38.0	0.0	0.0	38.2	0.0
Cycle Q Clear(g_c), s	3.5	0.0	63.6		6.0	0.0	34.5	38.0	0.0	0.0	38.2	0.0
Prop In Lane	1.00		0.00		1.00		0.11	0.01		0.17	0.12	
Lane Grp Cap(c), veh/h	46	0	686		78	0	705	398	0	0	403	0
V/C Ratio(X)	0.78	0.00	1.09		0.80	0.00	0.64	1.07	0.00	0.00	1.38	0.00
Avail Cap(c_a), veh/h	262	0	686		211	0	705	398	0	0	403	0
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	83.5	0.0	54.4		81.7	0.0	43.0	67.2	0.0	0.0	67.1	0.0
Incr Delay (d2), s/veh	9.8	0.0	60.3		6.7	0.0	1.5	66.5	0.0	0.0	184.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	44.1		3.1	0.0	17.7	26.3	0.0	0.0	39.8	0.0
LnGrp Delay(d),s/veh	93.3	0.0	114.8		88.4	0.0	44.5	133.7	0.0	0.0	252.0	0.0
LnGrp LOS	F		F		F		D	F			F	
Approach Vol, veh/h		782				510			428			555
Approach Delay, s/veh		113.8				49.8			133.7			252.0
Approach LOS		F				D			F			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	73.5		45.0	12.1	70.4		45.0
Change Period (Y+Rc), s	4.5	6.8		6.8	4.5	* 6.8		7.0
Max Green Setting (Gmax), s	25.5	63.2		38.2	20.5	* 64		38.0
Max Q Clear Time (g_c+I1), s	5.5	36.5		40.2	8.0	65.6		40.0
Green Ext Time (p_c), s	0.0	4.4		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	136.9
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	49
Future Volume (veh/h)	49
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	56
Adj No. of Lanes	0
Peak Hour Factor	0.88
Percent Heavy Veh, %	2
Cap, veh/h	41
Arrive On Green	0.22
Sat Flow, veh/h	184
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.10
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	577	0	0	352	0	0
Future Volume (veh/h)	577	0	0	352	0	0
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	627	0	0	383	0	0
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1274	0	0	1274	12	11
Arrive On Green	0.68	0.00	0.00	0.68	0.00	0.00
Sat Flow, veh/h	1863	0	0	1863	1774	1583
Grp Volume(v), veh/h	627	0	0	383	0	0
Grp Sat Flow(s),veh/h/ln	1863	0	0	1863	1774	1583
Q Serve(g_s), s	2.3	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	2.3	0.0	0.0	1.2	0.0	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1274	0	0	1274	12	11
V/C Ratio(X)	0.49	0.00	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	2353	0	0	2353	2241	2000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.1	0.0	0.0	0.9	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.6	0.0	0.0
LnGrp Delay(d),s/veh	1.4	0.0	0.0	1.0	0.0	0.0
LnGrp LOS	A			A		
Approach Vol, veh/h	627			383	0	
Approach Delay, s/veh	1.4			1.0	0.0	
Approach LOS	A			A		

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		0.0		14.2				14.2
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		18.0		18.0				18.0
Max Q Clear Time (g_c+I1), s		0.0		4.3				3.2
Green Ext Time (p_c), s		0.0		5.6				5.9

Intersection Summary	
HCM 2010 Ctrl Delay	1.2
HCM 2010 LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	29	5	283	772	152
Future Volume (veh/h)	96	29	5	283	772	152
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	104	32	6	329	788	155
Adj No. of Lanes	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.86	0.86	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	148	132	9	1265	850	167
Arrive On Green	0.08	0.08	0.00	0.68	0.56	0.56
Sat Flow, veh/h	1774	1583	1774	1863	1507	296
Grp Volume(v), veh/h	104	32	6	329	0	943
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	0	1803
Q Serve(g_s), s	2.9	0.9	0.2	3.4	0.0	23.9
Cycle Q Clear(g_c), s	2.9	0.9	0.2	3.4	0.0	23.9
Prop In Lane	1.00	1.00	1.00			0.16
Lane Grp Cap(c), veh/h	148	132	9	1265	0	1017
V/C Ratio(X)	0.70	0.24	0.71	0.26	0.00	0.93
Avail Cap(c_a), veh/h	1226	1094	744	2382	0	2287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.3	21.5	24.9	3.1	0.0	10.0
Incr Delay (d2), s/veh	2.3	0.3	32.5	0.0	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.4	0.2	1.8	0.0	12.0
LnGrp Delay(d),s/veh	24.6	21.8	57.4	3.2	0.0	11.7
LnGrp LOS	C	C	E	A		B
Approach Vol, veh/h	136			335	943	
Approach Delay, s/veh	23.9			4.1	11.7	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.7	34.7				40.5		9.6
Change Period (Y+Rc), s	5.5	* 6.5				* 6.5		5.4
Max Green Setting (Gmax), s	21.0	* 64				* 64		34.6
Max Q Clear Time (g_c+I1), s	2.2	25.9				5.4		4.9
Green Ext Time (p_c), s	0.0	2.3				2.3		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.1
HCM 2010 LOS	B

Notes

Intersection	
Intersection Delay, s/veh	27.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	2	0	14	0	31	0	384	4	176	452	2
Future Vol, veh/h	3	2	0	14	0	31	0	384	4	176	452	2
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.96	0.96	0.96	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	3	0	20	0	44	0	400	4	198	508	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	9.9	13.9	36.6
HCM LOS	A	A	B	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	60%	31%	28%
Vol Thru, %	99%	40%	0%	72%
Vol Right, %	1%	0%	69%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	388	5	45	630
LT Vol	0	3	14	176
Through Vol	384	2	0	452
RT Vol	4	0	31	2
Lane Flow Rate	404	7	64	708
Geometry Grp	1	1	1	1
Degree of Util (X)	0.551	0.013	0.109	0.915
Departure Headway (Hd)	4.904	6.793	6.126	4.654
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	728	530	589	772
Service Time	2.978	4.797	4.126	2.716
HCM Lane V/C Ratio	0.555	0.013	0.109	0.917
HCM Control Delay	13.9	9.9	9.9	36.6
HCM Lane LOS	B	A	A	E
HCM 95th-tile Q	3.4	0	0.4	12.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	352	7	1	443	9	7	15	1	11	35	762
Future Volume (veh/h)	268	352	7	1	443	9	7	15	1	11	35	762
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	288	378	0	1	461	9	8	18	1	12	38	819
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.85	0.85	0.85	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	843	717	2	501	10	18	40	2	140	442	772
Arrive On Green	0.18	0.45	0.00	0.00	0.28	0.28	0.03	0.03	0.03	0.32	0.32	0.32
Sat Flow, veh/h	1774	1863	1583	1774	1820	36	540	1216	68	442	1399	1550
Grp Volume(v), veh/h	288	378	0	1	0	470	27	0	0	50	0	819
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1856	1824	0	0	1841	0	1550
Q Serve(g_s), s	17.3	15.2	0.0	0.1	0.0	26.8	1.6	0.0	0.0	2.1	0.0	34.4
Cycle Q Clear(g_c), s	17.3	15.2	0.0	0.1	0.0	26.8	1.6	0.0	0.0	2.1	0.0	34.4
Prop In Lane	1.00		1.00	1.00		0.02	0.30		0.04	0.24		1.00
Lane Grp Cap(c), veh/h	316	843	717	2	0	511	60	0	0	582	0	772
V/C Ratio(X)	0.91	0.45	0.00	0.61	0.00	0.92	0.45	0.00	0.00	0.09	0.00	1.06
Avail Cap(c_a), veh/h	399	1098	934	318	0	1091	596	0	0	582	0	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.9	20.5	0.0	54.4	0.0	38.3	51.7	0.0	0.0	26.2	0.0	27.7
Incr Delay (d2), s/veh	19.2	0.1	0.0	91.9	0.0	3.0	1.9	0.0	0.0	0.0	0.0	49.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	7.8	0.0	0.1	0.0	14.1	0.8	0.0	0.0	1.1	0.0	33.7
LnGrp Delay(d),s/veh	63.1	20.6	0.0	146.2	0.0	41.3	53.6	0.0	0.0	26.2	0.0	77.6
LnGrp LOS	E	C		F		D	D			C		F
Approach Vol, veh/h		666			471			27			869	
Approach Delay, s/veh		39.0			41.5			53.6			74.6	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.9	36.0		40.0	5.6	55.3		8.0
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		4.4
Max Green Setting (Gmax), s	24.5	64.0		* 34	19.5	* 64		35.6
Max Q Clear Time (g_c+I1), s	19.3	28.8		36.4	2.1	17.2		3.6
Green Ext Time (p_c), s	0.1	1.2		0.0	0.0	1.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	55.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	292	18	58	196	204	5	54	29	523	156	362
Future Volume (veh/h)	67	292	18	58	196	204	5	54	29	523	156	362
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	73	317	20	76	258	268	6	68	37	581	173	402
Adj No. of Lanes	1	2	0	1	1	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.76	0.76	0.76	0.79	0.79	0.79	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	751	47	96	404	343	9	123	67	713	579	492
Arrive On Green	0.05	0.22	0.22	0.05	0.22	0.22	0.00	0.11	0.11	0.21	0.31	0.31
Sat Flow, veh/h	1774	3377	212	1774	1863	1583	1774	1136	618	3442	1863	1583
Grp Volume(v), veh/h	73	165	172	76	258	268	6	0	105	581	173	402
Grp Sat Flow(s),veh/h/ln	1774	1770	1819	1774	1863	1583	1774	0	1754	1721	1863	1583
Q Serve(g_s), s	2.1	4.0	4.1	2.1	6.4	8.1	0.2	0.0	2.9	8.1	3.6	11.8
Cycle Q Clear(g_c), s	2.1	4.0	4.1	2.1	6.4	8.1	0.2	0.0	2.9	8.1	3.6	11.8
Prop In Lane	1.00		0.12	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	92	394	405	96	404	343	9	0	190	713	579	492
V/C Ratio(X)	0.80	0.42	0.42	0.79	0.64	0.78	0.71	0.00	0.55	0.82	0.30	0.82
Avail Cap(c_a), veh/h	685	2281	2345	699	2405	2044	685	0	2264	1329	2394	2035
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	16.8	16.9	23.6	18.0	18.6	25.1	0.0	21.3	19.1	13.2	16.1
Incr Delay (d2), s/veh	5.8	0.3	0.3	5.5	0.6	1.5	32.5	0.0	0.9	0.9	0.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.0	2.1	1.2	3.3	3.6	0.2	0.0	1.4	4.0	1.8	5.3
LnGrp Delay(d),s/veh	29.5	17.1	17.1	29.1	18.6	20.1	57.6	0.0	22.3	20.0	13.3	17.4
LnGrp LOS	C	B	B	C	B	C	E		C	B	B	B
Approach Vol, veh/h		410			602			111			1156	
Approach Delay, s/veh		19.3			20.6			24.2			18.1	
Approach LOS		B			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	15.9	5.7	20.8	7.8	16.1	16.0	10.6
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	19.5	* 65	19.5	* 65	* 20	* 65	19.5	* 65
Max Q Clear Time (g_c+I1), s	4.1	10.1	2.2	13.8	4.1	6.1	10.1	4.9
Green Ext Time (p_c), s	0.0	0.9	0.0	0.6	0.0	0.9	0.3	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Notes

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	5	58	305	452	137	107	104	3	177	805	111	3
Future Volume (veh/h)	5	58	305	452	137	107	104	3	177	805	111	3
Number		7	4	14	3	8	18		5	2	12	
Initial Q (Qb), veh		0	0	0	0	0	0		0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln		1863	1863	1863	1863	1863	1863		1863	1863	1863	
Adj Flow Rate, veh/h		60	318	471	167	130	127		195	885	122	
Adj No. of Lanes		2	3	1	2	2	1		2	3	1	
Peak Hour Factor		0.96	0.96	0.96	0.82	0.82	0.82		0.91	0.91	0.91	
Percent Heavy Veh, %		2	2	2	2	2	2		2	2	2	
Cap, veh/h		98	1213	378	215	964	426		243	2171	668	
Arrive On Green		0.03	0.24	0.24	0.06	0.27	0.27		0.07	0.43	0.43	
Sat Flow, veh/h		3442	5085	1583	3442	3539	1563		3442	5085	1564	
Grp Volume(v), veh/h		60	318	471	167	130	127		195	885	122	
Grp Sat Flow(s),veh/h/ln		1721	1695	1583	1721	1770	1563		1721	1695	1564	
Q Serve(g_s), s		2.4	7.1	33.3	6.7	3.9	9.0		7.8	16.9	6.8	
Cycle Q Clear(g_c), s		2.4	7.1	33.3	6.7	3.9	9.0		7.8	16.9	6.8	
Prop In Lane		1.00		1.00	1.00		1.00		1.00		1.00	
Lane Grp Cap(c), veh/h		98	1213	378	215	964	426		243	2171	668	
V/C Ratio(X)		0.61	0.26	1.25	0.78	0.13	0.30		0.80	0.41	0.18	
Avail Cap(c_a), veh/h		481	1213	378	481	964	426		481	2284	702	
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Uniform Delay (d), s/veh		67.0	43.2	53.1	64.5	38.4	40.2		63.9	27.8	24.9	
Incr Delay (d2), s/veh		2.3	0.0	131.5	2.3	0.0	0.1		2.3	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.2	3.3	28.3	3.2	1.9	3.9		3.8	7.9	2.9	
LnGrp Delay(d),s/veh		69.3	43.2	184.7	66.7	38.4	40.4		66.2	27.8	24.9	
LnGrp LOS		E	D	F	E	D	D		E	C	C	
Approach Vol, veh/h			849			424				1202		
Approach Delay, s/veh			123.5			50.1				33.7		
Approach LOS			F			D				C		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	67.0	14.2	40.1	15.4	69.9	9.5	44.8
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	19.5	* 63	19.5	* 33	19.5	* 63	19.5	33.2
Max Q Clear Time (g_c+I1), s	12.7	18.9	8.7	35.3	9.8	61.9	4.4	11.0
Green Ext Time (p_c), s	0.1	11.3	0.1	0.0	0.1	0.6	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	59.3
HCM 2010 LOS	E

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	243	2023	124
Future Volume (veh/h)	243	2023	124
Number	1	6	16
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863
Adj Flow Rate, veh/h	267	2223	136
Adj No. of Lanes	2	3	1
Peak Hour Factor	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2
Cap, veh/h	315	2277	709
Arrive On Green	0.09	0.45	0.45
Sat Flow, veh/h	3442	5085	1583
Grp Volume(v), veh/h	267	2223	136
Grp Sat Flow(s),veh/h/ln	1721	1695	1583
Q Serve(g_s), s	10.7	59.9	7.2
Cycle Q Clear(g_c), s	10.7	59.9	7.2
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	315	2277	709
V/C Ratio(X)	0.85	0.98	0.19
Avail Cap(c_a), veh/h	481	2280	710
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.5	37.8	23.3
Incr Delay (d2), s/veh	5.4	13.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	30.9	3.2
LnGrp Delay(d),s/veh	67.8	51.5	23.3
LnGrp LOS	E	D	C
Approach Vol, veh/h		2626	
Approach Delay, s/veh		51.7	
Approach LOS		D	
Timer			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	185	120	37	403	501	172
Future Volume (veh/h)	185	120	37	403	501	172
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1900
Adj Flow Rate, veh/h	206	133	40	433	611	210
Adj No. of Lanes	0	0	1	1	1	0
Peak Hour Factor	0.90	0.90	0.93	0.93	0.82	0.82
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	234	151	48	1115	659	227
Arrive On Green	0.23	0.23	0.03	0.60	0.50	0.50
Sat Flow, veh/h	1027	663	1774	1863	1326	456
Grp Volume(v), veh/h	340	0	40	433	0	821
Grp Sat Flow(s),veh/h/ln	1694	0	1774	1863	0	1782
Q Serve(g_s), s	12.0	0.0	1.4	7.5	0.0	26.7
Cycle Q Clear(g_c), s	12.0	0.0	1.4	7.5	0.0	26.7
Prop In Lane	0.61	0.39	1.00			0.26
Lane Grp Cap(c), veh/h	386	0	48	1115	0	886
V/C Ratio(X)	0.88	0.00	0.83	0.39	0.00	0.93
Avail Cap(c_a), veh/h	964	0	583	1927	0	1835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	30.0	6.5	0.0	14.6
Incr Delay (d2), s/veh	2.7	0.0	12.2	0.1	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	0.8	3.9	0.0	13.5
LnGrp Delay(d),s/veh	25.8	0.0	42.3	6.6	0.0	16.5
LnGrp LOS	C		D	A		B
Approach Vol, veh/h	340			473	821	
Approach Delay, s/veh	25.8			9.6	16.5	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.3	36.9				43.2		18.8
Change Period (Y+Rc), s	* 4.6	* 6.1				* 6.1		4.7
Max Green Setting (Gmax), s	* 20	* 64				* 64		35.3
Max Q Clear Time (g_c+I1), s	3.4	28.7				9.5		14.0
Green Ext Time (p_c), s	0.0	2.2				2.2		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

Notes

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	2	20	907	184	392	659	27	184	167	687	18	54
Future Volume (veh/h)	2	20	907	184	392	659	27	184	167	687	18	54
Number		1	6	16	5	2	12	3	8	18	7	4
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.97	1.00		0.96	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863
Adj Flow Rate, veh/h		24	1093	0	431	724	30	205	477	494	24	72
Adj No. of Lanes		1	2	1	2	2	0	1	1	1	0	2
Peak Hour Factor		0.83	0.83	0.83	0.91	0.91	0.91	0.87	0.87	0.87	0.75	0.75
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		30	1194	534	476	1585	66	456	479	609	79	240
Arrive On Green		0.02	0.34	0.00	0.14	0.46	0.46	0.26	0.26	0.26	0.12	0.12
Sat Flow, veh/h		1774	3539	1583	3442	3459	143	1774	1863	1518	690	2085
Grp Volume(v), veh/h		24	1093	0	431	370	384	205	477	494	64	0
Grp Sat Flow(s),veh/h/ln		1774	1770	1583	1721	1770	1833	1774	1863	1518	1828	0
Q Serve(g_s), s		1.8	40.1	0.0	16.7	19.4	19.4	13.1	34.6	34.8	4.3	0.0
Cycle Q Clear(g_c), s		1.8	40.1	0.0	16.7	19.4	19.4	13.1	34.6	34.8	4.3	0.0
Prop In Lane		1.00		1.00	1.00		0.08	1.00		1.00	0.38	
Lane Grp Cap(c), veh/h		30	1194	534	476	811	840	456	479	609	210	0
V/C Ratio(X)		0.80	0.92	0.00	0.91	0.46	0.46	0.45	1.00	0.81	0.30	0.00
Avail Cap(c_a), veh/h		258	1707	764	503	855	885	456	479	609	466	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		66.3	43.0	0.0	57.5	25.1	25.1	42.2	50.2	36.7	54.9	0.0
Incr Delay (d2), s/veh		16.7	4.9	0.0	18.6	0.1	0.1	0.3	40.0	7.6	0.3	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	20.4	0.0	9.2	9.5	9.8	6.5	23.1	17.7	2.2	0.0
LnGrp Delay(d),s/veh		83.1	47.9	0.0	76.1	25.3	25.3	42.5	90.3	44.3	55.2	0.0
LnGrp LOS		F	D		E	C	C	D	F	D	E	
Approach Vol, veh/h			1117			1185			1176			120
Approach Delay, s/veh			48.6			43.8			62.6			55.2
Approach LOS			D			D			E			E

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	66.7		21.1	23.9	50.4		40.0
Change Period (Y+Rc), s	* 5.3	* 4.7		5.5	* 5.2	* 4.7		5.2
Max Green Setting (Gmax), s	* 20	* 65		34.5	* 20	* 65		34.8
Max Q Clear Time (g_c+I1), s	3.8	21.4		6.3	18.7	42.1		36.8
Green Ext Time (p_c), s	0.0	3.7		0.1	0.0	3.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.8
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	18
Future Volume (veh/h)	18
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.90
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	24
Adj No. of Lanes	0
Peak Hour Factor	0.75
Percent Heavy Veh, %	2
Cap, veh/h	81
Arrive On Green	0.12
Sat Flow, veh/h	701
Grp Volume(v), veh/h	56
Grp Sat Flow(s),veh/h/ln	1648
Q Serve(g_s), s	4.2
Cycle Q Clear(g_c), s	4.2
Prop In Lane	0.43
Lane Grp Cap(c), veh/h	190
V/C Ratio(X)	0.30
Avail Cap(c_a), veh/h	420
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	54.9
Incr Delay (d2), s/veh	0.3
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	2.0
LnGrp Delay(d),s/veh	55.2
LnGrp LOS	E
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	343	0	310	0	1102	1059	0	568	326
Future Volume (veh/h)	0	0	0	343	0	310	0	1102	1059	0	568	326
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	0	1863	1900	0	1863	1900
Adj Flow Rate, veh/h				371	27	352	0	1136	0	0	684	0
Adj No. of Lanes				1	1	0	0	2	0	0	2	0
Peak Hour Factor				0.88	0.88	0.88	0.97	0.97	0.97	0.83	0.83	0.83
Percent Heavy Veh, %				2	2	2	0	2	2	0	2	2
Cap, veh/h				463	29	380	0	2297	0	0	2297	0
Arrive On Green				0.26	0.26	0.26	0.00	0.65	0.00	0.00	0.65	0.00
Sat Flow, veh/h				1774	112	1456	0	3725	0	0	3725	0
Grp Volume(v), veh/h				371	0	379	0	1136	0	0	684	0
Grp Sat Flow(s),veh/h/ln				1774	0	1568	0	1770	0	0	1770	0
Q Serve(g_s), s				21.5	0.0	25.9	0.0	18.3	0.0	0.0	9.3	0.0
Cycle Q Clear(g_c), s				21.5	0.0	25.9	0.0	18.3	0.0	0.0	9.3	0.0
Prop In Lane				1.00		0.93	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				463	0	409	0	2297	0	0	2297	0
V/C Ratio(X)				0.80	0.00	0.93	0.00	0.49	0.00	0.00	0.30	0.00
Avail Cap(c_a), veh/h				566	0	500	0	2297	0	0	2297	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				38.0	0.0	39.6	0.0	10.0	0.0	0.0	8.4	0.0
Incr Delay (d2), s/veh				5.4	0.0	19.3	0.0	0.8	0.0	0.0	0.3	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.2	0.0	13.4	0.0	9.1	0.0	0.0	4.6	0.0
LnGrp Delay(d),s/veh				43.4	0.0	58.9	0.0	10.7	0.0	0.0	8.7	0.0
LnGrp LOS				D		E		B			A	
Approach Vol, veh/h					750			1136			684	
Approach Delay, s/veh					51.2			10.7			8.7	
Approach LOS					D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		76.4				76.4		33.6
Change Period (Y+Rc), s		* 5				5.0		4.9
Max Green Setting (Gmax), s		* 66				65.0		35.1
Max Q Clear Time (g_c+I1), s		11.3				20.3		27.9
Green Ext Time (p_c), s		4.9				4.8		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	22.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	534	0	614	0	0	0	0	1527	828	0	664	215
Future Volume (veh/h)	534	0	614	0	0	0	0	1527	828	0	664	215
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	819	0	440				0	1776	0	0	706	0
Adj No. of Lanes	2	0	1				0	3	0	0	2	1
Peak Hour Factor	0.90	0.90	0.90				0.86	0.86	0.86	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	2
Cap, veh/h	1047	0	466				0	3104	0	0	2160	966
Arrive On Green	0.30	0.00	0.30				0.00	0.61	0.00	0.00	0.61	0.00
Sat Flow, veh/h	3548	0	1579				0	5421	0	0	3632	1583
Grp Volume(v), veh/h	819	0	440				0	1776	0	0	706	0
Grp Sat Flow(s),veh/h/ln	1774	0	1579				0	1695	0	0	1770	1583
Q Serve(g_s), s	23.3	0.0	30.0				0.0	23.0	0.0	0.0	10.7	0.0
Cycle Q Clear(g_c), s	23.3	0.0	30.0				0.0	23.0	0.0	0.0	10.7	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	1047	0	466				0	3104	0	0	2160	966
V/C Ratio(X)	0.78	0.00	0.94				0.00	0.57	0.00	0.00	0.33	0.00
Avail Cap(c_a), veh/h	1116	0	497				0	3104	0	0	2160	966
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	35.5	0.0	37.9				0.0	12.8	0.0	0.0	10.4	0.0
Incr Delay (d2), s/veh	3.1	0.0	25.7				0.0	0.8	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	0.0	16.4				0.0	10.9	0.0	0.0	5.3	0.0
LnGrp Delay(d),s/veh	38.6	0.0	63.5				0.0	13.6	0.0	0.0	10.8	0.0
LnGrp LOS	D		E					B			B	
Approach Vol, veh/h		1259						1776			706	
Approach Delay, s/veh		47.3						13.6			10.8	
Approach LOS		D						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		72.1		37.9		72.1		
Change Period (Y+Rc), s		* 5		* 5.4		5.0		
Max Green Setting (Gmax), s		* 66		* 35		65.0		
Max Q Clear Time (g_c+I1), s		12.7		32.0		25.0		
Green Ext Time (p_c), s		8.3		0.5		8.2		

Intersection Summary	
HCM 2010 Ctrl Delay	24.4
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	705	234	7	142	1123	623	102
Future Volume (veh/h)	705	234	7	142	1123	623	102
Number	6	16		5	2	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	820	0		160	1262	890	146
Adj No. of Lanes	3	0		1	3	2	1
Peak Hour Factor	0.86	0.86		0.89	0.89	0.70	0.70
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2461	0		190	3257	955	439
Arrive On Green	0.48	0.00		0.11	0.64	0.28	0.28
Sat Flow, veh/h	5421	0		1774	5253	3442	1583
Grp Volume(v), veh/h	820	0		160	1262	890	146
Grp Sat Flow(s),veh/h/ln	1695	0		1774	1695	1721	1583
Q Serve(g_s), s	10.3	0.0		9.1	12.3	26.1	7.6
Cycle Q Clear(g_c), s	10.3	0.0		9.1	12.3	26.1	7.6
Prop In Lane		0.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2461	0		190	3257	955	439
V/C Ratio(X)	0.33	0.00		0.84	0.39	0.93	0.33
Avail Cap(c_a), veh/h	3198	0		342	3257	1215	559
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	0.0		45.3	8.9	36.4	29.7
Incr Delay (d2), s/veh	0.2	0.0		3.8	0.2	9.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0		4.7	5.8	13.7	3.3
LnGrp Delay(d),s/veh	16.6	0.0		49.1	9.0	46.3	29.9
LnGrp LOS	B			D	A	D	C
Approach Vol, veh/h	820				1422	1036	
Approach Delay, s/veh	16.6				13.6	44.0	
Approach LOS	B				B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		71.2			16.2	55.0		32.2
Change Period (Y+Rc), s		5.0			* 5.1	5.0		3.5
Max Green Setting (Gmax), s		65.0			* 20	65.0		36.5
Max Q Clear Time (g_c+I1), s		14.3			11.1	12.3		28.1
Green Ext Time (p_c), s		38.5			0.0	37.8		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	14	321	452	253	30	184	487	220	14	112	460	75
Future Volume (veh/h)	14	321	452	253	30	184	487	220	14	112	460	75
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.97		1.00		0.96		1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1863
Adj Flow Rate, veh/h		401	565	316		224	594	268		117	479	78
Adj No. of Lanes		2	3	0		2	3	1		2	3	1
Peak Hour Factor		0.80	0.80	0.80		0.82	0.82	0.82		0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		468	1002	455		292	1243	373		402	1412	427
Arrive On Green		0.14	0.30	0.30		0.08	0.24	0.24		0.12	0.28	0.28
Sat Flow, veh/h		3442	3390	1540		3442	5085	1525		3442	5085	1537
Grp Volume(v), veh/h		401	565	316		224	594	268		117	479	78
Grp Sat Flow(s),veh/h/ln		1721	1695	1540		1721	1695	1525		1721	1695	1537
Q Serve(g_s), s		11.2	13.9	17.9		6.3	9.9	15.9		3.1	7.4	3.8
Cycle Q Clear(g_c), s		11.2	13.9	17.9		6.3	9.9	15.9		3.1	7.4	3.8
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		468	1002	455		292	1243	373		402	1412	427
V/C Ratio(X)		0.86	0.56	0.69		0.77	0.48	0.72		0.29	0.34	0.18
Avail Cap(c_a), veh/h		680	1175	534		680	1763	529		680	3320	1003
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		41.7	29.4	30.8		44.2	31.9	34.2		39.8	28.4	27.1
Incr Delay (d2), s/veh		5.2	0.2	2.2		1.6	0.1	1.1		0.1	0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.7	6.5	7.9		3.1	4.6	6.8		1.5	3.5	1.6
LnGrp Delay(d),s/veh		46.9	29.6	33.0		45.8	32.0	35.3		40.0	28.5	27.2
LnGrp LOS		D	C	C		D	C	D		D	C	C
Approach Vol, veh/h			1282				1086				674	
Approach Delay, s/veh			35.8				35.7				30.3	
Approach LOS			D				D				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	32.8	18.9	29.9	16.8	33.0	13.9	35.0
Change Period (Y+Rc), s	5.5	* 5.6	5.5	5.8	5.5	* 5.6	5.5	5.8
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.2	19.5	* 64	19.5	34.2
Max Q Clear Time (g_c+I1), s	5.1	22.8	13.2	17.9	11.2	9.4	8.3	19.9
Green Ext Time (p_c), s	0.1	4.0	0.2	3.5	0.2	4.0	0.1	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	8	288	843	162
Future Volume (veh/h)	8	288	843	162
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900
Adj Flow Rate, veh/h		327	958	184
Adj No. of Lanes		2	3	0
Peak Hour Factor		0.88	0.88	0.88
Percent Heavy Veh, %		2	2	2
Cap, veh/h		395	1176	225
Arrive On Green		0.11	0.28	0.28
Sat Flow, veh/h		3442	4263	816
Grp Volume(v), veh/h		327	761	381
Grp Sat Flow(s),veh/h/ln		1721	1695	1688
Q Serve(g_s), s		9.2	20.7	20.8
Cycle Q Clear(g_c), s		9.2	20.7	20.8
Prop In Lane		1.00		0.48
Lane Grp Cap(c), veh/h		395	935	466
V/C Ratio(X)		0.83	0.81	0.82
Avail Cap(c_a), veh/h		680	2213	1102
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		42.7	33.4	33.4
Incr Delay (d2), s/veh		1.7	0.7	1.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.5	9.7	9.9
LnGrp Delay(d),s/veh		44.4	34.0	34.8
LnGrp LOS		D	C	C
Approach Vol, veh/h			1469	
Approach Delay, s/veh			36.5	
Approach LOS			D	

Timer

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	1	476	230	22	3	68	174	649	43	1208	11	337
Future Volume (veh/h)	1	476	230	22	3	68	174	649	43	1208	11	337
Number		3	8	18		7	4	14	1	6	16	5
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99		1.00		0.97	1.00		0.98	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863	1863	1863	1900	1863
Adj Flow Rate, veh/h		501	242	23		78	200	746	46	1299	12	347
Adj No. of Lanes		2	3	0		2	1	2	2	3	0	2
Peak Hour Factor		0.95	0.95	0.95		0.87	0.87	0.87	0.93	0.93	0.93	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		539	1695	158		126	442	1098	81	1597	15	401
Arrive On Green		0.16	0.36	0.36		0.04	0.24	0.24	0.02	0.31	0.31	0.12
Sat Flow, veh/h		3442	4730	440		3548	1863	3073	3442	5195	48	3442
Grp Volume(v), veh/h		501	172	93		78	200	746	46	848	463	347
Grp Sat Flow(s),veh/h/ln		1721	1695	1780		1774	1863	1536	1721	1695	1853	1721
Q Serve(g_s), s		17.9	4.3	4.4		2.7	11.4	25.8	1.6	28.8	28.8	12.3
Cycle Q Clear(g_c), s		17.9	4.3	4.4		2.7	11.4	25.8	1.6	28.8	28.8	12.3
Prop In Lane		1.00		0.25		1.00		1.00	1.00		0.03	1.00
Lane Grp Cap(c), veh/h		539	1215	638		126	442	1098	81	1042	570	401
V/C Ratio(X)		0.93	0.14	0.15		0.62	0.45	0.68	0.57	0.81	0.81	0.86
Avail Cap(c_a), veh/h		539	1741	914		555	964	1960	539	1766	965	677
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		51.9	27.0	27.1		59.3	40.6	34.3	60.2	39.8	39.8	54.1
Incr Delay (d2), s/veh		22.6	0.0	0.0		1.9	0.3	0.3	2.3	0.6	1.1	2.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		10.2	2.0	2.2		1.4	5.9	11.0	0.8	13.5	14.8	6.0
LnGrp Delay(d),s/veh		74.5	27.0	27.1		61.1	40.9	34.6	62.6	40.4	40.9	56.9
LnGrp LOS		E	C	C		E	D	C	E	D	D	E
Approach Vol, veh/h			766				1024			1357		
Approach Delay, s/veh			58.1				37.9			41.4		
Approach LOS			E				D			D		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	55.6	25.0	35.6	20.0	44.0	9.9	50.7
Change Period (Y+Rc), s	5.5	* 5.7	5.5	* 6	5.5	* 5.7	5.5	* 6
Max Green Setting (Gmax), s	19.5	* 64	19.5	* 65	24.5	* 65	19.5	* 64
Max Q Clear Time (g_c+I1), s	3.6	23.7	19.9	27.8	14.3	30.8	4.7	6.4
Green Ext Time (p_c), s	0.0	7.6	0.0	1.5	0.2	7.5	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	40.7
HCM 2010 LOS	D

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1110	237
Future Volume (veh/h)	1110	237
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		0.99
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	1144	244
Adj No. of Lanes	3	1
Peak Hour Factor	0.97	0.97
Percent Heavy Veh, %	2	2
Cap, veh/h	2037	629
Arrive On Green	0.40	0.40
Sat Flow, veh/h	5085	1569
Grp Volume(v), veh/h	1144	244
Grp Sat Flow(s),veh/h/ln	1695	1569
Q Serve(g_s), s	21.7	13.8
Cycle Q Clear(g_c), s	21.7	13.8
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	2037	629
V/C Ratio(X)	0.56	0.39
Avail Cap(c_a), veh/h	2624	810
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	28.9	26.5
Incr Delay (d2), s/veh	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	6.0
LnGrp Delay(d),s/veh	29.0	26.7
LnGrp LOS	C	C
Approach Vol, veh/h	1735	
Approach Delay, s/veh	34.2	
Approach LOS	C	

Timer

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	658	1	120	720	870	119	1883	411	4	1013	135
Future Volume (vph)	658	1	120	720	870	119	1883	411	4	1013	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8	6.8	6.8	4.6		4.6			4.6	4.0
Lane Util. Factor	0.95	0.95	0.95	0.95	0.88		0.86			0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	0.98	1.00		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.89	0.85	0.85		0.97			1.00	0.85
Flt Protected	0.95	0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1681	1681	1553	1470	2787		6204			3539	1540
Flt Permitted	0.95	0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)	1681	1681	1553	1470	2787		6204			3539	1540
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.86	0.86	0.88	0.88	0.88	0.92	0.92
Adj. Flow (vph)	693	1	126	758	1012	138	2140	467	5	1101	147
RTOR Reduction (vph)	0	0	43	43	13	0	0	0	0	0	0
Lane Group Flow (vph)	346	348	409	389	1137	0	2612	0	0	1101	147
Confl. Peds. (#/hr)	11	11		11	3	3		3	3		11
Confl. Bikes (#/hr)								8	8		5
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		2!		6!			2	
Permitted Phases				4	2						Free
Actuated Green, G (s)	38.7	38.7	38.7	38.7	74.9		74.9			74.9	125.0
Effective Green, g (s)	38.7	38.7	38.7	38.7	74.9		74.9			74.9	125.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.60		0.60			0.60	1.00
Clearance Time (s)	6.8	6.8	6.8	6.8	4.6		4.6			4.6	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0			1.0	
Lane Grp Cap (vph)	520	520	480	455	1669		3717			2120	1540
v/s Ratio Prot	0.21	0.21	0.26		0.41		c0.42			0.31	
v/s Ratio Perm				c0.26							0.10
v/c Ratio	0.67	0.67	0.85	0.86	0.68		0.70			0.52	0.10
Uniform Delay, d1	37.5	37.6	40.5	40.5	17.0		17.3			14.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00			0.99	1.00
Incremental Delay, d2	2.5	2.5	13.2	14.0	2.3		1.1			0.9	0.1
Delay (s)	40.0	40.1	53.7	54.6	19.2		18.5			15.3	0.1
Level of Service	D	D	D	D	B		B			B	A
Approach Delay (s)			47.9				18.5			13.5	
Approach LOS			D				B			B	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	11.4
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	398	0	293	1	0	1638	1780	0	727
Future Volume (veh/h)	0	0	0	398	0	293	1	0	1638	1780	0	727
Number				3	8	18		1	6	16	5	2
Initial Q (Qb), veh				0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863		0	1863	1863	0	1863
Adj Flow Rate, veh/h				428	0	315		0	1671	0	0	765
Adj No. of Lanes				2	0	1		0	3	2	0	2
Peak Hour Factor				0.93	0.93	0.93		0.98	0.98	0.98	0.95	0.95
Percent Heavy Veh, %				2	0	2		0	2	2	0	2
Cap, veh/h				740	0	340		0	3528	1933	0	2456
Arrive On Green				0.21	0.00	0.21		0.00	0.69	0.00	0.00	0.69
Sat Flow, veh/h				3442	0	1583		0	5253	2787	0	3632
Grp Volume(v), veh/h				428	0	315		0	1671	0	0	765
Grp Sat Flow(s),veh/h/ln				1721	0	1583		0	1695	1393	0	1770
Q Serve(g_s), s				13.9	0.0	24.4		0.0	18.7	0.0	0.0	10.6
Cycle Q Clear(g_c), s				13.9	0.0	24.4		0.0	18.7	0.0	0.0	10.6
Prop In Lane				1.00		1.00		0.00		1.00	0.00	
Lane Grp Cap(c), veh/h				740	0	340		0	3528	1933	0	2456
V/C Ratio(X)				0.58	0.00	0.93		0.00	0.47	0.00	0.00	0.31
Avail Cap(c_a), veh/h				1327	0	611		0	3528	1933	0	2456
HCM Platoon Ratio				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				44.0	0.0	48.1		0.0	8.7	0.0	0.0	7.5
Incr Delay (d2), s/veh				0.3	0.0	6.1		0.0	0.5	0.0	0.0	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.7	0.0	11.2		0.0	8.8	0.0	0.0	5.2
LnGrp Delay(d),s/veh				44.3	0.0	54.2		0.0	9.2	0.0	0.0	7.8
LnGrp LOS				D		D			A			A
Approach Vol, veh/h					743				1671			765
Approach Delay, s/veh					48.5				9.2			7.8
Approach LOS					D				A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		91.3				91.3		33.7
Change Period (Y+Rc), s		4.6				4.6		6.8
Max Green Setting (Gmax), s		65.4				65.4		48.2
Max Q Clear Time (g_c+I1), s		12.6				20.7		26.4
Green Ext Time (p_c), s		8.0				7.9		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	18.0
HCM 2010 LOS	B

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	500
Future Volume (veh/h)	500
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	0
Adj No. of Lanes	1
Peak Hour Factor	0.95
Percent Heavy Veh, %	2
Cap, veh/h	1099
Arrive On Green	0.00
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	1099
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	1099
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	35	251	565	256	11	248	297	213	71	225	1006	216
Future Volume (veh/h)	35	251	565	256	11	248	297	213	71	225	1006	216
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99		1.00		1.00		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		295	665	301		306	367	263		247	1105	237
Adj No. of Lanes		2	2	1		2	3	1		2	3	1
Peak Hour Factor		0.85	0.85	0.85		0.81	0.81	0.81		0.91	0.91	0.91
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		329	890	395		340	1294	402		282	1736	538
Arrive On Green		0.11	0.28	0.28		0.11	0.28	0.28		0.09	0.38	0.38
Sat Flow, veh/h		3097	3185	1416		3097	4577	1422		3097	4577	1418
Grp Volume(v), veh/h		295	665	301		306	367	263		247	1105	237
Grp Sat Flow(s),veh/h/ln		1549	1593	1416		1549	1526	1422		1549	1526	1418
Q Serve(g_s), s		15.7	31.8	32.6		16.3	10.5	27.2		13.2	33.1	20.8
Cycle Q Clear(g_c), s		15.7	31.8	32.6		16.3	10.5	27.2		13.2	33.1	20.8
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		329	890	395		340	1294	402		282	1736	538
V/C Ratio(X)		0.90	0.75	0.76		0.90	0.28	0.65		0.87	0.64	0.44
Avail Cap(c_a), veh/h		361	1218	542		361	1294	402		361	1761	546
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		73.9	54.9	55.2		73.6	46.8	52.8		75.1	42.5	38.7
Incr Delay (d2), s/veh		21.4	2.9	6.9		22.8	0.4	6.7		14.8	1.1	1.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		7.7	14.4	13.5		8.1	4.5	11.5		6.2	14.1	8.3
LnGrp Delay(d),s/veh		95.3	57.8	62.1		96.4	47.2	59.5		89.9	43.5	39.8
LnGrp LOS		F	E	E		F	D	E		F	D	D
Approach Vol, veh/h			1261				936				1589	
Approach Delay, s/veh			67.6				66.7				50.2	
Approach LOS			E				E				D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.8	70.0	23.3	53.3	21.4	69.3	23.9	52.7
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	64.0
Max Q Clear Time (g_c+I1), s	15.2	60.4	17.7	29.2	15.9	35.1	18.3	34.6
Green Ext Time (p_c), s	0.1	3.7	0.0	4.2	0.1	28.4	0.0	12.2

Intersection Summary	
HCM 2010 Ctrl Delay	61.1
HCM 2010 LOS	E

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	36	226	1440	132
Future Volume (veh/h)	36	226	1440	132
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676
Adj Flow Rate, veh/h		260	1655	152
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.87	0.87	0.87
Percent Heavy Veh, %		2	2	2
Cap, veh/h		295	1755	544
Arrive On Green		0.10	0.38	0.38
Sat Flow, veh/h		3097	4577	1418
Grp Volume(v), veh/h		260	1655	152
Grp Sat Flow(s),veh/h/ln		1549	1526	1418
Q Serve(g_s), s		13.9	58.4	12.4
Cycle Q Clear(g_c), s		13.9	58.4	12.4
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		295	1755	544
V/C Ratio(X)		0.88	0.94	0.28
Avail Cap(c_a), veh/h		361	1756	544
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		74.8	49.8	35.6
Incr Delay (d2), s/veh		16.7	11.1	0.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.6	26.5	4.9
LnGrp Delay(d),s/veh		91.5	60.9	36.2
LnGrp LOS		F	E	D
Approach Vol, veh/h			2067	
Approach Delay, s/veh			62.9	
Approach LOS			E	
Timer				

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	422	401	101	1	198	266	247	2	57	1230	161	1
Future Volume (veh/h)	422	401	101	1	198	266	247	2	57	1230	161	1
Number	3	8	18		7	4	14		1	6	16	
Initial Q (Qb), veh	0	0	0		0	0	0		0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1863	1863	1863		1863	1863	1863		1863	1863	1863	
Adj Flow Rate, veh/h	474	451	113		215	412	186		75	1618	212	
Adj No. of Lanes	2	2	1		2	2	1		2	4	1	
Peak Hour Factor	0.89	0.89	0.89		0.92	0.92	0.92		0.76	0.76	0.76	
Percent Heavy Veh, %	2	2	2		2	2	2		2	2	2	
Cap, veh/h	480	895	393		265	701	291		119	2738	668	
Arrive On Green	0.14	0.25	0.25		0.07	0.19	0.19		0.03	0.43	0.43	
Sat Flow, veh/h	3442	3539	1554		3548	3725	1546		3442	6408	1562	
Grp Volume(v), veh/h	474	451	113		215	412	186		75	1618	212	
Grp Sat Flow(s),veh/h/ln	1721	1770	1554		1774	1863	1546		1721	1602	1562	
Q Serve(g_s), s	19.2	15.3	8.2		8.4	14.1	15.5		3.0	27.1	12.6	
Cycle Q Clear(g_c), s	19.2	15.3	8.2		8.4	14.1	15.5		3.0	27.1	12.6	
Prop In Lane	1.00		1.00		1.00		1.00		1.00		1.00	
Lane Grp Cap(c), veh/h	480	895	393		265	701	291		119	2738	668	
V/C Ratio(X)	0.99	0.50	0.29		0.81	0.59	0.64		0.63	0.59	0.32	
Avail Cap(c_a), veh/h	480	895	393		494	905	376		480	2940	717	
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Uniform Delay (d), s/veh	60.1	44.8	42.1		63.8	51.8	52.4		66.7	30.7	26.6	
Incr Delay (d2), s/veh	37.8	0.7	0.6		2.3	1.3	4.0		3.4	0.2	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	11.7	7.5	3.6		4.2	7.4	7.0		1.5	11.9	5.5	
LnGrp Delay(d),s/veh	97.9	45.4	42.7		66.0	53.2	56.4		70.0	30.9	26.7	
LnGrp LOS	F	D	D		E	D	E		E	C	C	
Approach Vol, veh/h		1038				813				1905		
Approach Delay, s/veh		69.1				57.3				32.0		
Approach LOS		E				E				C		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	72.3	25.0	32.3	17.0	65.6	16.0	41.4
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	* 6
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	* 34
Max Q Clear Time (g_c+I1), s	5.0	33.7	21.2	17.5	11.4	29.1	10.4	17.3
Green Ext Time (p_c), s	0.1	28.8	0.0	7.8	0.1	30.7	0.1	9.1

Intersection Summary	
HCM 2010 Ctrl Delay	42.2
HCM 2010 LOS	D

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	216	1411	257
Future Volume (veh/h)	216	1411	257
Number	5	2	12
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863
Adj Flow Rate, veh/h	235	1534	279
Adj No. of Lanes	2	3	1
Peak Hour Factor	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2
Cap, veh/h	283	2416	750
Arrive On Green	0.08	0.48	0.48
Sat Flow, veh/h	3442	5085	1578
Grp Volume(v), veh/h	235	1534	279
Grp Sat Flow(s),veh/h/ln	1721	1695	1578
Q Serve(g_s), s	9.4	31.7	15.8
Cycle Q Clear(g_c), s	9.4	31.7	15.8
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	283	2416	750
V/C Ratio(X)	0.83	0.64	0.37
Avail Cap(c_a), veh/h	480	2416	750
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.2	27.6	23.4
Incr Delay (d2), s/veh	2.4	0.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	14.9	7.0
LnGrp Delay(d),s/veh	65.6	28.4	24.0
LnGrp LOS	E	C	C
Approach Vol, veh/h		2048	
Approach Delay, s/veh		32.1	
Approach LOS		C	
Timer			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1230	0	322	0	0	0	0	1652	228	0	1558	403
Future Volume (veh/h)	1230	0	322	0	0	0	0	1652	228	0	1558	403
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	1337	0	350				0	1856	0	0	1693	0
Adj No. of Lanes	3	0	2				0	4	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.89	0.89	0.89	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	1431	0	797				0	4548	966	0	3411	966
Arrive On Green	0.29	0.00	0.29				0.00	0.61	0.00	0.00	0.61	0.00
Sat Flow, veh/h	5003	0	2787				0	7451	1583	0	5588	1583
Grp Volume(v), veh/h	1337	0	350				0	1856	0	0	1693	0
Grp Sat Flow(s),veh/h/ln	1668	0	1393				0	1863	1583	0	1863	1583
Q Serve(g_s), s	28.6	0.0	11.3				0.0	14.2	0.0	0.0	18.6	0.0
Cycle Q Clear(g_c), s	28.6	0.0	11.3				0.0	14.2	0.0	0.0	18.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	1431	0	797				0	4548	966	0	3411	966
V/C Ratio(X)	0.93	0.00	0.44				0.00	0.41	0.00	0.00	0.50	0.00
Avail Cap(c_a), veh/h	1514	0	844				0	4548	966	0	3411	966
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	38.3	0.0	32.1				0.0	11.1	0.0	0.0	12.0	0.0
Incr Delay (d2), s/veh	10.4	0.0	0.1				0.0	0.3	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.5	0.0	4.3				0.0	7.3	0.0	0.0	9.7	0.0
LnGrp Delay(d),s/veh	48.7	0.0	32.2				0.0	11.4	0.0	0.0	12.5	0.0
LnGrp LOS	D		C					B			B	
Approach Vol, veh/h		1687						1856			1693	
Approach Delay, s/veh		45.3						11.4			12.5	
Approach LOS		D						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		71.8		38.2		71.8		
Change Period (Y+Rc), s		* 4.7		6.7		4.7		
Max Green Setting (Gmax), s		* 66		33.3		65.3		
Max Q Clear Time (g_c+I1), s		20.6		30.6		16.2		
Green Ext Time (p_c), s		16.2		0.8		16.5		

Intersection Summary	
HCM 2010 Ctrl Delay	22.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	497	0	453	0	2493	359	0	1529	1217
Future Volume (veh/h)	0	0	0	497	0	453	0	2493	359	0	1529	1217
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				592	0	539	0	2801	0	0	1644	0
Adj No. of Lanes				2	0	2	0	3	1	0	3	2
Peak Hour Factor				0.84	0.84	0.84	0.89	0.89	0.89	0.93	0.93	0.93
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				739	0	598	0	3778	1071	0	3438	1884
Arrive On Green				0.21	0.00	0.21	0.00	0.68	0.00	0.00	0.68	0.00
Sat Flow, veh/h				3442	0	2787	0	5588	1583	0	5253	2787
Grp Volume(v), veh/h				592	0	539	0	2801	0	0	1644	0
Grp Sat Flow(s),veh/h/ln				1721	0	1393	0	1863	1583	0	1695	1393
Q Serve(g_s), s				17.9	0.0	20.7	0.0	35.8	0.0	0.0	17.0	0.0
Cycle Q Clear(g_c), s				17.9	0.0	20.7	0.0	35.8	0.0	0.0	17.0	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				739	0	598	0	3778	1071	0	3438	1884
V/C Ratio(X)				0.80	0.00	0.90	0.00	0.74	0.00	0.00	0.48	0.00
Avail Cap(c_a), veh/h				1032	0	836	0	3778	1071	0	3438	1884
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				41.0	0.0	42.0	0.0	11.6	0.0	0.0	8.5	0.0
Incr Delay (d2), s/veh				2.1	0.0	8.0	0.0	1.3	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.8	0.0	8.6	0.0	18.6	0.0	0.0	8.1	0.0
LnGrp Delay(d),s/veh				43.0	0.0	50.1	0.0	12.9	0.0	0.0	9.0	0.0
LnGrp LOS				D		D		B			A	
Approach Vol, veh/h					1131			2801			1644	
Approach Delay, s/veh					46.4			12.9			9.0	
Approach LOS					D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		79.4				79.4		30.6
Change Period (Y+Rc), s		* 5				5.0		7.0
Max Green Setting (Gmax), s		* 65				65.0		33.0
Max Q Clear Time (g_c+I1), s		19.0				37.8		22.7
Green Ext Time (p_c), s		26.7				19.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	186	36	179	61	23	57	33	155	2667	23	2	62
Future Volume (veh/h)	186	36	179	61	23	57	33	155	2667	23	2	62
Number	7	4	14	3	8	18		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900		1863
Adj Flow Rate, veh/h	224	43	216	79	30	74		167	2868	25		68
Adj No. of Lanes	0	1	1	1	1	0		2	3	0		1
Peak Hour Factor	0.83	0.83	0.83	0.77	0.77	0.77		0.93	0.93	0.93		0.91
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	260	50	272	181	47	117		219	2688	23		87
Arrive On Green	0.17	0.17	0.17	0.10	0.10	0.10		0.06	0.52	0.52		0.05
Sat Flow, veh/h	1500	288	1567	1774	464	1145		3442	5199	45		1774
Grp Volume(v), veh/h	267	0	216	79	0	104		167	1867	1026		68
Grp Sat Flow(s),veh/h/ln	1788	0	1567	1774	0	1609		1721	1695	1854		1774
Q Serve(g_s), s	18.9	0.0	17.2	5.5	0.0	8.1		6.2	67.4	67.4		4.9
Cycle Q Clear(g_c), s	18.9	0.0	17.2	5.5	0.0	8.1		6.2	67.4	67.4		4.9
Prop In Lane	0.84		1.00	1.00		0.71		1.00		0.02		1.00
Lane Grp Cap(c), veh/h	310	0	272	181	0	164		219	1753	958		87
V/C Ratio(X)	0.86	0.00	0.79	0.44	0.00	0.63		0.76	1.07	1.07		0.79
Avail Cap(c_a), veh/h	473	0	415	469	0	426		525	1753	958		275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	52.4	0.0	51.7	55.0	0.0	56.2		60.1	31.5	31.5		61.3
Incr Delay (d2), s/veh	6.5	0.0	2.9	0.6	0.0	1.5		2.1	41.3	49.8		5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	7.7	2.7	0.0	3.7		3.0	41.5	47.6		2.6
LnGrp Delay(d),s/veh	58.8	0.0	54.6	55.7	0.0	57.7		62.2	72.8	81.3		67.1
LnGrp LOS	E		D	E		E		E	F	F		E
Approach Vol, veh/h		483			183				3060			
Approach Delay, s/veh		56.9			56.8				75.1			
Approach LOS		E			E				E			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.4	70.1		28.1	11.2	72.3		18.8
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 20	* 65		34.5	* 20	* 65		34.5
Max Q Clear Time (g_c+I1), s	8.2	67.2		20.9	6.9	69.4		10.1
Green Ext Time (p_c), s	0.1	0.0		0.6	0.0	0.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	68.0
HCM 2010 LOS	E

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2424	96
Future Volume (veh/h)	2424	96
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		0.99
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	2664	105
Adj No. of Lanes	3	1
Peak Hour Factor	0.91	0.91
Percent Heavy Veh, %	2	2
Cap, veh/h	2542	785
Arrive On Green	0.50	0.50
Sat Flow, veh/h	5085	1571
Grp Volume(v), veh/h	2664	105
Grp Sat Flow(s),veh/h/ln	1695	1571
Q Serve(g_s), s	65.2	4.7
Cycle Q Clear(g_c), s	65.2	4.7
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	2542	785
V/C Ratio(X)	1.05	0.13
Avail Cap(c_a), veh/h	2542	785
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	32.6	17.5
Incr Delay (d2), s/veh	32.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	37.9	2.0
LnGrp Delay(d),s/veh	64.6	17.5
LnGrp LOS	F	B
Approach Vol, veh/h	2837	
Approach Delay, s/veh	62.9	
Approach LOS	E	

Timer

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	689	22	6	597	0	704	46
Future Volume (veh/h)	689	22	6	597	0	704	46
Number	7	14	1	6		2	12
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863		1863	1863
Adj Flow Rate, veh/h	861	28	6	615		819	53
Adj No. of Lanes	2	1	1	2		2	1
Peak Hour Factor	0.80	0.80	0.97	0.97		0.86	0.86
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	1011	473	9	1550		1112	962
Arrive On Green	0.29	0.29	0.00	0.44		0.31	0.31
Sat Flow, veh/h	3442	1583	1774	3632		3632	1583
Grp Volume(v), veh/h	861	28	6	615		819	53
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770		1770	1583
Q Serve(g_s), s	10.9	0.6	0.2	5.5		9.5	0.6
Cycle Q Clear(g_c), s	10.9	0.6	0.2	5.5		9.5	0.6
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	1011	473	9	1550		1112	962
V/C Ratio(X)	0.85	0.06	0.70	0.40		0.74	0.06
Avail Cap(c_a), veh/h	4060	1876	749	4091		4068	2285
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	15.4	11.6	23.0	8.8		14.1	3.7
Incr Delay (d2), s/veh	0.8	0.0	32.2	0.1		0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.6	0.2	2.7		4.6	0.5
LnGrp Delay(d),s/veh	16.2	11.6	55.1	8.9		14.5	3.7
LnGrp LOS	B	B	E	A		B	A
Approach Vol, veh/h	889			621		872	
Approach Delay, s/veh	16.0			9.3		13.8	
Approach LOS	B			A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	5.7	21.4		19.1		27.1		
Change Period (Y+Rc), s	5.5	* 6.9		5.5		* 6.9		
Max Green Setting (Gmax), s	19.5	* 53		54.5		* 53		
Max Q Clear Time (g_c+I1), s	2.2	11.5		12.9		7.5		
Green Ext Time (p_c), s	0.0	3.0		0.7		3.0		

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	663	650	3	219	115	143	470
Future Volume (veh/h)	663	650	3	219	115	143	470
Number	1	6		2	12	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h	721	707		270	142	155	511
Adj No. of Lanes	1	2		2	1	1	1
Peak Hour Factor	0.92	0.92		0.81	0.81	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	594	1852		459	205	603	538
Arrive On Green	0.34	0.52		0.13	0.13	0.34	0.34
Sat Flow, veh/h	1774	3632		3632	1583	1774	1583
Grp Volume(v), veh/h	721	707		270	142	155	511
Grp Sat Flow(s),veh/h/ln	1774	1770		1770	1583	1774	1583
Q Serve(g_s), s	29.8	10.6		6.4	7.6	5.6	28.0
Cycle Q Clear(g_c), s	29.8	10.6		6.4	7.6	5.6	28.0
Prop In Lane	1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h	594	1852		459	205	603	538
V/C Ratio(X)	1.21	0.38		0.59	0.69	0.26	0.95
Avail Cap(c_a), veh/h	594	2523		2519	1127	688	614
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	12.6		36.5	37.0	21.2	28.6
Incr Delay (d2), s/veh	110.7	0.0		0.4	1.6	0.1	22.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.8	5.1		3.1	3.4	2.8	15.5
LnGrp Delay(d),s/veh	140.3	12.7		36.9	38.6	21.3	50.8
LnGrp LOS	F	B		D	D	C	D
Approach Vol, veh/h		1428		412		666	
Approach Delay, s/veh		77.1		37.5		44.0	
Approach LOS		E		D		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	35.0	18.2				53.2		35.7
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 30	* 63				* 63		34.5
Max Q Clear Time (g_c+I1), s	31.8	9.6				12.6		30.0
Green Ext Time (p_c), s	0.0	1.9				1.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	61.8
HCM 2010 LOS	E

Notes

Appendix D

Analysis Worksheets for Cumulative Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	510	230	160	650	90	190	2720	90	20	980	70
Future Volume (veh/h)	160	510	230	160	650	90	190	2720	90	20	980	70
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	174	554	250	174	707	98	207	2957	98	22	1065	0
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	530	450	126	530	450	229	2296	75	27	1731	539
Arrive On Green	0.07	0.28	0.28	0.07	0.28	0.28	0.13	0.45	0.45	0.02	0.34	0.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	5054	165	1774	5085	1583
Grp Volume(v), veh/h	174	554	250	174	707	98	207	1972	1083	22	1065	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1695	1829	1774	1695	1583
Q Serve(g_s), s	10.5	42.0	19.8	10.5	42.0	7.0	17.0	67.1	67.1	1.8	25.8	0.0
Cycle Q Clear(g_c), s	10.5	42.0	19.8	10.5	42.0	7.0	17.0	67.1	67.1	1.8	25.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	126	530	450	126	530	450	229	1540	831	27	1731	539
V/C Ratio(X)	1.38	1.05	0.56	1.38	1.33	0.22	0.90	1.28	1.30	0.81	0.62	0.00
Avail Cap(c_a), veh/h	126	530	450	126	530	450	287	1540	831	60	1731	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	68.6	52.8	44.9	68.6	52.8	40.3	63.4	40.3	40.3	72.5	40.6	0.0
Incr Delay (d2), s/veh	212.4	51.6	0.9	212.4	163.0	0.1	23.1	131.1	145.2	18.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	29.1	8.8	12.6	45.5	3.1	9.8	59.3	67.2	1.0	12.1	0.0
LnGrp Delay(d),s/veh	281.0	104.4	45.8	281.0	215.9	40.4	86.5	171.4	185.5	90.6	41.2	0.0
LnGrp LOS	F	F	D	F	F	D	F	F	F	F	D	
Approach Vol, veh/h		978			979			3262			1087	
Approach Delay, s/veh		120.9			209.9			170.7			42.2	
Approach LOS		F			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.6	57.7	16.0	49.4	7.8	74.5	16.0	49.4
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	23.9	48.2	10.5	41.6	5.0	67.1	10.5	* 42
Max Q Clear Time (g_c+I1), s	19.0	27.8	12.5	44.0	3.8	69.1	12.5	44.0
Green Ext Time (p_c), s	0.1	14.9	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	146.9
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	490	10	70	770	10	40	760	160	10	130	130
Future Volume (veh/h)	120	490	10	70	770	10	40	760	160	10	130	130
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	130	533	11	76	837	11	43	826	174	11	141	141
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	958	20	96	892	12	55	788	166	37	964	819
Arrive On Green	0.07	0.27	0.27	0.05	0.25	0.25	0.03	0.53	0.53	0.02	0.52	0.52
Sat Flow, veh/h	1774	3546	73	1774	3577	47	1774	1493	314	1774	1863	1583
Grp Volume(v), veh/h	130	266	278	76	414	434	43	0	1000	11	141	141
Grp Sat Flow(s),veh/h/ln	1774	1770	1850	1774	1770	1854	1774	0	1807	1774	1863	1583
Q Serve(g_s), s	9.8	17.2	17.3	5.7	30.6	30.6	3.2	0.0	70.5	0.8	5.3	6.3
Cycle Q Clear(g_c), s	9.8	17.2	17.3	5.7	30.6	30.6	3.2	0.0	70.5	0.8	5.3	6.3
Prop In Lane	1.00		0.04	1.00		0.03	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	133	478	500	96	441	462	55	0	953	37	964	819
V/C Ratio(X)	0.98	0.56	0.56	0.79	0.94	0.94	0.78	0.00	1.05	0.29	0.15	0.17
Avail Cap(c_a), veh/h	133	478	500	130	450	472	122	0	953	246	1112	946
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	41.9	41.9	62.5	49.2	49.2	64.3	0.0	31.6	64.4	16.8	17.1
Incr Delay (d2), s/veh	71.3	1.8	1.7	14.7	27.7	26.9	8.4	0.0	42.8	1.6	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	8.7	9.1	3.2	18.3	19.1	1.7	0.0	46.3	0.4	2.8	2.9
LnGrp Delay(d),s/veh	133.0	43.7	43.6	77.2	76.8	76.0	72.7	0.0	74.4	66.0	17.1	17.5
LnGrp LOS	F	D	D	E	E	E	E		F	E	B	B
Approach Vol, veh/h		674			924			1043			293	
Approach Delay, s/veh		60.9			76.5			74.3			19.2	
Approach LOS		E			E			E			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	37.8	8.2	73.7	11.2	40.6	6.8	75.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	10.0	34.0	9.2	79.8	9.8	34.2	18.5	70.5
Max Q Clear Time (g_c+I1), s	11.8	32.6	5.2	8.3	7.7	19.3	2.8	72.5
Green Ext Time (p_c), s	0.0	0.7	0.0	55.8	0.0	8.7	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	66.4
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	600	10	10	700	10	10	250	30	10	10	110
Future Volume (veh/h)	90	600	10	10	700	10	10	250	30	10	10	110
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	98	652	11	11	761	11	11	272	33	11	11	120
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	338	1053	18	409	1056	15	82	385	46	91	48	327
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	695	1826	31	769	1832	26	25	1602	190	49	200	1360
Grp Volume(v), veh/h	98	0	663	11	0	772	316	0	0	142	0	0
Grp Sat Flow(s),veh/h/ln	695	0	1857	769	0	1858	1817	0	0	1609	0	0
Q Serve(g_s), s	5.8	0.0	11.5	0.5	0.0	14.8	0.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	20.6	0.0	11.5	12.0	0.0	14.8	7.8	0.0	0.0	3.6	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.01	0.03		0.10	0.08		0.85
Lane Grp Cap(c), veh/h	338	0	1071	409	0	1071	512	0	0	465	0	0
V/C Ratio(X)	0.29	0.00	0.62	0.03	0.00	0.72	0.62	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	384	0	1192	460	0	1193	795	0	0	708	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.0	0.0	6.8	10.8	0.0	7.5	17.1	0.0	0.0	15.5	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.8	0.0	0.0	1.9	1.2	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	6.0	0.1	0.0	7.9	4.0	0.0	0.0	1.6	0.0	0.0
LnGrp Delay(d),s/veh	15.5	0.0	7.7	10.8	0.0	9.4	18.3	0.0	0.0	15.9	0.0	0.0
LnGrp LOS	B		A	B		A	B			B		
Approach Vol, veh/h		761			783			316			142	
Approach Delay, s/veh		8.7			9.5			18.3			15.9	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		16.3		32.8		16.3		32.8
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		19.5		31.5		19.5		31.5
Max Q Clear Time (g_c+I1), s		9.8		22.6		5.6		16.8
Green Ext Time (p_c), s		2.0		5.7		2.4		8.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	360	30	150	600	370	10	1170	40	160	600	190
Future Volume (veh/h)	290	360	30	150	600	370	10	1170	40	160	600	190
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	315	391	33	163	652	402	11	1272	43	174	652	207
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	606	515	186	557	473	38	1068	478	197	1386	827
Arrive On Green	0.13	0.33	0.33	0.10	0.30	0.30	0.02	0.30	0.30	0.11	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	315	391	33	163	652	402	11	1272	43	174	652	207
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	18.5	25.3	2.0	12.8	42.2	33.7	0.9	42.6	2.8	13.6	19.4	10.1
Cycle Q Clear(g_c), s	18.5	25.3	2.0	12.8	42.2	33.7	0.9	42.6	2.8	13.6	19.4	10.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	232	606	515	186	557	473	38	1068	478	197	1386	827
V/C Ratio(X)	1.36	0.65	0.06	0.88	1.17	0.85	0.29	1.19	0.09	0.88	0.47	0.25
Avail Cap(c_a), veh/h	232	606	515	225	557	473	239	1068	478	308	1386	827
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	40.7	32.8	62.3	49.5	46.5	68.0	49.3	35.4	61.8	32.0	18.5
Incr Delay (d2), s/veh	185.3	1.9	0.0	23.9	94.9	13.0	1.6	95.5	0.0	11.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.0	13.3	0.9	7.5	36.3	16.4	0.4	34.9	1.2	7.3	9.5	4.4
LnGrp Delay(d),s/veh	246.6	42.5	32.8	86.2	144.4	59.5	69.6	144.8	35.4	73.2	32.1	18.6
LnGrp LOS	F	D	C	F	F	E	E	F	D	E	C	B
Approach Vol, veh/h		739			1217			1326			1033	
Approach Delay, s/veh		129.1			108.6			140.6			36.3	
Approach LOS		F			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	49.0	7.5	61.7	19.3	52.7	20.2	49.0
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	18.5	42.2	19.0	* 49	17.9	42.8	24.5	42.6
Max Q Clear Time (g_c+I1), s	20.5	44.2	2.9	21.4	14.8	27.3	15.6	44.6
Green Ext Time (p_c), s	0.0	0.0	0.0	9.9	0.0	4.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	104.6
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	330	0	60	740	70	10	570	40	40	720	380
Future Volume (veh/h)	220	330	0	60	740	70	10	570	40	40	720	380
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	239	359	0	65	804	76	11	620	43	43	783	413
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	948	0	82	730	69	13	866	60	55	632	332
Arrive On Green	0.12	0.51	0.00	0.05	0.44	0.44	0.01	0.26	0.26	0.03	0.28	0.28
Sat Flow, veh/h	1774	1863	0	1774	1676	158	1774	3359	233	1774	2245	1179
Grp Volume(v), veh/h	239	359	0	65	0	880	11	326	337	43	616	580
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1774	0	1835	1774	1770	1822	1774	1770	1655
Q Serve(g_s), s	17.5	17.2	0.0	5.3	0.0	63.7	0.9	24.5	24.6	3.5	41.2	41.2
Cycle Q Clear(g_c), s	17.5	17.2	0.0	5.3	0.0	63.7	0.9	24.5	24.6	3.5	41.2	41.2
Prop In Lane	1.00		0.00	1.00		0.09	1.00		0.13	1.00		0.71
Lane Grp Cap(c), veh/h	212	948	0	82	0	799	13	456	470	55	498	466
V/C Ratio(X)	1.13	0.38	0.00	0.79	0.00	1.10	0.84	0.72	0.72	0.78	1.24	1.24
Avail Cap(c_a), veh/h	212	948	0	147	0	799	61	478	492	79	498	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.4	21.9	0.0	69.0	0.0	41.3	72.5	49.4	49.4	70.4	52.5	52.5
Incr Delay (d2), s/veh	99.8	0.1	0.0	6.2	0.0	63.3	37.6	4.0	3.9	16.1	122.8	126.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.4	8.8	0.0	2.7	0.0	46.2	0.6	12.5	12.9	2.0	37.1	35.2
LnGrp Delay(d),s/veh	164.2	22.0	0.0	75.2	0.0	104.6	110.1	53.4	53.4	86.4	175.4	179.3
LnGrp LOS	F	C		E		F	F	D	D	F	F	F
Approach Vol, veh/h		598			945			674			1239	
Approach Delay, s/veh		78.8			102.5			54.3			174.1	
Approach LOS		E			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	70.5	5.6	48.2	11.3	81.2	9.1	44.7
Change Period (Y+Rc), s	4.5	6.8	4.5	* 7	4.5	* 6.8	4.5	7.0
Max Green Setting (Gmax), s	17.5	63.7	5.0	* 41	12.1	* 70	6.5	39.5
Max Q Clear Time (g_c+I1), s	19.5	65.7	2.9	43.2	7.3	19.2	5.5	26.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	5.1	0.0	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	114.7
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	20	10	10	130	190	70	310	10	90	120	30
Future Volume (veh/h)	50	20	10	10	130	190	70	310	10	90	120	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	54	22	11	11	141	207	76	337	11	98	130	33
Adj No. of Lanes	2	1	1	2	1	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	760	417	354	1011	417	354	724	745	333	526	541	242
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.21	0.21	0.21	0.15	0.15	0.15
Sat Flow, veh/h	1996	1863	1583	2658	1863	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	54	22	11	11	141	207	76	337	11	98	130	33
Grp Sat Flow(s),veh/h/ln	998	1863	1583	1329	1863	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	0.8	0.3	0.2	0.1	2.1	3.8	0.6	2.7	0.2	0.8	1.1	0.6
Cycle Q Clear(g_c), s	2.8	0.3	0.2	0.4	2.1	3.8	0.6	2.7	0.2	0.8	1.1	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	760	417	354	1011	417	354	724	745	333	526	541	242
V/C Ratio(X)	0.07	0.05	0.03	0.01	0.34	0.58	0.10	0.45	0.03	0.19	0.24	0.14
Avail Cap(c_a), veh/h	1443	1054	896	1920	1054	896	2105	2165	968	1894	1948	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	10.0	9.9	10.1	10.7	11.3	10.4	11.3	10.3	12.1	12.2	12.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.5	1.5	0.1	0.4	0.0	0.2	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.2	0.1	0.0	1.1	1.8	0.3	1.4	0.1	0.4	0.5	0.3
LnGrp Delay(d),s/veh	11.9	10.0	10.0	10.1	11.1	12.9	10.5	11.7	10.3	12.2	12.4	12.2
LnGrp LOS	B	B	A	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		87			359			424			261	
Approach Delay, s/veh		11.2			12.1			11.4			12.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		11.4		11.8		9.5		11.8
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		20.0		18.5		18.0		18.5
Max Q Clear Time (g_c+I1), s		4.7		4.8		3.1		5.8
Green Ext Time (p_c), s		2.2		1.7		1.0		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	11.8
HCM 2010 LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	220	0	30	1040	480	300
Future Volume (veh/h)	220	0	30	1040	480	300
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	239	0	33	1130	522	326
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	300	268	41	1866	762	475
Arrive On Green	0.17	0.00	0.02	0.53	0.36	0.36
Sat Flow, veh/h	1774	1583	1774	3632	2189	1306
Grp Volume(v), veh/h	239	0	33	1130	441	407
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1632
Q Serve(g_s), s	5.1	0.0	0.7	8.7	8.3	8.3
Cycle Q Clear(g_c), s	5.1	0.0	0.7	8.7	8.3	8.3
Prop In Lane	1.00	1.00	1.00			0.80
Lane Grp Cap(c), veh/h	300	268	41	1866	644	594
V/C Ratio(X)	0.80	0.00	0.81	0.61	0.68	0.69
Avail Cap(c_a), veh/h	1068	953	951	4967	1264	1166
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	19.1	6.4	10.6	10.6
Incr Delay (d2), s/veh	1.8	0.0	12.7	0.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.5	4.1	4.0	3.7
LnGrp Delay(d),s/veh	17.5	0.0	31.7	6.6	11.0	11.1
LnGrp LOS	B		C	A	B	B
Approach Vol, veh/h	239			1163	848	
Approach Delay, s/veh	17.5			7.3	11.1	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.4	20.8				27.2		12.0
Change Period (Y+Rc), s	5.5	* 6.5				* 6.5		5.4
Max Green Setting (Gmax), s	21.0	* 28				* 55		23.6
Max Q Clear Time (g_c+I1), s	2.7	10.3				10.7		7.1
Green Ext Time (p_c), s	0.0	4.0				4.2		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	10	60	30	70	200	20	1210	20	70	1190	40
Future Volume (veh/h)	90	10	60	30	70	200	20	1210	20	70	1190	40
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	98	11	65	33	76	217	22	1315	22	76	1293	43
Adj No. of Lanes	2	1	1	1	1	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	363	308	59	315	268	85	1618	724	125	1779	796
Arrive On Green	0.06	0.19	0.19	0.03	0.17	0.17	0.02	0.46	0.46	0.07	0.50	0.50
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	98	11	65	33	76	217	22	1315	22	76	1293	43
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.0	0.4	2.5	1.3	2.6	9.7	0.5	23.6	0.6	3.1	21.1	1.0
Cycle Q Clear(g_c), s	2.0	0.4	2.5	1.3	2.6	9.7	0.5	23.6	0.6	3.1	21.1	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	363	308	59	315	268	85	1618	724	125	1779	796
V/C Ratio(X)	0.48	0.03	0.21	0.56	0.24	0.81	0.26	0.81	0.03	0.61	0.73	0.05
Avail Cap(c_a), veh/h	234	456	387	121	456	387	234	1618	724	434	2117	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	24.0	24.9	35.0	26.5	29.4	35.2	17.3	11.0	33.2	14.3	9.3
Incr Delay (d2), s/veh	1.8	0.0	0.3	8.0	0.4	8.1	1.6	3.3	0.0	4.8	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	1.1	0.8	1.4	4.8	0.2	12.2	0.2	1.7	10.5	0.4
LnGrp Delay(d),s/veh	35.3	24.0	25.2	43.0	26.9	37.5	36.8	20.5	11.0	38.0	15.4	9.4
LnGrp LOS	D	C	C	D	C	D	D	C	B	D	B	A
Approach Vol, veh/h		174			326			1359			1412	
Approach Delay, s/veh		30.8			35.6			20.6			16.4	
Approach LOS		C			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	41.5	7.0	18.8	9.7	38.1	8.8	16.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	44.0	5.0	18.0	18.0	31.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.5	23.1	3.3	4.5	5.1	25.6	4.0	11.7
Green Ext Time (p_c), s	0.0	13.9	0.0	1.1	0.1	4.9	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1030	620	10	40	730	10	10	50	20	10	10	460
Future Volume (veh/h)	1030	620	10	40	730	10	10	50	20	10	10	460
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	1120	674	0	43	793	11	11	54	22	11	11	500
Adj No. of Lanes	1	2	1	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	683	2032	909	55	787	11	14	70	28	149	149	870
Arrive On Green	0.39	0.57	0.00	0.03	0.22	0.22	0.06	0.06	0.06	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1583	1774	3574	50	223	1095	446	909	909	1583
Grp Volume(v), veh/h	1120	674	0	43	393	411	87	0	0	22	0	500
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1854	1765	0	0	1817	0	1583
Q Serve(g_s), s	52.5	13.7	0.0	3.3	30.0	30.0	6.6	0.0	0.0	1.4	0.0	22.4
Cycle Q Clear(g_c), s	52.5	13.7	0.0	3.3	30.0	30.0	6.6	0.0	0.0	1.4	0.0	22.4
Prop In Lane	1.00		1.00	1.00		0.03	0.13		0.25	0.50		1.00
Lane Grp Cap(c), veh/h	683	2032	909	55	390	408	113	0	0	299	0	870
V/C Ratio(X)	1.64	0.33	0.00	0.78	1.01	1.01	0.77	0.00	0.00	0.07	0.00	0.57
Avail Cap(c_a), veh/h	683	2032	909	120	390	408	290	0	0	299	0	870
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.9	15.3	0.0	65.6	53.1	53.1	62.8	0.0	0.0	48.2	0.0	20.2
Incr Delay (d2), s/veh	294.1	0.0	0.0	8.4	47.6	46.6	4.2	0.0	0.0	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	81.5	6.7	0.0	1.7	19.8	20.6	3.4	0.0	0.0	0.7	0.0	12.4
LnGrp Delay(d),s/veh	336.0	15.3	0.0	74.0	100.8	99.8	67.0	0.0	0.0	48.2	0.0	20.8
LnGrp LOS	F	B		E	F	F	E			D		C
Approach Vol, veh/h		1794			847			87			522	
Approach Delay, s/veh		215.5			98.9			67.0			22.0	
Approach LOS		F			F			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	58.0	36.0		14.3	9.7	84.3		28.0
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		5.6
Max Green Setting (Gmax), s	52.5	30.0		* 22	9.2	* 74		22.4
Max Q Clear Time (g_c+I1), s	54.5	32.0		8.6	5.3	15.7		24.4
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	2.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	150.1
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	490	590	30	10	30	1200	1020	80	130	50	260	10
Future Volume (veh/h)	490	590	30	10	30	1200	1020	80	130	50	260	10
Number	1	6	16		5	2	12	3	8	18	7	4
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900		1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	533	641	33		33	1304	1109	87	141	54	283	11
Adj No. of Lanes	1	2	0		2	3	1	1	1	0	2	2
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	383	2154	111		60	2173	668	108	161	62	248	484
Arrive On Green	0.22	0.63	0.63		0.02	0.43	0.43	0.06	0.13	0.13	0.07	0.14
Sat Flow, veh/h	1774	3425	176		3442	5085	1563	1774	1284	492	3442	3539
Grp Volume(v), veh/h	533	331	343		33	1304	1109	87	0	195	283	11
Grp Sat Flow(s),veh/h/ln	1774	1770	1832		1721	1695	1563	1774	0	1776	1721	1770
Q Serve(g_s), s	28.5	11.3	11.3		1.3	26.1	56.4	6.4	0.0	14.2	9.5	0.4
Cycle Q Clear(g_c), s	28.5	11.3	11.3		1.3	26.1	56.4	6.4	0.0	14.2	9.5	0.4
Prop In Lane	1.00		0.10		1.00		1.00	1.00		0.28	1.00	
Lane Grp Cap(c), veh/h	383	1113	1152		60	2173	668	108	0	223	248	484
V/C Ratio(X)	1.39	0.30	0.30		0.55	0.60	1.66	0.80	0.00	0.87	1.14	0.02
Avail Cap(c_a), veh/h	383	1113	1152		138	2173	668	113	0	471	248	960
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	11.2	11.2		64.3	29.1	37.8	61.2	0.0	56.7	61.2	49.3
Incr Delay (d2), s/veh	191.5	0.1	0.1		3.0	0.3	304.0	29.6	0.0	4.2	101.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	34.3	5.5	5.7		0.6	12.3	80.6	4.0	0.0	7.2	8.0	0.2
LnGrp Delay(d),s/veh	243.2	11.2	11.2		67.3	29.4	341.8	90.8	0.0	60.8	162.3	49.3
LnGrp LOS	F	B	B		E	C	F	F		E	F	D
Approach Vol, veh/h		1207				2446			282			392
Approach Delay, s/veh		113.7				171.6			70.1			131.8
Approach LOS		F				F			E			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.0	61.3	13.5	23.1	7.4	87.9	15.0	21.7
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	28.5	* 56	8.4	* 36	* 5.3	* 80	9.5	* 35
Max Q Clear Time (g_c+I1), s	30.5	58.4	8.4	9.5	3.3	13.3	11.5	16.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	5.4	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	145.2
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	90
Future Volume (veh/h)	90
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	98
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	216
Arrive On Green	0.14
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	98
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	7.5
Cycle Q Clear(g_c), s	7.5
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	216
V/C Ratio(X)	0.45
Avail Cap(c_a), veh/h	429
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	52.4
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	3.3
LnGrp Delay(d),s/veh	53.0
LnGrp LOS	D
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	280	280	130	1220	180	1020	2250	160	20	800	170
Future Volume (veh/h)	270	280	280	130	1220	180	1020	2250	160	20	800	170
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	293	304	304	141	1326	196	1109	2446	174	22	870	185
Adj No. of Lanes	2	3	1	2	3	1	2	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	1534	478	189	1460	455	767	2273	699	43	1203	375
Arrive On Green	0.07	0.30	0.30	0.05	0.29	0.29	0.22	0.45	0.45	0.01	0.24	0.24
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	1564	3442	5085	1583
Grp Volume(v), veh/h	293	304	304	141	1326	196	1109	2446	174	22	870	185
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1564	1721	1695	1583
Q Serve(g_s), s	9.5	6.1	22.7	5.5	34.4	13.8	30.5	61.2	9.5	0.9	21.6	13.8
Cycle Q Clear(g_c), s	9.5	6.1	22.7	5.5	34.4	13.8	30.5	61.2	9.5	0.9	21.6	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	1534	478	189	1460	455	767	2273	699	43	1203	375
V/C Ratio(X)	1.23	0.20	0.64	0.75	0.91	0.43	1.45	1.08	0.25	0.51	0.72	0.49
Avail Cap(c_a), veh/h	239	1575	490	287	1642	511	767	2273	699	126	1322	412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.7	35.5	41.3	63.8	47.1	39.7	53.2	37.9	23.6	67.2	48.1	45.2
Incr Delay (d2), s/veh	133.4	0.0	2.0	2.2	6.8	0.2	208.3	43.1	0.1	3.5	1.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	2.8	10.2	2.7	17.0	6.1	36.7	37.7	4.1	0.4	10.2	6.1
LnGrp Delay(d),s/veh	197.1	35.5	43.3	66.0	53.8	39.9	261.5	81.0	23.6	70.7	49.6	45.5
LnGrp LOS	F	D	D	E	D	D	F	F	C	E	D	D
Approach Vol, veh/h		901			1663			3729			1077	
Approach Delay, s/veh		90.7			53.2			132.0			49.3	
Approach LOS		F			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	68.6	13.0	48.1	36.0	39.8	15.0	46.1
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	5.0	* 61	11.4	* 42	30.5	* 36	9.5	44.2
Max Q Clear Time (g_c+I1), s	2.9	63.2	7.5	24.7	32.5	23.6	11.5	36.4
Green Ext Time (p_c), s	0.0	0.0	0.0	3.8	0.0	7.6	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	97.1
HCM 2010 LOS	F

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	380	120	410	1170	800	160
Future Volume (veh/h)	380	120	410	1170	800	160
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	272	282	446	1272	870	174
Adj No. of Lanes	1	1	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	371	338	574	2064	1160	519
Arrive On Green	0.21	0.21	0.17	0.58	0.33	0.33
Sat Flow, veh/h	1774	1615	3442	3632	3632	1583
Grp Volume(v), veh/h	272	282	446	1272	870	174
Grp Sat Flow(s),veh/h/ln	1774	1615	1721	1770	1770	1583
Q Serve(g_s), s	7.4	8.7	6.5	12.2	11.4	4.3
Cycle Q Clear(g_c), s	7.4	8.7	6.5	12.2	11.4	4.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	371	338	574	2064	1160	519
V/C Ratio(X)	0.73	0.83	0.78	0.62	0.75	0.34
Avail Cap(c_a), veh/h	607	553	1323	3178	1483	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	19.7	20.7	7.1	15.6	13.2
Incr Delay (d2), s/veh	1.1	2.6	0.9	0.1	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	4.1	3.1	5.9	5.7	1.9
LnGrp Delay(d),s/veh	20.3	22.3	21.6	7.2	16.7	13.3
LnGrp LOS	C	C	C	A	B	B
Approach Vol, veh/h	554			1718	1044	
Approach Delay, s/veh	21.3			10.9	16.1	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.3	23.2				36.4		15.6
Change Period (Y+Rc), s	* 4.6	* 6.1				* 6.1		4.7
Max Green Setting (Gmax), s	* 20	* 22				* 47		17.8
Max Q Clear Time (g_c+I1), s	8.5	13.4				14.2		10.7
Green Ext Time (p_c), s	0.2	3.7				5.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

Notes

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	10	10	630	350	400	740	60	380	160	580	60	180
Future Volume (veh/h)	10	10	630	350	400	740	60	380	160	580	60	180
Number		1	6	16	5	2	12	7	4	14	3	8
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.96	1.00		0.99	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863
Adj Flow Rate, veh/h		11	685	0	435	804	65	333	461	442	65	196
Adj No. of Lanes		1	2	1	2	2	0	1	1	1	0	2
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		14	807	361	492	1198	97	516	542	454	94	292
Arrive On Green		0.01	0.23	0.00	0.14	0.36	0.36	0.29	0.29	0.29	0.14	0.14
Sat Flow, veh/h		1774	3539	1583	3442	3305	267	1774	1863	1560	658	2031
Grp Volume(v), veh/h		11	685	0	435	430	439	333	461	442	181	0
Grp Sat Flow(s),veh/h/ln		1774	1770	1583	1721	1770	1803	1774	1863	1560	1830	0
Q Serve(g_s), s		0.7	19.6	0.0	13.1	21.7	21.7	17.4	24.7	29.7	9.9	0.0
Cycle Q Clear(g_c), s		0.7	19.6	0.0	13.1	21.7	21.7	17.4	24.7	29.7	9.9	0.0
Prop In Lane		1.00		1.00	1.00		0.15	1.00		1.00	0.36	
Lane Grp Cap(c), veh/h		14	807	361	492	641	653	516	542	454	263	0
V/C Ratio(X)		0.79	0.85	0.00	0.88	0.67	0.67	0.65	0.85	0.97	0.69	0.00
Avail Cap(c_a), veh/h		72	906	405	504	641	653	516	542	454	449	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		52.5	39.1	0.0	44.5	28.5	28.5	32.8	35.4	37.2	43.1	0.0
Incr Delay (d2), s/veh		29.9	6.3	0.0	16.0	2.2	2.2	2.2	11.7	35.3	1.2	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.4	10.3	0.0	7.3	11.0	11.2	8.8	14.4	17.2	5.1	0.0
LnGrp Delay(d),s/veh		82.3	45.4	0.0	60.6	30.7	30.7	35.0	47.1	72.4	44.3	0.0
LnGrp LOS		F	D		E	C	C	C	D	E	D	
Approach Vol, veh/h			696			1304			1236			337
Approach Delay, s/veh			46.0			40.6			52.9			44.1
Approach LOS			D			D			D			D

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	43.1		36.0	20.3	28.9		20.7
Change Period (Y+Rc), s	* 5.3	* 4.7		* 5.2	* 5.2	* 4.7		5.5
Max Green Setting (Gmax), s	* 4.3	* 38		* 31	* 16	* 27		26.0
Max Q Clear Time (g_c+I1), s	2.7	23.7		31.7	15.1	21.6		11.9
Green Ext Time (p_c), s	0.0	2.6		0.0	0.0	1.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	46.3
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	70
Future Volume (veh/h)	70
Number	18
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.95
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	76
Adj No. of Lanes	0
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	117
Arrive On Green	0.14
Sat Flow, veh/h	814
Grp Volume(v), veh/h	156
Grp Sat Flow(s),veh/h/ln	1673
Q Serve(g_s), s	9.3
Cycle Q Clear(g_c), s	9.3
Prop In Lane	0.49
Lane Grp Cap(c), veh/h	240
V/C Ratio(X)	0.65
Avail Cap(c_a), veh/h	411
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	42.8
Incr Delay (d2), s/veh	1.1
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	4.4
LnGrp Delay(d),s/veh	43.9
LnGrp LOS	D
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1180	0	350	0	1020	670	0	1120	150
Future Volume (veh/h)	0	0	0	1180	0	350	0	1020	670	0	1120	150
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				832	632	380	0	1109	0	0	1217	0
Adj No. of Lanes				1	1	0	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	0	2	2	0	2	2
Cap, veh/h				991	608	365	0	1464	456	0	1464	456
Arrive On Green				0.56	0.56	0.56	0.00	0.29	0.00	0.00	0.29	0.00
Sat Flow, veh/h				1774	1088	654	0	5253	1583	0	5253	1583
Grp Volume(v), veh/h				832	0	1012	0	1109	0	0	1217	0
Grp Sat Flow(s),veh/h/ln				1774	0	1742	0	1695	1583	0	1695	1583
Q Serve(g_s), s				25.2	0.0	36.1	0.0	12.8	0.0	0.0	14.5	0.0
Cycle Q Clear(g_c), s				25.2	0.0	36.1	0.0	12.8	0.0	0.0	14.5	0.0
Prop In Lane				1.00		0.38	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				991	0	973	0	1464	456	0	1464	456
V/C Ratio(X)				0.84	0.00	1.04	0.00	0.76	0.00	0.00	0.83	0.00
Avail Cap(c_a), veh/h				991	0	973	0	1496	466	0	1551	483
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				11.8	0.0	14.3	0.0	20.9	0.0	0.0	21.5	0.0
Incr Delay (d2), s/veh				6.2	0.0	39.7	0.0	2.0	0.0	0.0	3.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				13.7	0.0	27.8	0.0	6.2	0.0	0.0	7.2	0.0
LnGrp Delay(d),s/veh				18.0	0.0	53.9	0.0	22.9	0.0	0.0	25.0	0.0
LnGrp LOS				B		F		C			C	
Approach Vol, veh/h					1844			1109			1217	
Approach Delay, s/veh					37.7			22.9			25.0	
Approach LOS					D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		23.6				23.6		41.0
Change Period (Y+Rc), s		* 5				5.0		4.9
Max Green Setting (Gmax), s		* 20				19.0		36.1
Max Q Clear Time (g_c+I1), s		16.5				14.8		38.1
Green Ext Time (p_c), s		2.1				2.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	0	1220	0	0	0	0	1300	490	0	1720	420
Future Volume (veh/h)	280	0	1220	0	0	0	0	1300	490	0	1720	420
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	203	0	1435				0	1413	0	0	1870	0
Adj No. of Lanes	1	0	2				0	3	0	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	2
Cap, veh/h	818	0	1457				0	2037	0	0	2037	634
Arrive On Green	0.46	0.00	0.46				0.00	0.40	0.00	0.00	0.40	0.00
Sat Flow, veh/h	1774	0	3163				0	5421	0	0	5253	1583
Grp Volume(v), veh/h	203	0	1435				0	1413	0	0	1870	0
Grp Sat Flow(s),veh/h/ln	1774	0	1581				0	1695	0	0	1695	1583
Q Serve(g_s), s	5.2	0.0	33.6				0.0	17.3	0.0	0.0	26.2	0.0
Cycle Q Clear(g_c), s	5.2	0.0	33.6				0.0	17.3	0.0	0.0	26.2	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	818	0	1457				0	2037	0	0	2037	634
V/C Ratio(X)	0.25	0.00	0.98				0.00	0.69	0.00	0.00	0.92	0.00
Avail Cap(c_a), veh/h	818	0	1457				0	2037	0	0	2066	643
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	12.3	0.0	20.0				0.0	18.7	0.0	0.0	21.3	0.0
Incr Delay (d2), s/veh	0.1	0.0	19.8				0.0	0.9	0.0	0.0	6.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	18.6				0.0	8.1	0.0	0.0	13.4	0.0
LnGrp Delay(d),s/veh	12.4	0.0	39.8				0.0	19.5	0.0	0.0	28.2	0.0
LnGrp LOS	B		D					B			C	
Approach Vol, veh/h		1638						1413			1870	
Approach Delay, s/veh		36.4						19.5			28.2	
Approach LOS		D						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		35.1		40.0		35.1		
Change Period (Y+Rc), s		* 5		* 5.4		5.0		
Max Green Setting (Gmax), s		* 31		* 35		30.0		
Max Q Clear Time (g_c+I1), s		28.2		35.6		19.3		
Green Ext Time (p_c), s		1.9		0.0		7.1		

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	1020	750	20	10	670	270	10
Future Volume (veh/h)	1020	750	20	10	670	270	10
Number	6	16		5	2	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	1109	0		11	728	293	11
Adj No. of Lanes	3	0		1	3	2	1
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2915	0		15	3517	433	199
Arrive On Green	0.57	0.00		0.01	0.69	0.13	0.13
Sat Flow, veh/h	5421	0		1774	5253	3442	1583
Grp Volume(v), veh/h	1109	0		11	728	293	11
Grp Sat Flow(s),veh/h/ln	1695	0		1774	1695	1721	1583
Q Serve(g_s), s	5.5	0.0		0.3	2.4	3.8	0.3
Cycle Q Clear(g_c), s	5.5	0.0		0.3	2.4	3.8	0.3
Prop In Lane		0.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2915	0		15	3517	433	199
V/C Ratio(X)	0.38	0.00		0.73	0.21	0.68	0.06
Avail Cap(c_a), veh/h	3379	0		248	4647	2146	987
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.4	0.0		23.0	2.6	19.4	17.9
Incr Delay (d2), s/veh	0.2	0.0		21.4	0.1	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0		0.2	1.1	1.8	0.1
LnGrp Delay(d),s/veh	5.6	0.0		44.4	2.6	20.1	17.9
LnGrp LOS	A			D	A	C	B
Approach Vol, veh/h	1109				739	304	
Approach Delay, s/veh	5.6				3.3	20.0	
Approach LOS	A				A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		37.2			5.5	31.7		9.3
Change Period (Y+Rc), s		5.0			* 5.1	5.0		3.5
Max Green Setting (Gmax), s		42.5			* 6.5	30.9		29.0
Max Q Clear Time (g_c+I1), s		4.4			2.3	7.5		5.8
Green Ext Time (p_c), s		27.8			0.0	18.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.8
HCM 2010 LOS	A

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	10	220	750	220	20	200	840	70	20	440	1360	220
Future Volume (veh/h)	10	220	750	220	20	200	840	70	20	440	1360	220
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1863
Adj Flow Rate, veh/h		239	815	239		217	913	76		478	1478	239
Adj No. of Lanes		2	3	0		2	3	1		2	3	1
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		273	986	287		281	1299	398		541	1774	551
Arrive On Green		0.08	0.25	0.25		0.08	0.26	0.26		0.16	0.35	0.35
Sat Flow, veh/h		3442	3898	1134		3442	5085	1557		3442	5085	1579
Grp Volume(v), veh/h		239	708	346		217	913	76		478	1478	239
Grp Sat Flow(s),veh/h/ln		1721	1695	1642		1721	1695	1557		1721	1695	1579
Q Serve(g_s), s		6.8	19.6	19.9		6.2	16.2	3.8		13.5	26.6	11.6
Cycle Q Clear(g_c), s		6.8	19.6	19.9		6.2	16.2	3.8		13.5	26.6	11.6
Prop In Lane		1.00		0.69		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		273	858	415		281	1299	398		541	1774	551
V/C Ratio(X)		0.88	0.83	0.83		0.77	0.70	0.19		0.88	0.83	0.43
Avail Cap(c_a), veh/h		273	974	472		287	1481	454		605	1782	554
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		45.3	35.1	35.2		44.8	33.6	29.0		41.1	29.8	24.9
Incr Delay (d2), s/veh		24.7	4.7	9.8		10.8	1.0	0.1		12.6	3.3	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.2	9.7	10.1		3.3	7.7	1.6		7.4	13.0	5.1
LnGrp Delay(d),s/veh		70.1	39.8	45.0		55.6	34.6	29.1		53.6	33.1	25.1
LnGrp LOS		E	D	D		E	C	C		D	C	C
Approach Vol, veh/h			1293				1206				2195	
Approach Delay, s/veh			46.8				38.0				36.7	
Approach LOS			D				D				D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.1	33.8	13.4	31.2	14.6	40.3	13.6	31.0
Change Period (Y+Rc), s	5.5	* 5.6	5.5	5.8	5.5	* 5.6	5.5	5.8
Max Green Setting (Gmax), s	17.5	* 28	7.9	29.0	10.8	* 35	8.3	28.6
Max Q Clear Time (g_c+I1), s	15.5	30.2	8.8	18.2	9.1	28.6	8.2	21.9
Green Ext Time (p_c), s	0.1	0.0	0.0	4.0	0.0	3.9	0.0	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	45.3
HCM 2010 LOS	D

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	230	480	450
Future Volume (veh/h)	230	480	450
Number	5	2	12
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900
Adj Flow Rate, veh/h	250	522	489
Adj No. of Lanes	2	3	0
Peak Hour Factor	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2
Cap, veh/h	315	960	442
Arrive On Green	0.09	0.28	0.28
Sat Flow, veh/h	3442	3390	1561
Grp Volume(v), veh/h	250	522	489
Grp Sat Flow(s),veh/h/ln	1721	1695	1561
Q Serve(g_s), s	7.1	13.0	28.2
Cycle Q Clear(g_c), s	7.1	13.0	28.2
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	315	960	442
V/C Ratio(X)	0.79	0.54	1.11
Avail Cap(c_a), veh/h	373	960	442
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.3	30.2	35.7
Incr Delay (d2), s/veh	7.9	0.4	74.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	6.1	21.2
LnGrp Delay(d),s/veh	52.3	30.6	110.4
LnGrp LOS	D	C	F
Approach Vol, veh/h		1261	
Approach Delay, s/veh		65.8	
Approach LOS		E	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	110	10	130	140	620	50	1600	140	720	1780	750
Future Volume (veh/h)	30	110	10	130	140	620	50	1600	140	720	1780	750
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	33	120	11	141	152	674	54	1739	152	783	1935	815
Adj No. of Lanes	2	3	0	2	1	2	2	3	0	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	741	66	190	359	1350	90	1838	160	823	3046	932
Arrive On Green	0.02	0.16	0.16	0.05	0.19	0.19	0.03	0.39	0.39	0.24	0.60	0.60
Sat Flow, veh/h	3442	4740	422	3548	1863	3077	3442	4761	415	3442	5085	1557
Grp Volume(v), veh/h	33	85	46	141	152	674	54	1237	654	783	1935	815
Grp Sat Flow(s),veh/h/ln	1721	1695	1772	1774	1863	1538	1721	1695	1786	1721	1695	1557
Q Serve(g_s), s	1.3	3.0	3.1	5.4	9.9	21.9	2.1	48.5	48.8	30.8	33.9	60.6
Cycle Q Clear(g_c), s	1.3	3.0	3.1	5.4	9.9	21.9	2.1	48.5	48.8	30.8	33.9	60.6
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	59	530	277	190	359	1350	90	1309	689	823	3046	932
V/C Ratio(X)	0.56	0.16	0.17	0.74	0.42	0.50	0.60	0.95	0.95	0.95	0.64	0.87
Avail Cap(c_a), veh/h	133	690	361	191	414	1442	123	1331	701	838	3046	932
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.1	50.2	50.3	64.2	48.8	28.4	66.3	40.8	40.9	51.5	17.9	23.2
Incr Delay (d2), s/veh	3.0	0.1	0.1	12.8	0.3	0.1	2.3	13.4	21.8	19.7	0.3	8.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.4	1.5	3.0	5.1	9.3	1.0	25.1	28.1	16.9	15.9	28.1
LnGrp Delay(d),s/veh	70.1	50.3	50.4	77.0	49.1	28.5	68.6	54.2	62.7	71.2	18.2	32.1
LnGrp LOS	E	D	D	E	D	C	E	D	E	E	B	C
Approach Vol, veh/h		164			967			1945			3533	
Approach Delay, s/veh		54.3			38.8			57.5			33.2	
Approach LOS		D			D			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	88.1	7.9	32.5	38.4	58.8	12.9	27.5
Change Period (Y+Rc), s	5.5	* 5.7	5.5	* 6	5.5	* 5.7	5.5	* 6
Max Green Setting (Gmax), s	4.9	* 82	5.3	* 31	33.5	* 54	7.4	* 28
Max Q Clear Time (g_c+I1), s	4.1	62.6	3.3	23.9	32.8	50.8	7.4	5.1
Green Ext Time (p_c), s	0.0	13.0	0.0	0.9	0.1	2.3	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	41.7
HCM 2010 LOS	D

Notes

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	450	10	910	1310	170	50	1390	710	10	1890	220
Future Volume (vph)	450	10	910	1310	170	50	1390	710	10	1890	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8	6.8	4.5		4.6			4.6	4.0
Lane Util. Factor		0.91	0.86	0.91	0.88		0.86			0.91	1.00
Frpb, ped/bikes		1.00	0.99	0.98	1.00		0.99			1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.94	0.85	0.85		0.95			1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1610	2991	1418	2787		6031			5085	1545
Flt Permitted		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		1610	2991	1418	2787		6031			5085	1545
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	489	11	989	1424	185	54	1511	772	11	2054	239
RTOR Reduction (vph)	0	0	1	30	72	0	1	0	0	0	0
Lane Group Flow (vph)	0	499	1658	725	167	0	2293	0	0	2054	239
Confl. Peds. (#/hr)	6	6		6	3	3		3	3		6
Confl. Bikes (#/hr)								2	2		3
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		5		6			2	
Permitted Phases				4							Free
Actuated Green, G (s)		55.2	55.2	55.2	6.5		42.4			53.4	120.0
Effective Green, g (s)		55.2	55.2	55.2	6.5		42.4			53.4	120.0
Actuated g/C Ratio		0.46	0.46	0.46	0.05		0.35			0.44	1.00
Clearance Time (s)		6.8	6.8	6.8	4.5		4.6			4.6	
Vehicle Extension (s)		1.0	1.0	1.0	3.0		1.0			1.0	
Lane Grp Cap (vph)		740	1375	652	150		2130			2262	1545
v/s Ratio Prot		0.31	c0.55		0.06		c0.38			c0.40	
v/s Ratio Perm				0.51							0.15
v/c Ratio		0.67	1.21	1.11	1.11		1.39dr			0.91	0.15
Uniform Delay, d1		25.4	32.4	32.4	56.8		38.8			31.0	0.0
Progression Factor		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		1.9	99.7	70.3	107.4		43.8			5.7	0.2
Delay (s)		27.3	132.1	102.7	164.1		82.6			36.7	0.2
Level of Service		C	F	F	F		F			D	A
Approach Delay (s)			106.5				82.6			32.9	
Approach LOS			F				F			C	

Intersection Summary			
HCM 2000 Control Delay	79.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	100.7%	ICU Level of Service	G
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1210	0	170	0	850	830	0	1150	480
Future Volume (veh/h)	0	0	0	1210	0	170	0	850	830	0	1150	480
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				1315	0	185	0	924	0	0	1250	0
Adj No. of Lanes				2	0	1	0	3	2	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				1604	0	738	0	1730	948	0	1730	539
Arrive On Green				0.47	0.00	0.47	0.00	0.34	0.00	0.00	0.34	0.00
Sat Flow, veh/h				3442	0	1583	0	5253	2787	0	5253	1583
Grp Volume(v), veh/h				1315	0	185	0	924	0	0	1250	0
Grp Sat Flow(s),veh/h/ln				1721	0	1583	0	1695	1393	0	1695	1583
Q Serve(g_s), s				15.5	0.0	3.3	0.0	6.9	0.0	0.0	10.1	0.0
Cycle Q Clear(g_c), s				15.5	0.0	3.3	0.0	6.9	0.0	0.0	10.1	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1604	0	738	0	1730	948	0	1730	539
V/C Ratio(X)				0.82	0.00	0.25	0.00	0.53	0.00	0.00	0.72	0.00
Avail Cap(c_a), veh/h				1940	0	893	0	2099	1150	0	2099	653
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				10.8	0.0	7.6	0.0	12.5	0.0	0.0	13.6	0.0
Incr Delay (d2), s/veh				2.4	0.0	0.2	0.0	0.1	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				7.9	0.0	1.5	0.0	3.2	0.0	0.0	4.7	0.0
LnGrp Delay(d),s/veh				13.3	0.0	7.8	0.0	12.6	0.0	0.0	14.3	0.0
LnGrp LOS				B		A		B			B	
Approach Vol, veh/h					1500			924			1250	
Approach Delay, s/veh					12.6			12.6			14.3	
Approach LOS					B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		20.6				20.6		26.4
Change Period (Y+Rc), s		4.6				4.6		4.5
Max Green Setting (Gmax), s		19.4				19.4		26.5
Max Q Clear Time (g_c+I1), s		8.9				12.1		17.5
Green Ext Time (p_c), s		4.6				3.7		4.4

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	50	240	340	200	10	250	1090	180	40	290	1530	140
Future Volume (veh/h)	50	240	340	200	10	250	1090	180	40	290	1530	140
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		1.00		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		261	370	217		272	1185	196		315	1663	152
Adj No. of Lanes		2	2	1		2	3	1		2	3	1
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		283	831	365		283	1194	370		310	1974	606
Arrive On Green		0.09	0.26	0.26		0.09	0.26	0.26		0.10	0.43	0.43
Sat Flow, veh/h		3097	3185	1401		3097	4577	1420		3097	4577	1405
Grp Volume(v), veh/h		261	370	217		272	1185	196		315	1663	152
Grp Sat Flow(s),veh/h/ln		1549	1593	1401		1549	1526	1420		1549	1526	1405
Q Serve(g_s), s		9.6	11.2	15.6		10.1	29.7	13.6		11.5	37.3	7.9
Cycle Q Clear(g_c), s		9.6	11.2	15.6		10.1	29.7	13.6		11.5	37.3	7.9
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		283	831	365		283	1194	370		310	1974	606
V/C Ratio(X)		0.92	0.45	0.59		0.96	0.99	0.53		1.02	0.84	0.25
Avail Cap(c_a), veh/h		283	831	365		283	1194	370		310	1974	606
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		51.8	35.5	37.2		52.1	42.4	36.4		51.8	29.2	20.8
Incr Delay (d2), s/veh		33.3	0.8	3.8		42.7	24.3	4.1		55.5	3.8	0.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.4	5.0	6.4		6.0	15.2	5.8		7.3	16.4	3.1
LnGrp Delay(d),s/veh		85.2	36.3	41.0		94.8	66.7	40.5		107.4	33.0	21.3
LnGrp LOS		F	D	D		F	E	D		F	C	C
Approach Vol, veh/h			848				1653				2130	
Approach Delay, s/veh			52.6				68.2				43.2	
Approach LOS			D				E				D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	46.0	16.0	36.0	7.6	55.4	16.0	36.0
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	11.5	* 40	10.5	30.0	4.0	* 48	10.5	30.0
Max Q Clear Time (g_c+I1), s	13.5	42.2	11.6	31.7	3.2	39.3	12.1	17.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	8.5	0.0	11.4

Intersection Summary	
HCM 2010 Ctrl Delay	65.5
HCM 2010 LOS	E

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	20	30	900	600
Future Volume (veh/h)	20	30	900	600
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676
Adj Flow Rate, veh/h		33	978	652
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2
Cap, veh/h		56	1600	490
Arrive On Green		0.02	0.35	0.35
Sat Flow, veh/h		3097	4577	1402
Grp Volume(v), veh/h		33	978	652
Grp Sat Flow(s),veh/h/ln		1549	1526	1402
Q Serve(g_s), s		1.2	20.3	40.2
Cycle Q Clear(g_c), s		1.2	20.3	40.2
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		56	1600	490
V/C Ratio(X)		0.58	0.61	1.33
Avail Cap(c_a), veh/h		108	1600	490
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		56.0	30.9	37.4
Incr Delay (d2), s/veh		3.5	1.0	162.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	8.7	37.6
LnGrp Delay(d),s/veh		59.5	31.9	199.5
LnGrp LOS		E	C	F
Approach Vol, veh/h			1663	
Approach Delay, s/veh			98.2	
Approach LOS			F	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	170	20	140	430	140	30	1600	120	170	2000	450
Future Volume (veh/h)	400	170	20	140	430	140	30	1600	120	170	2000	450
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	435	185	22	152	467	152	33	1739	130	185	2174	489
Adj No. of Lanes	2	2	1	2	2	1	2	4	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	474	1022	451	205	779	320	60	2594	639	237	2321	715
Arrive On Green	0.14	0.29	0.29	0.06	0.21	0.21	0.02	0.40	0.40	0.07	0.46	0.46
Sat Flow, veh/h	3442	3539	1562	3548	3725	1529	3442	6408	1579	3442	5085	1568
Grp Volume(v), veh/h	435	185	22	152	467	152	33	1739	130	185	2174	489
Grp Sat Flow(s),veh/h/ln	1721	1770	1562	1774	1863	1529	1721	1602	1579	1721	1695	1568
Q Serve(g_s), s	15.8	5.0	1.3	5.4	14.4	11.1	1.2	28.2	6.8	6.7	51.6	31.3
Cycle Q Clear(g_c), s	15.8	5.0	1.3	5.4	14.4	11.1	1.2	28.2	6.8	6.7	51.6	31.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	474	1022	451	205	779	320	60	2594	639	237	2321	715
V/C Ratio(X)	0.92	0.18	0.05	0.74	0.60	0.48	0.55	0.67	0.20	0.78	0.94	0.68
Avail Cap(c_a), veh/h	474	1075	475	307	938	385	108	2594	639	341	2358	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.1	33.9	32.6	58.9	45.4	44.1	61.9	30.9	24.5	58.2	32.8	27.3
Incr Delay (d2), s/veh	22.4	0.1	0.1	2.0	1.3	1.9	4.8	0.6	0.1	4.1	8.2	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	2.5	0.6	2.7	7.5	4.8	0.6	12.5	3.0	3.3	25.7	14.1
LnGrp Delay(d),s/veh	76.4	34.0	32.6	60.9	46.7	46.0	66.7	31.5	24.6	62.3	40.9	30.7
LnGrp LOS	E	C	C	E	D	D	E	C	C	E	D	C
Approach Vol, veh/h		642			771			1902			2848	
Approach Delay, s/veh		62.7			49.4			31.6			40.6	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	63.8	23.0	32.6	14.3	57.2	12.9	42.7
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	* 6
Max Green Setting (Gmax), s	4.0	* 59	17.5	32.0	12.6	* 50	11.0	* 39
Max Q Clear Time (g_c+I1), s	3.2	53.6	17.8	16.4	8.7	30.2	7.4	7.0
Green Ext Time (p_c), s	0.0	4.4	0.0	6.6	0.0	19.8	0.0	9.1

Intersection Summary	
HCM 2010 Ctrl Delay	41.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1330	0	670	0	0	0	0	1770	500	0	1900	440
Future Volume (veh/h)	1330	0	670	0	0	0	0	1770	500	0	1900	440
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	1446	0	728				0	1924	0	0	2065	0
Adj No. of Lanes	3	0	2				0	4	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	1713	0	954				0	3598	765	0	2699	765
Arrive On Green	0.34	0.00	0.34				0.00	0.48	0.00	0.00	0.48	0.00
Sat Flow, veh/h	5003	0	2787				0	7451	1583	0	5588	1583
Grp Volume(v), veh/h	1446	0	728				0	1924	0	0	2065	0
Grp Sat Flow(s),veh/h/ln	1668	0	1393				0	1863	1583	0	1863	1583
Q Serve(g_s), s	14.1	0.0	12.2				0.0	9.5	0.0	0.0	16.0	0.0
Cycle Q Clear(g_c), s	14.1	0.0	12.2				0.0	9.5	0.0	0.0	16.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	1713	0	954				0	3598	765	0	2699	765
V/C Ratio(X)	0.84	0.00	0.76				0.00	0.53	0.00	0.00	0.77	0.00
Avail Cap(c_a), veh/h	1757	0	979				0	3919	833	0	2897	821
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	16.0	0.0	15.4				0.0	9.5	0.0	0.0	11.2	0.0
Incr Delay (d2), s/veh	3.9	0.0	3.5				0.0	0.0	0.0	0.0	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	5.1				0.0	4.8	0.0	0.0	8.3	0.0
LnGrp Delay(d),s/veh	19.9	0.0	18.9				0.0	9.5	0.0	0.0	12.2	0.0
LnGrp LOS	B		B					A			B	
Approach Vol, veh/h		2174						1924			2065	
Approach Delay, s/veh		19.6						9.5			12.2	
Approach LOS		B						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.1		22.5		30.1		
Change Period (Y+Rc), s		* 4.7		4.5		4.7		
Max Green Setting (Gmax), s		* 28		18.5		27.3		
Max Q Clear Time (g_c+I1), s		11.5		16.1		18.0		
Green Ext Time (p_c), s		11.5		2.0		7.5		

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	190	0	400	0	2780	370	0	2180	1670
Future Volume (veh/h)	0	0	0	190	0	400	0	2780	370	0	2180	1670
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				207	0	435	0	3022	0	0	2370	0
Adj No. of Lanes				2	0	2	0	3	1	0	3	2
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				638	0	516	0	3911	1108	0	3559	1950
Arrive On Green				0.19	0.00	0.19	0.00	0.70	0.00	0.00	0.70	0.00
Sat Flow, veh/h				3442	0	2787	0	5588	1583	0	5253	2787
Grp Volume(v), veh/h				207	0	435	0	3022	0	0	2370	0
Grp Sat Flow(s),veh/h/ln				1721	0	1393	0	1863	1583	0	1695	1393
Q Serve(g_s), s				4.3	0.0	12.5	0.0	29.2	0.0	0.0	21.7	0.0
Cycle Q Clear(g_c), s				4.3	0.0	12.5	0.0	29.2	0.0	0.0	21.7	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				638	0	516	0	3911	1108	0	3559	1950
V/C Ratio(X)				0.32	0.00	0.84	0.00	0.77	0.00	0.00	0.67	0.00
Avail Cap(c_a), veh/h				729	0	590	0	4279	1212	0	3876	2124
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				29.2	0.0	32.5	0.0	8.1	0.0	0.0	7.0	0.0
Incr Delay (d2), s/veh				0.3	0.0	9.7	0.0	0.7	0.0	0.0	0.3	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	5.5	0.0	15.1	0.0	0.0	10.0	0.0
LnGrp Delay(d),s/veh				29.5	0.0	42.2	0.0	8.8	0.0	0.0	7.3	0.0
LnGrp LOS				C		D		A			A	
Approach Vol, veh/h					642			3022			2370	
Approach Delay, s/veh					38.1			8.8			7.3	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		62.8				62.8		19.8
Change Period (Y+Rc), s		* 5				5.0		4.5
Max Green Setting (Gmax), s		* 63				63.0		17.5
Max Q Clear Time (g_c+I1), s		31.2				23.7		14.5
Green Ext Time (p_c), s		26.6				31.4		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	120	10	410	30	30	40	30	460	2730	20	40	3340
Future Volume (veh/h)	120	10	410	30	30	40	30	460	2730	20	40	3340
Number	7	4	14	3	8	18		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	130	240	294	33	33	43		500	2967	22	43	3630
Adj No. of Lanes	0	1	1	1	1	0		2	3	0	1	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	144	266	353	114	47	62		299	2598	19	55	2239
Arrive On Green	0.22	0.22	0.22	0.06	0.06	0.06		0.09	0.50	0.50	0.03	0.44
Sat Flow, veh/h	643	1187	1575	1774	733	956		3442	5208	39	1774	5085
Grp Volume(v), veh/h	370	0	294	33	0	76		500	1929	1060	43	3630
Grp Sat Flow(s),veh/h/ln	1831	0	1575	1774	0	1689		1721	1695	1856	1774	1695
Q Serve(g_s), s	22.4	0.0	20.3	2.0	0.0	5.0		9.9	56.9	56.9	2.7	50.2
Cycle Q Clear(g_c), s	22.4	0.0	20.3	2.0	0.0	5.0		9.9	56.9	56.9	2.7	50.2
Prop In Lane	0.35		1.00	1.00		0.57		1.00		0.02	1.00	
Lane Grp Cap(c), veh/h	410	0	353	114	0	109		299	1691	926	55	2239
V/C Ratio(X)	0.90	0.00	0.83	0.29	0.00	0.70		1.67	1.14	1.14	0.78	1.62
Avail Cap(c_a), veh/h	514	0	442	498	0	474		299	1691	926	73	2239
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	0.0	42.2	50.8	0.0	52.2		52.1	28.6	28.6	54.9	31.9
Incr Delay (d2), s/veh	14.6	0.0	8.7	0.5	0.0	3.0		317.2	71.0	78.1	23.1	281.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	0.0	9.7	1.0	0.0	2.4		17.9	43.2	49.1	1.7	81.8
LnGrp Delay(d),s/veh	57.6	0.0	50.9	51.4	0.0	55.2		369.2	99.6	106.6	78.0	313.5
LnGrp LOS	E		D	D		E		F	F	F	E	F
Approach Vol, veh/h		664			109				3489			3716
Approach Delay, s/veh		54.7			54.1				140.4			307.4
Approach LOS		D			D				F			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	55.1		31.1	8.3	61.8		12.8
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 9.9	* 50		32.0	* 4.7	* 56		32.0
Max Q Clear Time (g_c+I1), s	11.9	52.2		24.4	4.7	58.9		7.0
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	209.8
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	40
Future Volume (veh/h)	40
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.97
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	43
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	679
Arrive On Green	0.44
Sat Flow, veh/h	1542
Grp Volume(v), veh/h	43
Grp Sat Flow(s),veh/h/ln	1542
Q Serve(g_s), s	1.8
Cycle Q Clear(g_c), s	1.8
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	679
V/C Ratio(X)	0.06
Avail Cap(c_a), veh/h	679
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	18.4
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.8
LnGrp Delay(d),s/veh	18.4
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	330	20	10	1730	950	920
Future Volume (veh/h)	330	20	10	1730	950	920
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	359	22	11	1880	1033	1000
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	463	226	15	2404	2083	1145
Arrive On Green	0.13	0.13	0.01	0.68	0.59	0.59
Sat Flow, veh/h	3442	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	359	22	11	1880	1033	1000
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770	1770	1583
Q Serve(g_s), s	6.7	0.8	0.4	24.2	11.3	31.6
Cycle Q Clear(g_c), s	6.7	0.8	0.4	24.2	11.3	31.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	463	226	15	2404	2083	1145
V/C Ratio(X)	0.78	0.10	0.75	0.78	0.50	0.87
Avail Cap(c_a), veh/h	1343	631	107	2757	2237	1214
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	24.8	33.0	7.3	8.0	6.9
Incr Delay (d2), s/veh	1.1	0.1	23.9	1.1	0.1	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.8	0.3	11.9	5.5	20.1
LnGrp Delay(d),s/veh	28.9	24.9	56.9	8.4	8.0	13.5
LnGrp LOS	C	C	E	A	A	B
Approach Vol, veh/h	381			1891	2033	
Approach Delay, s/veh	28.7			8.7	10.7	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	6.1	46.1		14.5		52.2		
Change Period (Y+Rc), s	5.5	* 6.9		5.5		* 6.9		
Max Green Setting (Gmax), s	4.0	* 42		26.0		* 52		
Max Q Clear Time (g_c+I1), s	2.4	33.6		8.7		26.2		
Green Ext Time (p_c), s	0.0	5.6		0.3		10.0		

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	850	1190	0	1300	110	50	610
Future Volume (veh/h)	850	1190	0	1300	110	50	610
Number	1	6		2	12	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h	924	1293		1413	120	54	663
Adj No. of Lanes	2	2		2	1	1	1
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	964	2488		1313	587	310	277
Arrive On Green	0.28	0.70		0.37	0.37	0.17	0.17
Sat Flow, veh/h	3442	3632		3632	1583	1774	1583
Grp Volume(v), veh/h	924	1293		1413	120	54	663
Grp Sat Flow(s),veh/h/ln	1721	1770		1770	1583	1774	1583
Q Serve(g_s), s	26.4	17.1		37.1	5.2	2.6	17.5
Cycle Q Clear(g_c), s	26.4	17.1		37.1	5.2	2.6	17.5
Prop In Lane	1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h	964	2488		1313	587	310	277
V/C Ratio(X)	0.96	0.52		1.08	0.20	0.17	2.39
Avail Cap(c_a), veh/h	964	2488		1313	587	310	277
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	6.9		31.4	21.4	35.1	41.3
Incr Delay (d2), s/veh	19.6	0.1		48.1	0.1	0.1	637.7
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	8.3		26.8	2.3	1.3	56.7
LnGrp Delay(d),s/veh	55.0	7.0		79.5	21.5	35.2	679.0
LnGrp LOS	D	A		F	C	D	F
Approach Vol, veh/h		2217		1533		717	
Approach Delay, s/veh		27.0		75.0		630.5	
Approach LOS		C		E		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	33.2	43.8				77.0		23.0
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 28	* 37				* 61		17.5
Max Q Clear Time (g_c+I1), s	28.4	39.1				19.1		19.5
Green Ext Time (p_c), s	0.0	0.0				8.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	140.3
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	50	10	60	360	0	10	0	30	0	0	0
Future Volume (veh/h)	0	50	10	60	360	0	10	0	30	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	54	11	65	391	0	11	0	33	0	0	0
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	407	182	110	978	438	25	2665	830	4	2085	649
Arrive On Green	0.00	0.11	0.11	0.06	0.28	0.00	0.01	0.00	0.52	0.00	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	5085	1583	1774	5085	1583
Grp Volume(v), veh/h	0	54	11	65	391	0	11	0	33	0	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1695	1583	1774	1695	1583
Q Serve(g_s), s	0.0	0.6	0.3	1.6	4.1	0.0	0.3	0.0	0.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.6	0.3	1.6	4.1	0.0	0.3	0.0	0.5	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	4	407	182	110	978	438	25	2665	830	4	2085	649
V/C Ratio(X)	0.00	0.13	0.06	0.59	0.40	0.00	0.43	0.00	0.04	0.00	0.00	0.00
Avail Cap(c_a), veh/h	197	1412	632	216	1451	649	197	2665	830	197	2085	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.9	17.8	20.6	13.3	0.0	22.1	0.0	5.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	5.0	0.3	0.0	11.3	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.1	0.9	2.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	18.1	17.9	25.7	13.5	0.0	33.4	0.0	5.3	0.0	0.0	0.0
LnGrp LOS		B	B	C	B		C		A			
Approach Vol, veh/h		65			456			44			0	
Approach Delay, s/veh		18.1			15.3			12.3			0.0	
Approach LOS		B			B			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	28.1	7.3	9.7	5.1	23.0	0.0	17.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5
Max Q Clear Time (g_c+I1), s	0.0	2.5	3.6	2.6	2.3	0.0	0.0	6.1
Green Ext Time (p_c), s	0.0	0.0	0.0	2.6	0.0	0.0	0.0	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	140	250	0	450	300	330	1100	0	100	820	490
Future Volume (veh/h)	200	140	250	0	450	300	330	1100	0	100	820	490
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	217	152	272	0	489	326	359	1196	0	109	891	533
Adj No. of Lanes	2	2	1	2	2	1	2	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	1288	576	4	800	358	439	2082	648	197	1724	537
Arrive On Green	0.08	0.36	0.36	0.00	0.23	0.23	0.13	0.41	0.00	0.06	0.34	0.34
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	5085	1583	3442	5085	1583
Grp Volume(v), veh/h	217	152	272	0	489	326	359	1196	0	109	891	533
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1695	1583	1721	1695	1583
Q Serve(g_s), s	4.9	2.3	10.5	0.0	9.9	16.0	8.1	14.5	0.0	2.5	11.2	26.7
Cycle Q Clear(g_c), s	4.9	2.3	10.5	0.0	9.9	16.0	8.1	14.5	0.0	2.5	11.2	26.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	1288	576	4	800	358	439	2082	648	197	1724	537
V/C Ratio(X)	0.77	0.12	0.47	0.00	0.61	0.91	0.82	0.57	0.00	0.55	0.52	0.99
Avail Cap(c_a), veh/h	281	1288	576	216	800	358	454	2082	648	255	1724	537
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	16.8	19.4	0.0	27.7	30.0	33.8	18.2	0.0	36.6	21.1	26.2
Incr Delay (d2), s/veh	12.5	0.0	0.6	0.0	1.4	26.7	11.0	1.2	0.0	2.4	1.1	37.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	1.1	4.7	0.0	5.0	9.6	4.5	7.0	0.0	1.2	5.4	17.2
LnGrp Delay(d),s/veh	48.3	16.9	20.0	0.0	29.1	56.7	44.8	19.3	0.0	39.0	22.2	63.4
LnGrp LOS	D	B	C		C	E	D	B		D	C	E
Approach Vol, veh/h		641			815			1555			1533	
Approach Delay, s/veh		28.9			40.1			25.2			37.7	
Approach LOS		C			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	37.1	0.0	33.5	14.7	31.5	11.0	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.9	31.6	5.0	19.5	10.5	27.0	6.5	18.0
Max Q Clear Time (g_c+I1), s	4.5	16.5	0.0	12.5	10.1	28.7	6.9	18.0
Green Ext Time (p_c), s	0.0	12.6	0.0	3.6	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	100	30	10	140	10	50	720	70	10	230	240
Future Volume (veh/h)	290	100	30	10	140	10	50	720	70	10	230	240
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	315	109	33	11	152	11	54	783	76	11	250	261
Adj No. of Lanes	1	2	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	369	1138	509	25	237	202	86	1307	585	25	1185	530
Arrive On Green	0.21	0.32	0.32	0.01	0.13	0.13	0.05	0.37	0.37	0.01	0.33	0.33
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	315	109	33	11	152	11	54	783	76	11	250	261
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	10.9	1.4	0.9	0.4	5.0	0.4	1.9	11.5	2.0	0.4	3.2	8.4
Cycle Q Clear(g_c), s	10.9	1.4	0.9	0.4	5.0	0.4	1.9	11.5	2.0	0.4	3.2	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	369	1138	509	25	237	202	86	1307	585	25	1185	530
V/C Ratio(X)	0.85	0.10	0.06	0.45	0.64	0.05	0.63	0.60	0.13	0.45	0.21	0.49
Avail Cap(c_a), veh/h	486	1689	756	139	525	446	142	1307	585	139	1185	530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	15.2	15.0	31.3	26.5	24.5	29.9	16.3	13.4	31.3	15.2	16.9
Incr Delay (d2), s/veh	10.9	0.0	0.1	12.2	2.9	0.1	7.4	2.0	0.5	12.2	0.4	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	0.7	0.4	0.3	2.7	0.2	1.1	5.9	0.9	0.3	1.6	4.1
LnGrp Delay(d),s/veh	35.3	15.2	15.1	43.4	29.4	24.6	37.3	18.4	13.8	43.4	15.6	20.2
LnGrp LOS	D	B	B	D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		457			174			913			522	
Approach Delay, s/veh		29.1			30.0			19.1			18.5	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	28.1	5.4	25.0	7.6	25.9	17.8	12.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	21.5	5.0	30.5	5.1	21.4	17.5	18.0
Max Q Clear Time (g_c+I1), s	2.4	13.5	2.4	3.4	3.9	10.4	12.9	7.0
Green Ext Time (p_c), s	0.0	4.8	0.0	1.7	0.0	6.0	0.4	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	220	100	60	830	220	240	300	90	60	120	20
Future Volume (veh/h)	30	220	100	60	830	220	240	300	90	60	120	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	239	109	65	902	239	261	326	98	65	130	22
Adj No. of Lanes	2	3	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	1660	517	204	1236	553	432	698	312	204	465	208
Arrive On Green	0.04	0.33	0.33	0.06	0.35	0.35	0.13	0.20	0.20	0.06	0.13	0.13
Sat Flow, veh/h	3442	5085	1583	3442	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	33	239	109	65	902	239	261	326	98	65	130	22
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	0.5	1.7	2.5	0.9	11.2	5.8	3.6	4.1	2.7	0.9	1.7	0.6
Cycle Q Clear(g_c), s	0.5	1.7	2.5	0.9	11.2	5.8	3.6	4.1	2.7	0.9	1.7	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	1660	517	204	1236	553	432	698	312	204	465	208
V/C Ratio(X)	0.26	0.14	0.21	0.32	0.73	0.43	0.60	0.47	0.31	0.32	0.28	0.11
Avail Cap(c_a), veh/h	342	2071	645	342	1441	645	1230	2214	991	342	1301	582
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	12.0	12.3	22.7	14.3	12.6	20.8	17.9	17.3	22.7	19.7	19.3
Incr Delay (d2), s/veh	1.1	0.0	0.2	0.9	1.6	0.5	1.4	0.5	0.6	0.9	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.8	1.1	0.5	5.7	2.6	1.8	2.0	1.2	0.5	0.8	0.3
LnGrp Delay(d),s/veh	24.7	12.0	12.5	23.6	15.9	13.1	22.2	18.3	17.9	23.6	20.0	19.5
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	C	B
Approach Vol, veh/h		381			1206			685			217	
Approach Delay, s/veh		13.2			15.8			19.7			21.1	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	14.4	7.5	20.9	10.8	11.1	6.3	22.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	31.5	5.0	20.5	18.0	18.5	5.0	20.5
Max Q Clear Time (g_c+I1), s	2.9	6.1	2.9	4.5	5.6	3.7	2.5	13.2
Green Ext Time (p_c), s	0.0	3.5	0.0	7.3	0.7	2.9	0.0	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	16.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	80	50	40	230	80	140	80	70	40	90	30
Future Volume (veh/h)	20	80	50	40	230	80	140	80	70	40	90	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	87	54	43	250	87	152	87	76	43	98	33
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	327	278	152	361	307	192	1416	634	152	1189	532
Arrive On Green	0.03	0.18	0.18	0.04	0.19	0.19	0.11	0.40	0.40	0.04	0.34	0.34
Sat Flow, veh/h	1774	1863	1583	3442	1863	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	22	87	54	43	250	87	152	87	76	43	98	33
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1721	1863	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	0.7	2.2	1.6	0.6	6.7	2.5	4.5	0.8	1.6	0.6	1.0	0.8
Cycle Q Clear(g_c), s	0.7	2.2	1.6	0.6	6.7	2.5	4.5	0.8	1.6	0.6	1.0	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	327	278	152	361	307	192	1416	634	152	1189	532
V/C Ratio(X)	0.48	0.27	0.19	0.28	0.69	0.28	0.79	0.06	0.12	0.28	0.08	0.06
Avail Cap(c_a), veh/h	166	626	532	321	626	532	199	1416	634	321	1189	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	19.1	18.8	24.8	20.1	18.4	23.3	9.9	10.1	24.8	12.1	12.1
Incr Delay (d2), s/veh	7.4	0.4	0.3	1.0	2.4	0.5	18.7	0.1	0.4	1.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.7	0.3	3.6	1.1	3.2	0.4	0.8	0.3	0.5	0.4
LnGrp Delay(d),s/veh	33.1	19.5	19.2	25.8	22.5	18.9	42.0	10.0	10.5	25.8	12.3	12.3
LnGrp LOS	C	B	B	C	C	B	D	A	B	C	B	B
Approach Vol, veh/h		163			380			315			174	
Approach Delay, s/veh		21.3			22.1			25.5			15.6	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	25.9	6.9	13.9	10.3	22.5	5.9	14.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	6.0	18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.6	3.6	2.6	4.2	6.5	3.0	2.7	8.7
Green Ext Time (p_c), s	0.0	1.3	0.0	2.1	0.0	1.3	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.9
HCM 2010 LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	0	0	0	0	30
Future Volume (veh/h)	30	0	0	0	0	30
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	0	0	0	0	33
Adj No. of Lanes	2	2	2	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	139	143	12	6	1145	1022
Arrive On Green	0.04	0.00	0.00	0.00	0.00	0.65
Sat Flow, veh/h	3442	3632	-82054	1583	1774	1583
Grp Volume(v), veh/h	33	0	0	0	0	33
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	139	143	12	6	1145	1022
V/C Ratio(X)	0.24	0.00	0.00	0.00	0.00	0.03
Avail Cap(c_a), veh/h	601	3397	2223	995	1145	1022
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	0.0	0.0	1.8
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.0	0.0	0.4
LnGrp Delay(d),s/veh	14.2	0.0	0.0	0.0	0.0	1.9
LnGrp LOS	B					A
Approach Vol, veh/h		33	0		33	
Approach Delay, s/veh		14.2	0.0		1.9	
Approach LOS		B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				5.7		23.0	5.7	0.0
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				27.5		18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s				0.0		2.2	2.3	0.0
Green Ext Time (p_c), s				0.0		0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	50	60	0	400	0	130	0	150	0	0	0
Future Volume (veh/h)	0	50	60	0	400	0	130	0	150	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	54	65	0	435	0	141	0	163	0	0	0
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	9	1134	507	9	1134	507	238	452	384	9	9	8
Arrive On Green	0.00	0.32	0.32	0.00	0.32	0.00	0.13	0.00	0.24	0.00	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	0	54	65	0	435	0	141	0	163	0	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	0.2	0.6	0.0	2.0	0.0	1.5	0.0	1.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.2	0.6	0.0	2.0	0.0	1.5	0.0	1.8	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	9	1134	507	9	1134	507	238	452	384	9	9	8
V/C Ratio(X)	0.00	0.05	0.13	0.00	0.38	0.00	0.59	0.00	0.42	0.00	0.00	0.00
Avail Cap(c_a), veh/h	431	3093	1384	431	3093	1384	508	1718	1460	431	1637	1391
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.8	5.0	0.0	5.4	0.0	8.4	0.0	6.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.0	0.2	0.0	2.3	0.0	0.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.3	0.0	0.9	0.0	0.9	0.0	0.8	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	4.8	5.1	0.0	5.6	0.0	10.7	0.0	7.3	0.0	0.0	0.0
LnGrp LOS		A	A		A		B		A			
Approach Vol, veh/h		119			435			304			0	
Approach Delay, s/veh		5.0			5.6			8.9			0.0	
Approach LOS		A			A			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	9.5	0.0	11.1	7.3	2.2	0.0	11.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.9	18.1	5.0	18.0
Max Q Clear Time (g_c+I1), s	0.0	3.8	0.0	2.6	3.5	0.0	0.0	4.0
Green Ext Time (p_c), s	0.0	0.4	0.0	3.1	0.1	0.0	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	6.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	10	20	10	10	0	80	30	10	0	20	10
Future Volume (veh/h)	40	10	20	10	10	0	80	30	10	0	20	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	43	11	22	11	11	0	87	33	11	0	22	11
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	164	139	25	104	88	132	1099	934	4	769	654
Arrive On Green	0.05	0.09	0.09	0.01	0.06	0.00	0.07	0.59	0.59	0.00	0.41	0.41
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	43	11	22	11	11	0	87	33	11	0	22	11
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.0	0.2	0.6	0.3	0.2	0.0	2.1	0.3	0.1	0.0	0.3	0.2
Cycle Q Clear(g_c), s	1.0	0.2	0.6	0.3	0.2	0.0	2.1	0.3	0.1	0.0	0.3	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	82	164	139	25	104	88	132	1099	934	4	769	654
V/C Ratio(X)	0.52	0.07	0.16	0.43	0.11	0.00	0.66	0.03	0.01	0.00	0.03	0.02
Avail Cap(c_a), veh/h	202	765	650	202	765	650	239	1099	934	202	769	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	18.3	18.5	21.4	19.7	0.0	19.7	3.8	3.7	0.0	7.6	7.6
Incr Delay (d2), s/veh	5.0	0.2	0.5	11.2	0.4	0.0	5.5	0.1	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	0.3	0.2	0.1	0.0	1.2	0.2	0.1	0.0	0.2	0.1
LnGrp Delay(d),s/veh	25.4	18.5	19.0	32.7	20.1	0.0	25.2	3.8	3.7	0.0	7.7	7.7
LnGrp LOS	C	B	B	C	C		C	A	A		A	A
Approach Vol, veh/h		76			22			131			33	
Approach Delay, s/veh		22.6			26.4			18.0			7.7	
Approach LOS		C			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	30.4	5.1	8.4	7.8	22.6	6.5	6.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.9	18.1	5.0	18.0
Max Q Clear Time (g_c+I1), s	0.0	2.3	2.3	2.6	4.1	2.3	3.0	2.2
Green Ext Time (p_c), s	0.0	0.2	0.0	0.1	0.0	0.2	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	18.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	270	50	20	530	30	250	20	50	20	10	80
Future Volume (veh/h)	20	270	50	20	530	30	250	20	50	20	10	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	293	54	22	576	33	272	22	54	22	11	87
Adj No. of Lanes	1	3	1	2	2	1	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	1240	386	89	863	386	353	730	620	46	586	498
Arrive On Green	0.03	0.24	0.24	0.03	0.24	0.24	0.10	0.39	0.39	0.03	0.31	0.31
Sat Flow, veh/h	1774	5085	1583	3442	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	22	293	54	22	576	33	272	22	54	22	11	87
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.7	2.7	1.5	0.4	8.5	0.9	4.4	0.4	1.2	0.7	0.2	2.3
Cycle Q Clear(g_c), s	0.7	2.7	1.5	0.4	8.5	0.9	4.4	0.4	1.2	0.7	0.2	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	1240	386	89	863	386	353	730	620	46	586	498
V/C Ratio(X)	0.48	0.24	0.14	0.25	0.67	0.09	0.77	0.03	0.09	0.48	0.02	0.17
Avail Cap(c_a), veh/h	154	1592	496	299	1108	496	353	730	620	154	586	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	17.4	17.0	27.5	19.6	16.8	25.1	10.8	11.0	27.6	13.6	14.3
Incr Delay (d2), s/veh	7.6	0.1	0.2	1.4	1.0	0.1	10.0	0.1	0.3	7.6	0.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	0.7	0.2	4.2	0.4	2.6	0.2	0.6	0.4	0.1	1.1
LnGrp Delay(d),s/veh	35.3	17.5	17.2	28.9	20.7	16.9	35.1	10.8	11.3	35.3	13.6	15.0
LnGrp LOS	D	B	B	C	C	B	D	B	B	D	B	B
Approach Vol, veh/h		369			631			348			120	
Approach Delay, s/veh		18.5			20.8			29.9			18.6	
Approach LOS		B			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	27.0	6.0	18.5	10.4	22.6	6.0	18.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.9	18.1	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.7	3.2	2.4	4.7	6.4	4.3	2.7	10.5
Green Ext Time (p_c), s	0.0	0.5	0.0	5.2	0.0	0.5	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	22.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	100	10	20	280	20	50	10	100	20	10	10
Future Volume (veh/h)	10	100	10	20	280	20	50	10	100	20	10	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	11	109	11	22	304	22	54	11	109	22	11	11
Adj No. of Lanes	2	1	1	1	1	1	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	392	333	47	415	353	180	720	612	47	671	570
Arrive On Green	0.01	0.21	0.21	0.03	0.22	0.22	0.05	0.39	0.39	0.03	0.36	0.36
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	11	109	11	22	304	22	54	11	109	22	11	11
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.2	2.5	0.3	0.6	7.8	0.6	0.8	0.2	2.3	0.6	0.2	0.2
Cycle Q Clear(g_c), s	0.2	2.5	0.3	0.6	7.8	0.6	0.8	0.2	2.3	0.6	0.2	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	49	392	333	47	415	353	180	720	612	47	671	570
V/C Ratio(X)	0.23	0.28	0.03	0.47	0.73	0.06	0.30	0.02	0.18	0.47	0.02	0.02
Avail Cap(c_a), veh/h	335	671	570	173	671	570	335	720	612	173	671	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	17.0	16.1	24.6	18.5	15.7	23.4	9.7	10.4	24.6	10.6	10.6
Incr Delay (d2), s/veh	2.3	0.4	0.0	7.3	2.5	0.1	0.9	0.0	0.6	7.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.3	0.1	0.4	4.3	0.3	0.4	0.1	1.1	0.4	0.1	0.1
LnGrp Delay(d),s/veh	27.4	17.4	16.1	31.9	21.1	15.8	24.3	9.8	11.0	31.9	10.6	10.6
LnGrp LOS	C	B	B	C	C	B	C	A	B	C	B	B
Approach Vol, veh/h		131			348			174			44	
Approach Delay, s/veh		18.1			21.4			15.1			21.3	
Approach LOS		B			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	24.3	5.8	15.3	7.2	23.0	5.2	15.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.0	18.5	5.0	18.5	5.0	18.5
Max Q Clear Time (g_c+I1), s	2.6	4.3	2.6	4.5	2.8	2.2	2.2	9.8
Green Ext Time (p_c), s	0.0	0.4	0.0	2.2	0.0	0.4	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	19.2
HCM 2010 LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	100	100	30	60	120
Future Volume (veh/h)	30	100	100	30	60	120
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	109	109	33	65	130
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	74	1513	635	284	282	252
Arrive On Green	0.04	0.43	0.18	0.18	0.16	0.16
Sat Flow, veh/h	1774	3632	3632	1583	1774	1583
Grp Volume(v), veh/h	33	109	109	33	65	130
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1583	1774	1583
Q Serve(g_s), s	0.4	0.4	0.6	0.4	0.7	1.6
Cycle Q Clear(g_c), s	0.4	0.4	0.6	0.4	0.7	1.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	74	1513	635	284	282	252
V/C Ratio(X)	0.45	0.07	0.17	0.12	0.23	0.52
Avail Cap(c_a), veh/h	432	4519	2926	1309	1483	1324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.2	3.7	7.6	7.5	8.0	8.4
Incr Delay (d2), s/veh	4.2	0.0	0.1	0.2	0.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.2	0.3	0.4	0.4	1.5
LnGrp Delay(d),s/veh	14.4	3.7	7.7	7.7	8.4	10.0
LnGrp LOS	B	A	A	A	A	B
Approach Vol, veh/h		142	142		195	
Approach Delay, s/veh		6.2	7.7		9.5	
Approach LOS		A	A		A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				13.8		8.0	5.4	8.4
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				27.8		18.2	5.3	18.0
Max Q Clear Time (g_c+I1), s				2.4		3.6	2.4	2.6
Green Ext Time (p_c), s				1.5		0.5	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	280	1490	30	40	660
Future Volume (veh/h)	50	280	1490	30	40	660
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	54	304	1620	33	43	717
Adj No. of Lanes	1	1	3	1	2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	403	367	2443	761	151	2149
Arrive On Green	0.23	0.23	0.48	0.48	0.04	0.61
Sat Flow, veh/h	1774	1615	5253	1583	3442	3632
Grp Volume(v), veh/h	54	304	1620	33	43	717
Grp Sat Flow(s),veh/h/ln	1774	1615	1695	1583	1721	1770
Q Serve(g_s), s	1.3	9.7	13.2	0.6	0.7	5.4
Cycle Q Clear(g_c), s	1.3	9.7	13.2	0.6	0.7	5.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	403	367	2443	761	151	2149
V/C Ratio(X)	0.13	0.83	0.66	0.04	0.28	0.33
Avail Cap(c_a), veh/h	588	535	2443	761	317	2149
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	20.0	10.8	7.5	25.2	5.3
Incr Delay (d2), s/veh	0.1	7.0	1.4	0.1	1.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.0	6.5	0.3	0.3	2.7
LnGrp Delay(d),s/veh	16.9	27.0	12.2	7.6	26.2	5.7
LnGrp LOS	B	C	B	A	C	A
Approach Vol, veh/h	358		1653			760
Approach Delay, s/veh	25.5		12.1			6.8
Approach LOS	C		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.9	30.6				37.5		16.9
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5				33.0		18.0
Max Q Clear Time (g_c+I1), s	2.7	15.2				7.4		11.7
Green Ext Time (p_c), s	0.0	7.0				17.3		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	140	30	20	730	740	20
Future Volume (veh/h)	140	30	20	730	740	20
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	152	33	22	793	804	22
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	218	195	48	2349	1876	839
Arrive On Green	0.12	0.12	0.03	0.66	0.53	0.53
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	152	33	22	793	804	22
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	3.5	0.8	0.5	4.1	5.8	0.3
Cycle Q Clear(g_c), s	3.5	0.8	0.5	4.1	5.8	0.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	218	195	48	2349	1876	839
V/C Ratio(X)	0.70	0.17	0.46	0.34	0.43	0.03
Avail Cap(c_a), veh/h	757	676	210	2349	1876	839
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	16.6	20.2	3.1	6.0	4.7
Incr Delay (d2), s/veh	4.0	0.4	6.8	0.4	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.7	0.3	2.1	3.0	0.1
LnGrp Delay(d),s/veh	21.7	17.0	27.0	3.5	6.7	4.8
LnGrp LOS	C	B	C	A	A	A
Approach Vol, veh/h	185			815	826	
Approach Delay, s/veh	20.9			4.1	6.7	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		32.5		9.7	5.6	26.9		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		28.0		18.0	5.0	18.5		
Max Q Clear Time (g_c+I1), s		6.1		5.5	2.5	7.8		
Green Ext Time (p_c), s		12.1		0.4	0.0	7.3		

Intersection Summary	
HCM 2010 Ctrl Delay	7.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	50	710	240	110	600	0	10	240	1150	140	10	150
Future Volume (veh/h)	50	710	240	110	600	0	10	240	1150	140	10	150
Number	3	8	18	7	4	14		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1900		1863
Adj Flow Rate, veh/h	54	772	261	120	652	0		261	1250	152		163
Adj No. of Lanes	1	1	1	1	1	1		1	3	0		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92		0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	69	570	484	100	603	512		183	1658	202		185
Arrive On Green	0.04	0.31	0.31	0.06	0.32	0.00		0.10	0.36	0.36		0.10
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583		1774	4583	557		1774
Grp Volume(v), veh/h	54	772	261	120	652	0		261	925	477		163
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583		1774	1695	1750		1774
Q Serve(g_s), s	4.5	46.0	20.6	8.5	48.6	0.0		15.5	36.0	36.0		13.6
Cycle Q Clear(g_c), s	4.5	46.0	20.6	8.5	48.6	0.0		15.5	36.0	36.0		13.6
Prop In Lane	1.00		1.00	1.00		1.00		1.00		0.32		1.00
Lane Grp Cap(c), veh/h	69	570	484	100	603	512		183	1226	633		185
V/C Ratio(X)	0.78	1.36	0.54	1.20	1.08	0.00		1.43	0.75	0.75		0.88
Avail Cap(c_a), veh/h	71	570	484	100	603	512		183	1226	633		250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	71.6	52.2	43.4	70.9	50.9	0.0		67.4	42.1	42.1		66.4
Incr Delay (d2), s/veh	38.0	171.0	0.7	152.1	60.9	0.0		221.0	2.4	4.6		19.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	3.0	50.6	9.1	8.4	35.1	0.0		18.8	17.2	18.2		7.7
LnGrp Delay(d),s/veh	109.7	223.2	44.0	223.1	111.7	0.0		288.5	44.5	46.7		85.4
LnGrp LOS	F	F	D	F	F			F	D	D		F
Approach Vol, veh/h		1087			772				1663			
Approach Delay, s/veh		174.6			129.1				83.4			
Approach LOS		F			F				F			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	62.0	11.4	56.0	21.2	61.8	14.0	53.4
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	15.5	54.6	6.0	48.1	21.2	48.9	8.5	* 46
Max Q Clear Time (g_c+I1), s	17.5	56.6	6.5	50.6	15.6	38.0	10.5	48.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	10.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	194.9
HCM 2010 LOS	F

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2610	70
Future Volume (veh/h)	2610	70
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	2837	0
Adj No. of Lanes	3	1
Peak Hour Factor	0.92	0.92
Percent Heavy Veh, %	2	2
Cap, veh/h	1846	575
Arrive On Green	0.36	0.00
Sat Flow, veh/h	5085	1583
Grp Volume(v), veh/h	2837	0
Grp Sat Flow(s),veh/h/ln	1695	1583
Q Serve(g_s), s	54.6	0.0
Cycle Q Clear(g_c), s	54.6	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	1846	575
V/C Ratio(X)	1.54	0.00
Avail Cap(c_a), veh/h	1846	575
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	47.9	0.0
Incr Delay (d2), s/veh	244.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	67.2	0.0
LnGrp Delay(d),s/veh	292.2	0.0
LnGrp LOS	F	
Approach Vol, veh/h	3000	
Approach Delay, s/veh	281.0	
Approach LOS	F	
Timer		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	780	50	150	580	10	10	150	70	20	680	160
Future Volume (veh/h)	160	780	50	150	580	10	10	150	70	20	680	160
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	174	848	54	163	630	11	11	163	76	22	739	174
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	872	56	149	919	16	12	502	234	64	832	707
Arrive On Green	0.08	0.26	0.26	0.08	0.26	0.26	0.01	0.42	0.42	0.04	0.45	0.45
Sat Flow, veh/h	1774	3379	215	1774	3559	62	1774	1203	561	1774	1863	1583
Grp Volume(v), veh/h	174	444	458	163	313	328	11	0	239	22	739	174
Grp Sat Flow(s),veh/h/ln	1774	1770	1825	1774	1770	1852	1774	0	1764	1774	1863	1583
Q Serve(g_s), s	7.0	20.7	20.7	7.0	13.3	13.3	0.5	0.0	7.6	1.0	30.3	5.7
Cycle Q Clear(g_c), s	7.0	20.7	20.7	7.0	13.3	13.3	0.5	0.0	7.6	1.0	30.3	5.7
Prop In Lane	1.00		0.12	1.00		0.03	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	149	457	471	149	457	478	12	0	736	64	832	707
V/C Ratio(X)	1.17	0.97	0.97	1.09	0.69	0.69	0.91	0.00	0.32	0.34	0.89	0.25
Avail Cap(c_a), veh/h	149	457	471	149	457	478	117	0	736	394	872	742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	30.6	30.6	38.1	27.8	27.8	41.3	0.0	16.3	39.2	21.1	14.3
Incr Delay (d2), s/veh	125.5	34.9	34.3	100.8	4.7	4.5	53.3	0.0	1.2	1.2	13.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	14.5	14.9	7.6	7.0	7.3	0.4	0.0	4.0	0.5	18.5	2.6
LnGrp Delay(d),s/veh	163.7	65.5	64.9	138.9	32.5	32.3	94.6	0.0	17.5	40.3	34.6	15.1
LnGrp LOS	F	E	E	F	C	C	F		B	D	C	B
Approach Vol, veh/h		1076			804			250			935	
Approach Delay, s/veh		81.1			54.0			20.9			31.1	
Approach LOS		F			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	26.0	4.6	41.7	11.0	26.0	7.0	39.3
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	7.0	21.5	5.5	39.0	7.0	21.5	18.5	26.0
Max Q Clear Time (g_c+I1), s	9.0	15.3	2.5	32.3	9.0	22.7	3.0	9.6
Green Ext Time (p_c), s	0.0	4.7	0.0	4.9	0.0	0.0	0.0	14.0

Intersection Summary	
HCM 2010 Ctrl Delay	53.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	780	0	20	610	10	10	10	10	10	230	130
Future Volume (veh/h)	80	780	0	20	610	10	10	10	10	10	230	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	87	848	0	22	663	11	11	11	11	11	250	141
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	365	1033	0	254	1013	17	184	177	135	75	308	169
Arrive On Green	0.55	0.55	0.00	0.55	0.55	0.55	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	761	1863	0	647	1827	30	338	641	490	18	1117	613
Grp Volume(v), veh/h	87	848	0	22	0	674	33	0	0	402	0	0
Grp Sat Flow(s),veh/h/ln	761	1863	0	647	0	1857	1469	0	0	1748	0	0
Q Serve(g_s), s	4.8	19.8	0.0	1.5	0.0	13.5	0.0	0.0	0.0	2.3	0.0	0.0
Cycle Q Clear(g_c), s	18.3	19.8	0.0	21.3	0.0	13.5	0.7	0.0	0.0	11.5	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.02	0.33		0.33	0.03		0.35
Lane Grp Cap(c), veh/h	365	1033	0	254	0	1030	496	0	0	552	0	0
V/C Ratio(X)	0.24	0.82	0.00	0.09	0.00	0.65	0.07	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	410	1143	0	292	0	1140	593	0	0	674	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.7	9.7	0.0	18.4	0.0	8.3	14.2	0.0	0.0	18.1	0.0	0.0
Incr Delay (d2), s/veh	0.3	4.5	0.0	0.1	0.0	1.2	0.1	0.0	0.0	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	11.2	0.0	0.3	0.0	7.1	0.4	0.0	0.0	6.0	0.0	0.0
LnGrp Delay(d),s/veh	15.0	14.2	0.0	18.5	0.0	9.5	14.2	0.0	0.0	21.2	0.0	0.0
LnGrp LOS	B	B		B		A	B			C		
Approach Vol, veh/h		935			696			33			402	
Approach Delay, s/veh		14.3			9.7			14.2			21.2	
Approach LOS		B			A			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		19.2		34.0		19.2		34.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.4		32.6		18.4		32.6
Max Q Clear Time (g_c+I1), s		2.7		21.8		13.5		23.3
Green Ext Time (p_c), s		2.5		6.9		1.2		6.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	620	20	50	440	160	20	480	100	260	1170	260
Future Volume (veh/h)	210	620	20	50	440	160	20	480	100	260	1170	260
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	228	674	22	54	478	174	22	522	109	283	1272	283
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	712	605	69	521	442	49	837	374	307	1351	829
Arrive On Green	0.14	0.38	0.38	0.04	0.28	0.28	0.03	0.24	0.24	0.17	0.38	0.38
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	228	674	22	54	478	174	22	522	109	283	1272	283
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	16.6	45.9	1.1	4.0	32.6	11.7	1.6	17.3	7.4	20.6	45.4	13.6
Cycle Q Clear(g_c), s	16.6	45.9	1.1	4.0	32.6	11.7	1.6	17.3	7.4	20.6	45.4	13.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	252	712	605	69	521	442	49	837	374	307	1351	829
V/C Ratio(X)	0.91	0.95	0.04	0.78	0.92	0.39	0.45	0.62	0.29	0.92	0.94	0.34
Avail Cap(c_a), veh/h	263	752	639	72	552	469	257	921	412	481	1378	841
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	39.2	25.4	62.4	45.8	38.2	62.7	44.8	41.0	53.3	39.1	18.1
Incr Delay (d2), s/veh	30.4	19.9	0.0	36.5	19.2	0.2	2.4	0.7	0.2	12.5	12.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	27.5	0.5	2.6	19.5	5.1	0.8	8.6	3.3	11.1	24.6	5.9
LnGrp Delay(d),s/veh	85.7	59.0	25.4	98.9	65.0	38.4	65.1	45.5	41.2	65.9	51.6	18.2
LnGrp LOS	F	E	C	F	E	D	E	D	D	E	D	B
Approach Vol, veh/h		924			706			653			1838	
Approach Delay, s/veh		64.8			61.0			45.5			48.6	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.1	43.4	8.1	56.4	9.6	56.9	27.2	37.4
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	19.4	38.8	19.0	* 51	5.3	52.9	35.5	34.1
Max Q Clear Time (g_c+I1), s	18.6	34.6	3.6	47.4	6.0	47.9	22.6	19.3
Green Ext Time (p_c), s	0.0	1.9	0.0	2.6	0.0	2.2	0.1	7.3

Intersection Summary	
HCM 2010 Ctrl Delay	53.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	680	10	70	380	60	10	700	70	70	620	250
Future Volume (veh/h)	300	680	10	70	380	60	10	700	70	70	620	250
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	326	739	11	76	413	65	11	761	76	76	674	272
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	342	766	11	97	441	69	14	795	79	90	708	286
Arrive On Green	0.19	0.42	0.42	0.05	0.28	0.28	0.01	0.24	0.24	0.05	0.29	0.29
Sat Flow, veh/h	1774	1831	27	1774	1572	247	1774	3251	325	1774	2463	994
Grp Volume(v), veh/h	326	0	750	76	0	478	11	414	423	76	484	462
Grp Sat Flow(s),veh/h/ln	1774	0	1858	1774	0	1819	1774	1770	1805	1774	1770	1687
Q Serve(g_s), s	17.9	0.0	38.8	4.2	0.0	25.3	0.6	22.7	22.8	4.2	26.4	26.5
Cycle Q Clear(g_c), s	17.9	0.0	38.8	4.2	0.0	25.3	0.6	22.7	22.8	4.2	26.4	26.5
Prop In Lane	1.00		0.01	1.00		0.14	1.00		0.18	1.00		0.59
Lane Grp Cap(c), veh/h	342	0	777	97	0	510	14	433	442	90	509	485
V/C Ratio(X)	0.95	0.00	0.96	0.78	0.00	0.94	0.78	0.96	0.96	0.84	0.95	0.95
Avail Cap(c_a), veh/h	342	0	777	207	0	537	90	433	442	90	509	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	0.0	27.9	46.0	0.0	34.6	48.8	36.7	36.7	46.4	34.4	34.4
Incr Delay (d2), s/veh	36.0	0.0	23.8	5.0	0.0	23.1	28.7	32.0	31.8	46.5	27.9	28.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	0.0	24.9	2.2	0.0	15.9	0.4	14.9	15.2	3.2	16.9	16.2
LnGrp Delay(d),s/veh	75.3	0.0	51.7	51.0	0.0	57.7	77.4	68.7	68.5	92.8	62.3	63.2
LnGrp LOS	E		D	D		E	E	E	E	F	E	E
Approach Vol, veh/h		1076			554			848			1022	
Approach Delay, s/veh		58.9			56.8			68.7			65.0	
Approach LOS		E			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.5	34.4	5.3	35.3	9.9	48.0	9.5	31.1
Change Period (Y+Rc), s	4.5	6.8	4.5	* 7	4.5	* 6.8	4.5	7.0
Max Green Setting (Gmax), s	19.0	29.1	5.0	* 24	11.5	* 37	5.0	24.1
Max Q Clear Time (g_c+I1), s	19.9	27.3	2.6	28.5	6.2	40.8	6.2	24.8
Green Ext Time (p_c), s	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	62.7
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	20	20	10	20	110	10	170	10	180	320	40
Future Volume (veh/h)	30	20	20	10	20	110	10	170	10	180	320	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	22	22	11	22	120	11	185	11	196	348	43
Adj No. of Lanes	2	1	1	2	1	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	800	265	226	829	265	226	575	592	265	823	846	378
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.17	0.17	0.17	0.24	0.24	0.24
Sat Flow, veh/h	2408	1863	1583	2632	1863	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	33	22	22	11	22	120	11	185	11	196	348	43
Grp Sat Flow(s),veh/h/ln	1204	1863	1583	1316	1863	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	0.4	0.3	0.4	0.1	0.3	2.1	0.1	1.4	0.2	1.4	2.5	0.6
Cycle Q Clear(g_c), s	0.7	0.3	0.4	0.4	0.3	2.1	0.1	1.4	0.2	1.4	2.5	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	800	265	226	829	265	226	575	592	265	823	846	378
V/C Ratio(X)	0.04	0.08	0.10	0.01	0.08	0.53	0.02	0.31	0.04	0.24	0.41	0.11
Avail Cap(c_a), veh/h	1946	1152	979	2082	1152	979	2244	2307	1032	2129	2189	979
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.4	11.1	11.2	11.3	11.1	11.9	10.4	10.9	10.4	9.2	9.6	8.9
Incr Delay (d2), s/veh	0.0	0.1	0.2	0.0	0.1	1.9	0.0	0.3	0.1	0.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.2	0.0	0.2	1.0	0.0	0.7	0.1	0.7	1.2	0.3
LnGrp Delay(d),s/veh	11.4	11.3	11.3	11.3	11.3	13.8	10.4	11.2	10.5	9.3	9.9	9.0
LnGrp LOS	B	B	B	B	B	B	B	B	B	A	A	A
Approach Vol, veh/h		77			153			207			587	
Approach Delay, s/veh		11.4			13.3			11.2			9.7	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		9.5		8.8		11.6		8.8
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		19.5		18.5		18.5		18.5
Max Q Clear Time (g_c+I1), s		3.4		2.7		4.5		4.1
Green Ext Time (p_c), s		1.0		0.7		2.7		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	10.6
HCM 2010 LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	230	30	10	400	1040	240
Future Volume (veh/h)	230	30	10	400	1040	240
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	250	33	11	435	1130	261
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	310	277	15	2065	1325	304
Arrive On Green	0.17	0.17	0.01	0.58	0.46	0.46
Sat Flow, veh/h	1774	1583	1774	3632	2954	656
Grp Volume(v), veh/h	250	33	11	435	696	695
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1747
Q Serve(g_s), s	6.7	0.9	0.3	2.9	17.1	17.5
Cycle Q Clear(g_c), s	6.7	0.9	0.3	2.9	17.1	17.5
Prop In Lane	1.00	1.00	1.00			0.38
Lane Grp Cap(c), veh/h	310	277	15	2065	820	809
V/C Ratio(X)	0.81	0.12	0.73	0.21	0.85	0.86
Avail Cap(c_a), veh/h	851	759	757	4676	1367	1349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	17.1	24.3	4.9	11.7	11.8
Incr Delay (d2), s/veh	1.9	0.1	21.7	0.0	1.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.4	0.2	1.4	8.6	8.6
LnGrp Delay(d),s/veh	21.4	17.2	46.1	4.9	12.9	13.2
LnGrp LOS	C	B	D	A	B	B
Approach Vol, veh/h	283			446	1391	
Approach Delay, s/veh	20.9			5.9	13.0	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.9	29.3				35.2		14.0
Change Period (Y+Rc), s	5.5	* 6.5				* 6.5		5.4
Max Green Setting (Gmax), s	21.0	* 38				* 65		23.6
Max Q Clear Time (g_c+I1), s	2.3	19.5				4.9		8.7
Green Ext Time (p_c), s	0.0	3.3				3.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	70	40	20	20	80	40	1090	20	250	1120	90
Future Volume (veh/h)	40	70	40	20	20	80	40	1090	20	250	1120	90
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	43	76	43	22	22	87	43	1185	22	272	1217	98
Adj No. of Lanes	2	1	1	1	1	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	200	170	44	171	145	140	1511	676	323	2012	900
Arrive On Green	0.04	0.11	0.11	0.02	0.09	0.09	0.04	0.43	0.43	0.18	0.57	0.57
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	43	76	43	22	22	87	43	1185	22	272	1217	98
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.8	2.6	1.7	0.9	0.8	3.7	0.8	20.1	0.6	10.3	15.7	2.0
Cycle Q Clear(g_c), s	0.8	2.6	1.7	0.9	0.8	3.7	0.8	20.1	0.6	10.3	15.7	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	200	170	44	171	145	140	1511	676	323	2012	900
V/C Ratio(X)	0.31	0.38	0.25	0.50	0.13	0.60	0.31	0.78	0.03	0.84	0.60	0.11
Avail Cap(c_a), veh/h	247	482	410	127	482	410	247	1577	706	459	2238	1001
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	28.9	28.5	33.5	29.1	30.4	32.4	17.2	11.6	27.5	9.9	6.9
Incr Delay (d2), s/veh	1.2	1.2	0.8	8.4	0.3	3.9	1.2	2.6	0.0	9.4	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.4	0.8	0.5	0.4	1.8	0.4	10.3	0.2	5.9	7.7	0.9
LnGrp Delay(d),s/veh	33.7	30.1	29.3	41.9	29.4	34.3	33.7	19.7	11.6	36.9	10.3	7.0
LnGrp LOS	C	C	C	D	C	C	C	B	B	D	B	A
Approach Vol, veh/h		162			131			1250			1587	
Approach Delay, s/veh		30.8			34.8			20.1			14.6	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	44.1	6.2	12.0	17.2	34.2	7.3	10.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	44.0	5.0	18.0	18.0	31.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.8	17.7	2.9	4.6	12.3	22.1	2.8	5.7
Green Ext Time (p_c), s	0.0	18.5	0.0	0.7	0.4	7.6	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	370	690	10	30	670	10	10	20	40	10	50	1010
Future Volume (veh/h)	370	690	10	30	670	10	10	20	40	10	50	1010
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	402	750	0	33	728	11	11	22	43	11	54	1098
Adj No. of Lanes	1	2	1	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	431	1620	725	41	848	13	16	32	62	70	346	742
Arrive On Green	0.24	0.46	0.00	0.02	0.24	0.24	0.07	0.07	0.07	0.23	0.23	0.23
Sat Flow, veh/h	1774	3539	1583	1774	3569	54	241	483	943	313	1535	1583
Grp Volume(v), veh/h	402	750	0	33	361	378	76	0	0	65	0	1098
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1853	1667	0	0	1847	0	1583
Q Serve(g_s), s	22.0	14.5	0.0	1.8	19.4	19.4	4.4	0.0	0.0	2.8	0.0	22.4
Cycle Q Clear(g_c), s	22.0	14.5	0.0	1.8	19.4	19.4	4.4	0.0	0.0	2.8	0.0	22.4
Prop In Lane	1.00		1.00	1.00		0.03	0.14		0.57	0.17		1.00
Lane Grp Cap(c), veh/h	431	1620	725	41	421	440	109	0	0	416	0	742
V/C Ratio(X)	0.93	0.46	0.00	0.80	0.86	0.86	0.70	0.00	0.00	0.16	0.00	1.48
Avail Cap(c_a), veh/h	919	2695	1206	125	552	578	376	0	0	416	0	742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.8	18.5	0.0	48.3	36.3	36.3	45.5	0.0	0.0	30.9	0.0	26.4
Incr Delay (d2), s/veh	4.0	0.1	0.0	12.7	8.3	8.0	3.0	0.0	0.0	0.1	0.0	223.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	7.1	0.0	1.0	10.4	10.9	2.1	0.0	0.0	1.4	0.0	66.2
LnGrp Delay(d),s/veh	40.9	18.6	0.0	61.0	44.6	44.3	48.4	0.0	0.0	31.0	0.0	249.8
LnGrp LOS	D	B		E	D	D	D			C		F
Approach Vol, veh/h		1152			772			76			1163	
Approach Delay, s/veh		26.4			45.2			48.4			237.6	
Approach LOS		C			D			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.7	29.6		12.1	7.8	51.5		28.0
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		5.6
Max Green Setting (Gmax), s	51.5	31.0		* 22	7.0	* 76		22.4
Max Q Clear Time (g_c+I1), s	24.0	21.4		6.4	3.8	16.5		24.4
Green Ext Time (p_c), s	0.1	2.2		0.1	0.0	2.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	109.2
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	940	160	50	730	380	20	20	30	960	140	490
Future Volume (veh/h)	110	940	160	50	730	380	20	20	30	960	140	490
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	120	1022	174	54	793	413	22	22	33	1043	152	533
Adj No. of Lanes	1	2	0	2	3	1	1	1	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	1145	195	95	1617	497	26	40	60	1110	1297	580
Arrive On Green	0.08	0.38	0.38	0.03	0.32	0.32	0.01	0.06	0.06	0.32	0.37	0.37
Sat Flow, veh/h	1774	3027	515	3442	5085	1562	1774	674	1011	3442	3539	1583
Grp Volume(v), veh/h	120	597	599	54	793	413	22	0	55	1043	152	533
Grp Sat Flow(s),veh/h/ln	1774	1770	1772	1721	1695	1562	1774	0	1684	1721	1770	1583
Q Serve(g_s), s	6.4	30.6	30.8	1.5	12.2	23.7	1.2	0.0	3.1	28.5	2.8	31.1
Cycle Q Clear(g_c), s	6.4	30.6	30.8	1.5	12.2	23.7	1.2	0.0	3.1	28.5	2.8	31.1
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.60	1.00		1.00
Lane Grp Cap(c), veh/h	149	669	670	95	1617	497	26	0	99	1110	1297	580
V/C Ratio(X)	0.81	0.89	0.89	0.57	0.49	0.83	0.84	0.00	0.55	0.94	0.12	0.92
Avail Cap(c_a), veh/h	244	864	865	181	2037	626	112	0	609	1503	2591	1159
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	28.2	28.3	46.5	26.7	30.6	47.6	0.0	44.3	31.9	20.3	29.3
Incr Delay (d2), s/veh	3.9	8.2	8.4	2.0	0.1	6.2	22.1	0.0	1.8	8.4	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	16.4	16.5	0.7	5.7	11.1	0.7	0.0	1.5	14.8	1.4	13.9
LnGrp Delay(d),s/veh	47.5	36.4	36.6	48.5	26.8	36.8	69.7	0.0	46.1	40.4	20.3	31.9
LnGrp LOS	D	D	D	D	C	D	E		D	D	C	C
Approach Vol, veh/h		1316			1260			77			1728	
Approach Delay, s/veh		37.5			31.0			52.9			36.0	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.6	35.7	6.9	40.6	7.8	41.5	36.7	10.8
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	13.3	* 39	6.1	* 71	* 5.1	* 47	42.3	* 35
Max Q Clear Time (g_c+I1), s	8.4	25.7	3.2	33.1	3.5	32.8	30.5	5.1
Green Ext Time (p_c), s	0.0	3.8	0.0	0.6	0.0	3.9	0.7	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	35.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	160	1000	650	170	410	120	10	380	930	160	370	2140
Future Volume (veh/h)	160	1000	650	170	410	120	10	380	930	160	370	2140
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	174	1087	707	185	446	130		413	1011	174	402	2326
Adj No. of Lanes	2	3	1	2	3	1		2	3	1	2	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	220	1447	451	154	1351	421		344	1866	574	448	2019
Arrive On Green	0.06	0.28	0.28	0.04	0.27	0.27		0.10	0.37	0.37	0.13	0.40
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583		3442	5085	1563	3442	5085
Grp Volume(v), veh/h	174	1087	707	185	446	130		413	1011	174	402	2326
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583		1721	1695	1563	1721	1695
Q Serve(g_s), s	7.2	28.2	41.3	6.5	10.2	9.5		14.5	22.8	11.5	16.7	57.6
Cycle Q Clear(g_c), s	7.2	28.2	41.3	6.5	10.2	9.5		14.5	22.8	11.5	16.7	57.6
Prop In Lane	1.00		1.00	1.00		1.00		1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	220	1447	451	154	1351	421		344	1866	574	448	2019
V/C Ratio(X)	0.79	0.75	1.57	1.20	0.33	0.31		1.20	0.54	0.30	0.90	1.15
Avail Cap(c_a), veh/h	296	1447	451	154	1351	421		344	1866	574	600	2019
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.0	47.2	51.9	69.3	42.9	42.6		65.3	36.3	32.7	62.2	43.8
Incr Delay (d2), s/veh	7.0	2.0	266.5	136.2	0.1	0.2		115.0	0.2	0.1	11.2	74.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	13.5	51.4	6.0	4.8	4.2		12.4	10.7	5.0	8.6	40.9
LnGrp Delay(d),s/veh	74.0	49.2	318.4	205.5	42.9	42.8		180.3	36.5	32.8	73.4	118.4
LnGrp LOS	E	D	F	F	D	D		F	D	C	E	F
Approach Vol, veh/h		1968			761				1598			2956
Approach Delay, s/veh		148.1			82.4				73.2			105.6
Approach LOS		F			F				E			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.4	60.6	12.0	48.1	20.0	65.0	14.8	45.3
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	25.3	* 47	6.5	* 41	14.5	* 58	12.5	35.2
Max Q Clear Time (g_c+I1), s	18.7	24.8	8.5	43.3	16.5	59.6	9.2	12.2
Green Ext Time (p_c), s	0.2	10.7	0.0	0.0	0.0	0.0	0.0	3.8

Intersection Summary	
HCM 2010 Ctrl Delay	107.6
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	210
Future Volume (veh/h)	210
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	228
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	629
Arrive On Green	0.40
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	228
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	14.7
Cycle Q Clear(g_c), s	14.7
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	629
V/C Ratio(X)	0.36
Avail Cap(c_a), veh/h	629
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	30.8
Incr Delay (d2), s/veh	0.1
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	6.5
LnGrp Delay(d),s/veh	31.0
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	260	380	200	860	1130	240
Future Volume (veh/h)	260	380	200	860	1130	240
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	283	413	217	935	1228	261
Adj No. of Lanes	1	1	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	492	448	316	1962	1383	619
Arrive On Green	0.28	0.28	0.09	0.55	0.39	0.39
Sat Flow, veh/h	1774	1615	3442	3632	3632	1583
Grp Volume(v), veh/h	283	413	217	935	1228	261
Grp Sat Flow(s),veh/h/ln	1774	1615	1721	1770	1770	1583
Q Serve(g_s), s	8.8	15.9	3.9	10.3	20.8	7.7
Cycle Q Clear(g_c), s	8.8	15.9	3.9	10.3	20.8	7.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	492	448	316	1962	1383	619
V/C Ratio(X)	0.58	0.92	0.69	0.48	0.89	0.42
Avail Cap(c_a), veh/h	492	448	1073	2851	1478	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	22.5	28.2	8.7	18.2	14.3
Incr Delay (d2), s/veh	1.1	24.1	1.0	0.1	6.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	10.0	1.9	5.0	11.3	3.4
LnGrp Delay(d),s/veh	21.0	46.6	29.2	8.7	24.6	14.4
LnGrp LOS	C	D	C	A	C	B
Approach Vol, veh/h	696			1152	1489	
Approach Delay, s/veh	36.2			12.6	22.8	
Approach LOS	D			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.5	31.2				41.7		22.5
Change Period (Y+Rc), s	* 4.6	* 6.1				* 6.1		4.7
Max Green Setting (Gmax), s	* 20	* 27				* 52		17.8
Max Q Clear Time (g_c+I1), s	5.9	22.8				12.3		17.9
Green Ext Time (p_c), s	0.1	2.3				5.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	870	350	400	690	70	360	330	710	70	120	20
Future Volume (veh/h)	80	870	350	400	690	70	360	330	710	70	120	20
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	87	946	0	435	750	76	380	562	571	76	130	22
Adj No. of Lanes	1	2	1	2	2	0	1	1	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	1075	481	180	943	96	474	497	416	146	264	46
Arrive On Green	0.06	0.30	0.00	0.05	0.29	0.29	0.27	0.27	0.27	0.13	0.13	0.13
Sat Flow, veh/h	1774	3539	1583	3442	3230	327	1774	1863	1558	1146	2075	361
Grp Volume(v), veh/h	87	946	0	435	411	415	380	562	571	120	0	108
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1788	1774	1863	1558	1805	0	1776
Q Serve(g_s), s	4.0	20.9	0.0	4.3	17.6	17.7	16.5	22.0	22.0	5.1	0.0	4.7
Cycle Q Clear(g_c), s	4.0	20.9	0.0	4.3	17.6	17.7	16.5	22.0	22.0	5.1	0.0	4.7
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	0.63		0.20
Lane Grp Cap(c), veh/h	111	1075	481	180	517	522	474	497	416	230	0	226
V/C Ratio(X)	0.78	0.88	0.00	2.42	0.79	0.80	0.80	1.13	1.37	0.52	0.00	0.48
Avail Cap(c_a), veh/h	144	1164	521	180	530	536	474	497	416	570	0	560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.1	27.3	0.0	39.1	26.9	26.9	28.2	30.2	30.2	33.6	0.0	33.4
Incr Delay (d2), s/veh	13.7	7.1	0.0	656.8	7.3	7.3	8.9	81.3	182.3	0.7	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	11.2	0.0	18.4	9.6	9.7	9.2	22.4	30.5	2.6	0.0	2.3
LnGrp Delay(d),s/veh	51.8	34.4	0.0	695.9	34.2	34.2	37.1	111.5	212.6	34.3	0.0	34.0
LnGrp LOS	D	C		F	C	C	D	F	F	C		C
Approach Vol, veh/h		1033			1261			1513			228	
Approach Delay, s/veh		35.8			262.4			131.0			34.2	
Approach LOS		D			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	28.8		27.2	9.5	29.7		16.0
Change Period (Y+Rc), s	* 5.3	* 4.7		* 5.2	* 5.2	* 4.7		5.5
Max Green Setting (Gmax), s	* 6.7	* 25		* 22	* 4.3	* 27		26.0
Max Q Clear Time (g_c+I1), s	6.0	19.7		24.0	6.3	22.9		7.1
Green Ext Time (p_c), s	0.0	2.0		0.0	0.0	1.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	142.2
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	460	0	450	0	1240	1280	0	970	310
Future Volume (veh/h)	0	0	0	460	0	450	0	1240	1280	0	970	310
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				494	8	489	0	1348	0	0	1054	0
Adj No. of Lanes				1	1	0	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	0	2	2	0	2	2
Cap, veh/h				642	9	559	0	2020	629	0	2020	629
Arrive On Green				0.36	0.36	0.36	0.00	0.40	0.00	0.00	0.40	0.00
Sat Flow, veh/h				1774	25	1545	0	5253	1583	0	5253	1583
Grp Volume(v), veh/h				494	0	497	0	1348	0	0	1054	0
Grp Sat Flow(s),veh/h/ln				1774	0	1570	0	1695	1583	0	1695	1583
Q Serve(g_s), s				10.1	0.0	12.1	0.0	8.9	0.0	0.0	6.5	0.0
Cycle Q Clear(g_c), s				10.1	0.0	12.1	0.0	8.9	0.0	0.0	6.5	0.0
Prop In Lane				1.00		0.98	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				642	0	569	0	2020	629	0	2020	629
V/C Ratio(X)				0.77	0.00	0.87	0.00	0.67	0.00	0.00	0.52	0.00
Avail Cap(c_a), veh/h				759	0	672	0	2783	866	0	2869	893
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				11.6	0.0	12.2	0.0	10.2	0.0	0.0	9.4	0.0
Incr Delay (d2), s/veh				3.2	0.0	9.8	0.0	0.1	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.5	0.0	6.8	0.0	4.1	0.0	0.0	3.0	0.0
LnGrp Delay(d),s/veh				14.8	0.0	22.0	0.0	10.3	0.0	0.0	9.5	0.0
LnGrp LOS				B		C		B			A	
Approach Vol, veh/h					991			1348			1054	
Approach Delay, s/veh					18.4			10.3			9.5	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		21.3				21.3		19.8
Change Period (Y+Rc), s		* 5				5.0		4.9
Max Green Setting (Gmax), s		* 23				22.5		17.6
Max Q Clear Time (g_c+I1), s		8.5				10.9		14.1
Green Ext Time (p_c), s		6.0				5.4		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	0	0	0	0	0	0	820	390	0	80	120
Future Volume (veh/h)	270	0	0	0	0	0	0	820	390	0	80	120
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	293	0	0				0	891	0	0	87	0
Adj No. of Lanes	2	0	1				0	3	0	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	2
Cap, veh/h	528	0	236				0	1750	0	0	1750	545
Arrive On Green	0.15	0.00	0.00				0.00	0.34	0.00	0.00	0.34	0.00
Sat Flow, veh/h	3548	0	1583				0	5421	0	0	5253	1583
Grp Volume(v), veh/h	293	0	0				0	891	0	0	87	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	1583
Q Serve(g_s), s	1.6	0.0	0.0				0.0	2.9	0.0	0.0	0.2	0.0
Cycle Q Clear(g_c), s	1.6	0.0	0.0				0.0	2.9	0.0	0.0	0.2	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	528	0	236				0	1750	0	0	1750	545
V/C Ratio(X)	0.55	0.00	0.00				0.00	0.51	0.00	0.00	0.05	0.00
Avail Cap(c_a), veh/h	3217	0	1436				0	5206	0	0	5330	1659
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	8.1	0.0	0.0				0.0	5.3	0.0	0.0	4.5	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0				0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0				0.0	1.3	0.0	0.0	0.1	0.0
LnGrp Delay(d),s/veh	8.4	0.0	0.0				0.0	5.4	0.0	0.0	4.5	0.0
LnGrp LOS	A							A			A	
Approach Vol, veh/h		293						891			87	
Approach Delay, s/veh		8.4						5.4			4.5	
Approach LOS		A						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		12.1		8.5		12.1		
Change Period (Y+Rc), s		* 5		* 5.4		5.0		
Max Green Setting (Gmax), s		* 22		* 19		21.0		
Max Q Clear Time (g_c+I1), s		2.2		3.6		4.9		
Green Ext Time (p_c), s		2.3		0.2		2.2		

Intersection Summary	
HCM 2010 Ctrl Delay	6.1
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	690	230	10	10	1120	620	20
Future Volume (veh/h)	690	230	10	10	1120	620	20
Number	6	16		5	2	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	750	0		11	1217	674	22
Adj No. of Lanes	3	0		1	3	2	1
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2381	0		15	2970	816	375
Arrive On Green	0.47	0.00		0.01	0.58	0.24	0.24
Sat Flow, veh/h	5421	0		1774	5253	3442	1583
Grp Volume(v), veh/h	750	0		11	1217	674	22
Grp Sat Flow(s),veh/h/ln	1695	0		1774	1695	1721	1583
Q Serve(g_s), s	4.4	0.0		0.3	6.2	8.8	0.5
Cycle Q Clear(g_c), s	4.4	0.0		0.3	6.2	8.8	0.5
Prop In Lane		0.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2381	0		15	2970	816	375
V/C Ratio(X)	0.31	0.00		0.73	0.41	0.83	0.06
Avail Cap(c_a), veh/h	2381	0		198	3423	2136	983
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.9	0.0		23.5	5.4	17.2	14.0
Incr Delay (d2), s/veh	0.2	0.0		21.5	0.2	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0		0.2	2.9	4.2	0.2
LnGrp Delay(d),s/veh	8.0	0.0		45.0	5.6	18.0	14.1
LnGrp LOS	A			D	A	B	B
Approach Vol, veh/h	750				1228	696	
Approach Delay, s/veh	8.0				5.9	17.9	
Approach LOS	A				A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		32.8			5.5	27.3		14.8
Change Period (Y+Rc), s		5.0			* 5.1	5.0		3.5
Max Green Setting (Gmax), s		32.0			* 5.3	21.6		29.5
Max Q Clear Time (g_c+I1), s		8.2			2.3	6.4		10.8
Green Ext Time (p_c), s		19.5			0.0	13.4		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.6
HCM 2010 LOS	A

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	10	440	900	520	30	320	920	220	10	230	560	170
Future Volume (veh/h)	10	440	900	520	30	320	920	220	10	230	560	170
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99		1.00		0.98		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1863
Adj Flow Rate, veh/h		478	978	565		348	1000	239		250	609	185
Adj No. of Lanes		2	3	0		2	3	1		2	3	1
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		524	1027	472		393	1345	412		298	1936	601
Arrive On Green		0.15	0.30	0.30		0.11	0.26	0.26		0.09	0.38	0.38
Sat Flow, veh/h		3442	3390	1560		3442	5085	1558		3442	5085	1580
Grp Volume(v), veh/h		478	978	565		348	1000	239		250	609	185
Grp Sat Flow(s),veh/h/ln		1721	1695	1560		1721	1695	1558		1721	1695	1580
Q Serve(g_s), s		19.1	39.4	42.2		13.9	25.1	18.6		10.0	11.7	11.4
Cycle Q Clear(g_c), s		19.1	39.4	42.2		13.9	25.1	18.6		10.0	11.7	11.4
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		524	1027	472		393	1345	412		298	1936	601
V/C Ratio(X)		0.91	0.95	1.20		0.89	0.74	0.58		0.84	0.31	0.31
Avail Cap(c_a), veh/h		615	1027	472		398	1345	412		432	2022	628
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		58.1	47.6	48.6		60.8	46.9	44.5		62.7	30.4	30.3
Incr Delay (d2), s/veh		15.2	17.6	107.3		19.9	2.0	1.4		6.5	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		10.2	21.0	32.2		7.7	12.0	8.2		5.0	5.5	5.0
LnGrp Delay(d),s/veh		73.3	65.2	155.9		80.7	48.9	45.9		69.2	30.4	30.4
LnGrp LOS		E	E	F		F	D	D		E	C	C
Approach Vol, veh/h			2021				1587				1044	
Approach Delay, s/veh			92.5				55.4				39.7	
Approach LOS			F				E				D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.6	52.4	26.7	42.7	11.3	58.7	21.4	48.0
Change Period (Y+Rc), s	5.5	* 5.6	5.5	5.8	5.5	* 5.6	5.5	5.8
Max Green Setting (Gmax), s	17.5	* 47	24.9	33.4	8.9	* 55	16.1	42.2
Max Q Clear Time (g_c+I1), s	12.0	46.8	21.1	27.1	5.9	13.7	15.9	44.2
Green Ext Time (p_c), s	0.1	0.0	0.2	3.9	0.0	6.6	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	68.2
HCM 2010 LOS	E

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	90	1180	330
Future Volume (veh/h)	90	1180	330
Number	5	2	12
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900
Adj Flow Rate, veh/h	98	1283	359
Adj No. of Lanes	2	3	0
Peak Hour Factor	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2
Cap, veh/h	143	1323	370
Arrive On Green	0.04	0.34	0.34
Sat Flow, veh/h	3442	3940	1101
Grp Volume(v), veh/h	98	1104	538
Grp Sat Flow(s),veh/h/ln	1721	1695	1651
Q Serve(g_s), s	3.9	44.7	44.8
Cycle Q Clear(g_c), s	3.9	44.7	44.8
Prop In Lane	1.00		0.67
Lane Grp Cap(c), veh/h	143	1139	554
V/C Ratio(X)	0.68	0.97	0.97
Avail Cap(c_a), veh/h	220	1139	554
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.9	45.6	45.6
Incr Delay (d2), s/veh	2.2	19.5	30.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	23.9	25.1
LnGrp Delay(d),s/veh	68.0	65.1	76.3
LnGrp LOS	E	E	E
Approach Vol, veh/h		1740	
Approach Delay, s/veh		68.7	
Approach LOS		E	
Timer			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	540	260	20	220	170	420	40	1490	130	690	1450	170
Future Volume (veh/h)	540	260	20	220	170	420	40	1490	130	690	1450	170
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	587	283	22	239	185	457	43	1620	141	750	1576	185
Adj No. of Lanes	2	3	0	2	1	2	2	3	0	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	534	1135	87	289	302	1103	75	1560	136	658	2528	773
Arrive On Green	0.16	0.24	0.24	0.08	0.16	0.16	0.02	0.33	0.33	0.19	0.50	0.50
Sat Flow, veh/h	3442	4810	367	3548	1863	3067	3442	4761	414	3442	5085	1555
Grp Volume(v), veh/h	587	198	107	239	185	457	43	1153	608	750	1576	185
Grp Sat Flow(s),veh/h/ln	1721	1695	1787	1774	1863	1534	1721	1695	1785	1721	1695	1555
Q Serve(g_s), s	21.5	6.6	6.7	9.2	12.8	15.7	1.7	45.4	45.4	26.5	31.3	9.4
Cycle Q Clear(g_c), s	21.5	6.6	6.7	9.2	12.8	15.7	1.7	45.4	45.4	26.5	31.3	9.4
Prop In Lane	1.00		0.21	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	534	800	422	289	302	1103	75	1111	585	658	2528	773
V/C Ratio(X)	1.10	0.25	0.25	0.83	0.61	0.41	0.58	1.04	1.04	1.14	0.62	0.24
Avail Cap(c_a), veh/h	534	834	440	433	403	1269	129	1111	585	658	2528	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	43.0	43.0	62.7	54.0	34.0	67.2	46.6	46.6	56.0	25.4	19.9
Incr Delay (d2), s/veh	68.9	0.1	0.1	5.0	0.7	0.1	2.6	37.4	48.0	80.3	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.3	3.1	3.3	4.7	6.6	6.7	0.8	26.9	30.0	19.9	14.7	4.1
LnGrp Delay(d),s/veh	127.5	43.0	43.1	67.7	54.7	34.1	69.7	84.0	94.6	136.4	25.8	19.9
LnGrp LOS	F	D	D	E	D	C	E	F	F	F	C	B
Approach Vol, veh/h		892			881			1804			2511	
Approach Delay, s/veh		98.6			47.6			87.2			58.4	
Approach LOS		F			D			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	74.6	27.0	28.5	32.0	51.1	16.8	38.7
Change Period (Y+Rc), s	5.5	* 5.7	5.5	* 6	5.5	* 5.7	5.5	* 6
Max Green Setting (Gmax), s	5.2	* 66	21.5	* 30	26.5	* 45	16.9	* 34
Max Q Clear Time (g_c+I1), s	3.7	33.3	23.5	17.7	28.5	47.4	11.2	8.7
Green Ext Time (p_c), s	0.0	12.8	0.0	1.2	0.0	0.0	0.1	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	71.2
HCM 2010 LOS	E

Notes

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	690	10	120	1090	910	140	1900	490	10	1270	170
Future Volume (vph)	690	10	120	1090	910	140	1900	490	10	1270	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8	6.8	4.5		4.6			4.6	4.0
Lane Util. Factor		0.91	0.86	0.91	0.88		0.86			0.91	1.00
Frpb, ped/bikes		1.00	0.99	0.98	1.00		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.88	0.85	0.85		0.97			1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1610	2773	1415	2787		6177			5085	1545
Flt Permitted		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		1610	2773	1415	2787		6177			5085	1545
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	750	11	130	1185	989	152	2065	533	11	1380	185
RTOR Reduction (vph)	0	0	32	38	59	0	1	0	0	0	0
Lane Group Flow (vph)	0	751	701	554	1082	0	2608	0	0	1380	185
Confl. Peds. (#/hr)	6	6		6	3	3		3	3		6
Confl. Bikes (#/hr)								2	2		3
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		5		6			2	
Permitted Phases				4							Free
Actuated Green, G (s)		37.2	37.2	37.2	26.5		40.4			71.4	120.0
Effective Green, g (s)		37.2	37.2	37.2	26.5		40.4			71.4	120.0
Actuated g/C Ratio		0.31	0.31	0.31	0.22		0.34			0.60	1.00
Clearance Time (s)		6.8	6.8	6.8	4.5		4.6			4.6	
Vehicle Extension (s)		1.0	1.0	1.0	3.0		1.0			1.0	
Lane Grp Cap (vph)		499	859	438	615		2079			3025	1545
v/s Ratio Prot		c0.47	0.25		c0.39		c0.42			0.27	
v/s Ratio Perm				0.39							0.12
v/c Ratio		1.51	1.26dr	1.26	1.76		1.25			0.46	0.12
Uniform Delay, d1		41.4	38.2	41.4	46.8		39.8			13.5	0.0
Progression Factor		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		237.5	5.7	136.4	348.2		118.7			0.0	0.2
Delay (s)		278.9	43.9	177.8	395.0		158.5			13.5	0.2
Level of Service		F	D	F	F		F			B	A
Approach Delay (s)			167.1				158.5			12.0	
Approach LOS			F				F			B	

Intersection Summary			
HCM 2000 Control Delay	166.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	114.6%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	660	0	340	0	1460	2050	0	1100	670
Future Volume (veh/h)	0	0	0	660	0	340	0	1460	2050	0	1100	670
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				717	0	370	0	1587	0	0	1196	0
Adj No. of Lanes				2	0	1	0	3	2	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				1096	0	504	0	2255	1236	0	2255	702
Arrive On Green				0.32	0.00	0.32	0.00	0.44	0.00	0.00	0.44	0.00
Sat Flow, veh/h				3442	0	1583	0	5253	2787	0	5253	1583
Grp Volume(v), veh/h				717	0	370	0	1587	0	0	1196	0
Grp Sat Flow(s),veh/h/ln				1721	0	1583	0	1695	1393	0	1695	1583
Q Serve(g_s), s				6.9	0.0	7.9	0.0	9.7	0.0	0.0	6.5	0.0
Cycle Q Clear(g_c), s				6.9	0.0	7.9	0.0	9.7	0.0	0.0	6.5	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1096	0	504	0	2255	1236	0	2255	702
V/C Ratio(X)				0.65	0.00	0.73	0.00	0.70	0.00	0.00	0.53	0.00
Avail Cap(c_a), veh/h				1396	0	642	0	2714	1487	0	2714	845
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				11.2	0.0	11.6	0.0	8.6	0.0	0.0	7.7	0.0
Incr Delay (d2), s/veh				0.7	0.0	3.2	0.0	0.4	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.3	0.0	3.8	0.0	4.5	0.0	0.0	3.0	0.0
LnGrp Delay(d),s/veh				11.9	0.0	14.8	0.0	9.1	0.0	0.0	7.8	0.0
LnGrp LOS				B		B		A			A	
Approach Vol, veh/h					1087			1587			1196	
Approach Delay, s/veh					12.9			9.1			7.8	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		21.5				21.5		16.7
Change Period (Y+Rc), s		4.6				4.6		4.5
Max Green Setting (Gmax), s		20.4				20.4		15.5
Max Q Clear Time (g_c+I1), s		11.7				8.5		9.9
Green Ext Time (p_c), s		5.3				6.4		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	40	530	1340	410	10	350	690	40	70	450	1070	340
Future Volume (veh/h)	40	530	1340	410	10	350	690	40	70	450	1070	340
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		1.00		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		576	1457	446		380	750	43		489	1163	370
Adj No. of Lanes		2	2	1		2	3	1		2	3	1
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		613	1098	484		267	1067	331		374	1472	452
Arrive On Green		0.20	0.34	0.34		0.09	0.23	0.23		0.12	0.32	0.32
Sat Flow, veh/h		3097	3185	1403		3097	4577	1420		3097	4577	1404
Grp Volume(v), veh/h		576	1457	446		380	750	43		489	1163	370
Grp Sat Flow(s),veh/h/ln		1549	1593	1403		1549	1526	1420		1549	1526	1404
Q Serve(g_s), s		26.6	50.0	44.3		12.5	21.8	3.5		17.5	33.5	35.2
Cycle Q Clear(g_c), s		26.6	50.0	44.3		12.5	21.8	3.5		17.5	33.5	35.2
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		613	1098	484		267	1067	331		374	1472	452
V/C Ratio(X)		0.94	1.33	0.92		1.42	0.70	0.13		1.31	0.79	0.82
Avail Cap(c_a), veh/h		641	1098	484		267	1067	331		374	1472	452
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		57.3	47.5	45.6		66.3	51.0	44.0		63.8	44.7	45.3
Incr Delay (d2), s/veh		21.1	153.3	23.9		210.9	3.3	0.6		156.7	3.4	12.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		13.2	45.4	20.3		13.2	9.5	1.4		15.6	14.6	15.2
LnGrp Delay(d),s/veh		78.4	200.8	69.5		277.1	54.3	44.6		220.5	48.1	57.8
LnGrp LOS		E	F	E		F	D	D		F	D	E
Approach Vol, veh/h			2479				1173				2022	
Approach Delay, s/veh			148.7				126.1				91.6	
Approach LOS			F				F				F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	48.0	34.2	39.8	18.6	52.4	18.0	56.0
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	17.5	* 42	30.0	32.5	14.2	* 46	12.5	50.0
Max Q Clear Time (g_c+I1), s	19.5	44.2	28.6	23.8	13.0	37.2	14.5	52.0
Green Ext Time (p_c), s	0.0	0.0	0.1	8.5	0.0	8.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	120.1
HCM 2010 LOS	F

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	40	220	1390	170
Future Volume (veh/h)	40	220	1390	170
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676
Adj Flow Rate, veh/h		239	1511	185
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2
Cap, veh/h		279	1332	408
Arrive On Green		0.09	0.29	0.29
Sat Flow, veh/h		3097	4577	1401
Grp Volume(v), veh/h		239	1511	185
Grp Sat Flow(s),veh/h/ln		1549	1526	1401
Q Serve(g_s), s		11.0	42.2	15.6
Cycle Q Clear(g_c), s		11.0	42.2	15.6
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		279	1332	408
V/C Ratio(X)		0.86	1.13	0.45
Avail Cap(c_a), veh/h		303	1332	408
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		65.1	51.4	42.0
Incr Delay (d2), s/veh		18.3	70.3	1.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.4	26.4	6.2
LnGrp Delay(d),s/veh		83.4	121.7	43.6
LnGrp LOS		F	F	D
Approach Vol, veh/h			1935	
Approach Delay, s/veh			109.5	
Approach LOS			F	

Timer

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	510	340	30	10	180	300	210	90	1020	60	190	1340
Future Volume (veh/h)	510	340	30	10	180	300	210	90	1020	60	190	1340
Number	3	8	18		7	4	14	1	6	16	5	2
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99		1.00		0.97	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863		1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	554	370	33		196	391	185	98	1109	65	207	1457
Adj No. of Lanes	2	2	1		2	2	1	2	4	1	2	3
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	382	1028	454		267	949	391	156	2003	493	277	1768
Arrive On Green	0.11	0.29	0.29		0.08	0.25	0.25	0.05	0.31	0.31	0.08	0.35
Sat Flow, veh/h	3442	3539	1562		3548	3725	1536	3442	6408	1577	3442	5085
Grp Volume(v), veh/h	554	370	33		196	391	185	98	1109	65	207	1457
Grp Sat Flow(s),veh/h/ln	1721	1770	1562		1774	1863	1536	1721	1602	1577	1721	1695
Q Serve(g_s), s	10.5	7.8	1.4		5.1	8.3	9.7	2.6	13.6	2.8	5.6	24.8
Cycle Q Clear(g_c), s	10.5	7.8	1.4		5.1	8.3	9.7	2.6	13.6	2.8	5.6	24.8
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	382	1028	454		267	949	391	156	2003	493	277	1768
V/C Ratio(X)	1.45	0.36	0.07		0.73	0.41	0.47	0.63	0.55	0.13	0.75	0.82
Avail Cap(c_a), veh/h	382	1202	530		394	1261	520	160	2003	493	491	1909
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	26.6	24.3		42.8	29.3	29.8	44.3	27.0	23.3	42.5	28.2
Incr Delay (d2), s/veh	216.5	0.3	0.1		1.5	0.5	1.5	6.1	0.3	0.1	1.5	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.4	3.8	0.6		2.6	4.3	4.2	1.4	6.0	1.2	2.7	12.2
LnGrp Delay(d),s/veh	258.5	26.9	24.4		44.3	29.8	31.4	50.5	27.3	23.4	44.1	31.6
LnGrp LOS	F	C	C		D	C	C	D	C	C	D	C
Approach Vol, veh/h		957				772			1272			1936
Approach Delay, s/veh		160.9				33.9			28.9			32.1
Approach LOS		F				C			C			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	38.7	16.0	30.1	13.1	35.4	12.6	33.5
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	* 6
Max Green Setting (Gmax), s	4.4	* 36	10.5	32.0	13.5	* 26	10.5	* 32
Max Q Clear Time (g_c+I1), s	4.6	26.8	12.5	11.7	7.6	15.6	7.1	9.8
Green Ext Time (p_c), s	0.0	6.1	0.0	8.8	0.1	10.0	0.1	9.3

Intersection Summary	
HCM 2010 Ctrl Delay	56.5
HCM 2010 LOS	E

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	250
Future Volume (veh/h)	250
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.99
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	272
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	543
Arrive On Green	0.35
Sat Flow, veh/h	1563
Grp Volume(v), veh/h	272
Grp Sat Flow(s),veh/h/ln	1563
Q Serve(g_s), s	13.0
Cycle Q Clear(g_c), s	13.0
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	543
V/C Ratio(X)	0.50
Avail Cap(c_a), veh/h	587
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	24.4
Incr Delay (d2), s/veh	1.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	5.8
LnGrp Delay(d),s/veh	25.8
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1260	0	350	0	0	0	0	1610	110	0	1430	400
Future Volume (veh/h)	1260	0	350	0	0	0	0	1610	110	0	1430	400
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	1370	0	380				0	1750	0	0	1554	0
Adj No. of Lanes	3	0	2				0	4	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	1855	0	1034				0	3240	689	0	2430	689
Arrive On Green	0.37	0.00	0.37				0.00	0.43	0.00	0.00	0.43	0.00
Sat Flow, veh/h	5003	0	2787				0	7451	1583	0	5588	1583
Grp Volume(v), veh/h	1370	0	380				0	1750	0	0	1554	0
Grp Sat Flow(s),veh/h/ln	1668	0	1393				0	1863	1583	0	1863	1583
Q Serve(g_s), s	11.2	0.0	4.7				0.0	8.2	0.0	0.0	10.3	0.0
Cycle Q Clear(g_c), s	11.2	0.0	4.7				0.0	8.2	0.0	0.0	10.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	1855	0	1034				0	3240	689	0	2430	689
V/C Ratio(X)	0.74	0.00	0.37				0.00	0.54	0.00	0.00	0.64	0.00
Avail Cap(c_a), veh/h	2165	0	1206				0	4042	859	0	2985	846
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	12.9	0.0	10.9				0.0	9.9	0.0	0.0	10.5	0.0
Incr Delay (d2), s/veh	1.2	0.0	0.2				0.0	0.1	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	1.8				0.0	4.1	0.0	0.0	5.2	0.0
LnGrp Delay(d),s/veh	14.1	0.0	11.1				0.0	9.9	0.0	0.0	10.6	0.0
LnGrp LOS	B		B					A			B	
Approach Vol, veh/h		1750						1750			1554	
Approach Delay, s/veh		13.4						9.9			10.6	
Approach LOS		B						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		25.3		22.1		25.3		
Change Period (Y+Rc), s		* 4.7		4.5		4.7		
Max Green Setting (Gmax), s		* 26		20.5		25.3		
Max Q Clear Time (g_c+I1), s		10.2		13.2		12.3		
Green Ext Time (p_c), s		9.1		4.3		8.1		

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	270	0	640	0	2450	390	0	1570	1350
Future Volume (veh/h)	0	0	0	270	0	640	0	2450	390	0	1570	1350
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				293	0	696	0	2663	0	0	1707	0
Adj No. of Lanes				2	0	2	0	3	1	0	3	2
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				972	0	787	0	3296	934	0	3000	1644
Arrive On Green				0.28	0.00	0.28	0.00	0.59	0.00	0.00	0.59	0.00
Sat Flow, veh/h				3442	0	2787	0	5588	1583	0	5253	2787
Grp Volume(v), veh/h				293	0	696	0	2663	0	0	1707	0
Grp Sat Flow(s),veh/h/ln				1721	0	1393	0	1863	1583	0	1695	1393
Q Serve(g_s), s				5.0	0.0	17.8	0.0	27.8	0.0	0.0	15.4	0.0
Cycle Q Clear(g_c), s				5.0	0.0	17.8	0.0	27.8	0.0	0.0	15.4	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				972	0	787	0	3296	934	0	3000	1644
V/C Ratio(X)				0.30	0.00	0.88	0.00	0.81	0.00	0.00	0.57	0.00
Avail Cap(c_a), veh/h				1041	0	843	0	3629	1028	0	3282	1798
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				20.9	0.0	25.5	0.0	11.9	0.0	0.0	9.4	0.0
Incr Delay (d2), s/veh				0.2	0.0	10.6	0.0	1.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.4	0.0	7.9	0.0	14.4	0.0	0.0	7.1	0.0
LnGrp Delay(d),s/veh				21.1	0.0	36.1	0.0	13.1	0.0	0.0	9.5	0.0
LnGrp LOS				C		D		B			A	
Approach Vol, veh/h					989			2663			1707	
Approach Delay, s/veh					31.7			13.1			9.5	
Approach LOS					C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		48.9				48.9		25.5
Change Period (Y+Rc), s		* 5				5.0		4.5
Max Green Setting (Gmax), s		* 48				48.0		22.5
Max Q Clear Time (g_c+I1), s		29.8				17.4		19.8
Green Ext Time (p_c), s		14.1				20.2		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	15.4
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	130	40	310	60	20	60	30	360	2610	20	60	2480
Future Volume (veh/h)	130	40	310	60	20	60	30	360	2610	20	60	2480
Number	7	4	14	3	8	18		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	141	158	260	65	22	65		391	2837	22	65	2696
Adj No. of Lanes	0	1	1	1	1	0		2	3	0	1	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	164	184	300	132	31	91		309	2604	20	83	2313
Arrive On Green	0.19	0.19	0.19	0.07	0.07	0.07		0.09	0.50	0.50	0.05	0.45
Sat Flow, veh/h	858	962	1573	1774	415	1226		3442	5205	40	1774	5085
Grp Volume(v), veh/h	299	0	260	65	0	87		391	1845	1014	65	2696
Grp Sat Flow(s),veh/h/ln	1820	0	1573	1774	0	1641		1721	1695	1856	1774	1695
Q Serve(g_s), s	17.6	0.0	17.7	3.9	0.0	5.7		9.9	55.2	55.2	4.0	50.2
Cycle Q Clear(g_c), s	17.6	0.0	17.7	3.9	0.0	5.7		9.9	55.2	55.2	4.0	50.2
Prop In Lane	0.47		1.00	1.00		0.75		1.00		0.02	1.00	
Lane Grp Cap(c), veh/h	347	0	300	132	0	122		309	1696	928	83	2313
V/C Ratio(X)	0.86	0.00	0.87	0.49	0.00	0.71		1.27	1.09	1.09	0.78	1.17
Avail Cap(c_a), veh/h	528	0	456	514	0	476		309	1696	928	180	2313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	0.0	43.3	49.1	0.0	49.9		50.2	27.6	27.6	52.0	30.1
Incr Delay (d2), s/veh	5.9	0.0	7.2	1.1	0.0	2.9		143.2	50.1	57.9	5.8	79.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	0.0	8.3	2.0	0.0	2.7		10.8	37.5	43.0	2.1	40.4
LnGrp Delay(d),s/veh	49.2	0.0	50.5	50.1	0.0	52.8		193.4	77.6	85.5	57.8	109.7
LnGrp LOS	D		D	D		D		F	F	F	E	F
Approach Vol, veh/h		559			152				3250			2891
Approach Delay, s/veh		49.8			51.7				94.0			104.5
Approach LOS		D			D				F			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	55.1		26.6	10.0	60.1		13.7
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 9.9	* 50		32.0	* 11	* 49		32.0
Max Q Clear Time (g_c+I1), s	11.9	52.2		19.7	6.0	57.2		7.7
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	0.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	93.9
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	120
Future Volume (veh/h)	120
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.97
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	130
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	701
Arrive On Green	0.45
Sat Flow, veh/h	1542
Grp Volume(v), veh/h	130
Grp Sat Flow(s),veh/h/ln	1542
Q Serve(g_s), s	5.5
Cycle Q Clear(g_c), s	5.5
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	701
V/C Ratio(X)	0.19
Avail Cap(c_a), veh/h	701
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	17.9
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	2.4
LnGrp Delay(d),s/veh	18.0
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1160	20	20	1130	1470	340
Future Volume (veh/h)	1160	20	20	1130	1470	340
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1261	22	22	1228	1598	370
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1299	622	27	1858	1651	738
Arrive On Green	0.38	0.38	0.02	0.52	0.47	0.47
Sat Flow, veh/h	3442	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	1261	22	22	1228	1598	370
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770	1770	1583
Q Serve(g_s), s	45.7	1.1	1.6	32.0	55.8	20.7
Cycle Q Clear(g_c), s	45.7	1.1	1.6	32.0	55.8	20.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1299	622	27	1858	1651	738
V/C Ratio(X)	0.97	0.04	0.82	0.66	0.97	0.50
Avail Cap(c_a), veh/h	1315	629	56	1935	1662	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	23.7	62.3	21.9	33.0	23.6
Incr Delay (d2), s/veh	18.0	0.0	19.4	0.6	15.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.0	1.2	0.9	15.7	30.5	9.1
LnGrp Delay(d),s/veh	56.8	23.8	81.7	22.6	48.0	23.8
LnGrp LOS	E	C	F	C	D	C
Approach Vol, veh/h	1283			1250	1968	
Approach Delay, s/veh	56.2			23.6	43.4	
Approach LOS	E			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	7.4	66.1		53.4		73.5		
Change Period (Y+Rc), s	5.5	* 6.9		5.5		* 6.9		
Max Green Setting (Gmax), s	4.0	* 60		48.5		* 69		
Max Q Clear Time (g_c+I1), s	3.6	57.8		47.7		34.0		
Green Ext Time (p_c), s	0.0	1.4		0.2		8.9		

Intersection Summary	
HCM 2010 Ctrl Delay	41.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	880	1430	0	990	120	50	760
Future Volume (veh/h)	880	1430	0	990	120	50	760
Number	1	6		2	12	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h	957	1554		1076	130	54	826
Adj No. of Lanes	2	2		2	1	1	1
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1021	2307		1048	469	372	332
Arrive On Green	0.30	0.65		0.30	0.30	0.21	0.21
Sat Flow, veh/h	3442	3632		3632	1583	1774	1583
Grp Volume(v), veh/h	957	1554		1076	130	54	826
Grp Sat Flow(s),veh/h/ln	1721	1770		1770	1583	1774	1583
Q Serve(g_s), s	23.9	24.0		26.1	5.6	2.2	18.5
Cycle Q Clear(g_c), s	23.9	24.0		26.1	5.6	2.2	18.5
Prop In Lane	1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1021	2307		1048	469	372	332
V/C Ratio(X)	0.94	0.67		1.03	0.28	0.15	2.49
Avail Cap(c_a), veh/h	1093	2307		1048	469	372	332
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	9.5		31.0	23.8	28.4	34.8
Incr Delay (d2), s/veh	13.7	0.6		34.9	0.1	0.1	677.6
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.2	11.6		17.7	2.4	1.1	70.6
LnGrp Delay(d),s/veh	43.9	10.2		65.9	23.9	28.5	712.5
LnGrp LOS	D	B		F	C	C	F
Approach Vol, veh/h		2511		1206		880	
Approach Delay, s/veh		23.0		61.4		670.5	
Approach LOS		C		E		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	31.4	32.8				64.2		24.0
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 28	* 26				* 50		18.5
Max Q Clear Time (g_c+I1), s	25.9	28.1				26.0		20.5
Green Ext Time (p_c), s	0.3	0.0				7.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	157.0
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	170	10	180	70	0	10	0	110	0	0	0
Future Volume (veh/h)	0	170	10	180	70	0	10	0	110	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	185	11	196	76	0	11	0	120	0	0	0
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	410	184	188	1124	503	25	2500	778	4	1942	605
Arrive On Green	0.00	0.12	0.12	0.11	0.32	0.00	0.01	0.00	0.49	0.00	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	5085	1583	1774	5085	1583
Grp Volume(v), veh/h	0	185	11	196	76	0	11	0	120	0	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1695	1583	1774	1695	1583
Q Serve(g_s), s	0.0	2.3	0.3	5.0	0.7	0.0	0.3	0.0	2.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.3	0.3	5.0	0.7	0.0	0.3	0.0	2.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	4	410	184	188	1124	503	25	2500	778	4	1942	605
V/C Ratio(X)	0.00	0.45	0.06	1.04	0.07	0.00	0.44	0.00	0.15	0.00	0.00	0.00
Avail Cap(c_a), veh/h	188	1352	605	188	1352	605	188	2500	778	188	1942	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.4	18.5	21.1	11.2	0.0	23.0	0.0	6.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.1	76.9	0.0	0.0	11.4	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.1	6.4	0.3	0.0	0.2	0.0	0.9	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	20.2	18.7	98.1	11.2	0.0	34.4	0.0	7.0	0.0	0.0	0.0
LnGrp LOS		C	B	F	B		C		A			
Approach Vol, veh/h		196			272			131			0	
Approach Delay, s/veh		20.1			73.8			9.3			0.0	
Approach LOS		C			E			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	27.7	9.5	10.0	5.2	22.5	0.0	19.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	0.0	4.0	7.0	4.3	2.3	0.0	0.0	2.7
Green Ext Time (p_c), s	0.0	0.3	0.0	1.3	0.0	0.0	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	42.1
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	380	340	0	160	170	230	880	0	280	970	370
Future Volume (veh/h)	470	380	340	0	160	170	230	880	0	280	970	370
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	511	413	370	0	174	185	250	957	0	304	1054	402
Adj No. of Lanes	2	2	1	2	2	1	2	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	608	1425	638	5	562	252	334	1435	447	391	1519	473
Arrive On Green	0.18	0.40	0.40	0.00	0.16	0.16	0.10	0.28	0.00	0.11	0.30	0.30
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	5085	1583	3442	5085	1583
Grp Volume(v), veh/h	511	413	370	0	174	185	250	957	0	304	1054	402
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1695	1583	1721	1695	1583
Q Serve(g_s), s	9.6	5.3	12.2	0.0	2.9	7.5	4.7	11.1	0.0	5.8	12.3	16.0
Cycle Q Clear(g_c), s	9.6	5.3	12.2	0.0	2.9	7.5	4.7	11.1	0.0	5.8	12.3	16.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	608	1425	638	5	562	252	334	1435	447	391	1519	473
V/C Ratio(X)	0.84	0.29	0.58	0.00	0.31	0.74	0.75	0.67	0.00	0.78	0.69	0.85
Avail Cap(c_a), veh/h	642	1425	638	257	951	426	334	1435	447	391	1519	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	13.5	15.6	0.0	24.9	26.8	29.4	21.2	0.0	28.9	20.8	22.1
Incr Delay (d2), s/veh	9.4	0.1	1.3	0.0	0.3	4.2	9.0	2.5	0.0	9.6	2.6	17.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	2.6	5.5	0.0	1.5	3.5	2.7	5.6	0.0	3.3	6.1	9.2
LnGrp Delay(d),s/veh	36.1	13.6	16.9	0.0	25.2	31.0	38.4	23.7	0.0	38.5	23.4	39.3
LnGrp LOS	D	B	B		C	C	D	C		D	C	D
Approach Vol, veh/h		1294			359			1207			1760	
Approach Delay, s/veh		23.4			28.2			26.8			29.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	23.4	0.0	31.5	11.0	24.5	16.3	15.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.6	18.9	5.0	25.5	6.5	20.0	12.5	18.0
Max Q Clear Time (g_c+I1), s	7.8	13.1	0.0	14.2	6.7	18.0	11.6	9.5
Green Ext Time (p_c), s	0.0	5.1	0.0	4.6	0.0	1.9	0.2	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	27.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	140	50	50	100	10	40	300	10	10	600	280
Future Volume (veh/h)	250	140	50	50	100	10	40	300	10	10	600	280
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	272	152	54	54	109	11	43	326	11	11	652	304
Adj No. of Lanes	1	2	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	878	393	91	217	184	78	1271	569	25	1166	522
Arrive On Green	0.18	0.25	0.25	0.05	0.12	0.12	0.04	0.36	0.36	0.01	0.33	0.33
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	272	152	54	54	109	11	43	326	11	11	652	304
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	8.1	1.9	1.5	1.6	3.0	0.3	1.3	3.6	0.2	0.3	8.3	8.8
Cycle Q Clear(g_c), s	8.1	1.9	1.5	1.6	3.0	0.3	1.3	3.6	0.2	0.3	8.3	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	324	878	393	91	217	184	78	1271	569	25	1166	522
V/C Ratio(X)	0.84	0.17	0.14	0.60	0.50	0.06	0.55	0.26	0.02	0.44	0.56	0.58
Avail Cap(c_a), veh/h	352	1449	648	207	610	519	161	1271	569	161	1166	522
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	16.2	16.1	25.5	22.8	21.6	25.7	12.4	11.4	26.9	15.1	15.3
Incr Delay (d2), s/veh	15.4	0.1	0.2	6.1	1.8	0.1	6.0	0.5	0.1	11.7	1.9	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.9	0.7	0.9	1.7	0.2	0.8	1.8	0.1	0.2	4.4	4.5
LnGrp Delay(d),s/veh	37.0	16.3	16.2	31.6	24.6	21.7	31.8	12.9	11.4	38.6	17.1	20.0
LnGrp LOS	D	B	B	C	C	C	C	B	B	D	B	B
Approach Vol, veh/h		478			174			380			967	
Approach Delay, s/veh		28.1			26.6			15.0			18.2	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	24.2	7.3	18.1	6.9	22.6	14.5	10.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.1	6.4	22.5	5.0	18.1	10.9	18.0
Max Q Clear Time (g_c+I1), s	2.3	5.6	3.6	3.9	3.3	10.8	10.1	5.0
Green Ext Time (p_c), s	0.0	6.2	0.0	1.6	0.0	4.3	0.1	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	20.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	740	280	50	350	90	140	150	60	160	280	40
Future Volume (veh/h)	20	740	280	50	350	90	140	150	60	160	280	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	804	304	54	380	98	152	163	65	174	304	43
Adj No. of Lanes	2	3	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	1556	484	182	1177	526	347	659	295	316	627	280
Arrive On Green	0.03	0.31	0.31	0.05	0.33	0.33	0.10	0.19	0.19	0.09	0.18	0.18
Sat Flow, veh/h	3442	5085	1583	3442	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	22	804	304	54	380	98	152	163	65	174	304	43
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	0.3	6.5	8.2	0.7	4.0	2.2	2.1	1.9	1.7	2.4	3.8	1.1
Cycle Q Clear(g_c), s	0.3	6.5	8.2	0.7	4.0	2.2	2.1	1.9	1.7	2.4	3.8	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	91	1556	484	182	1177	526	347	659	295	316	627	280
V/C Ratio(X)	0.24	0.52	0.63	0.30	0.32	0.19	0.44	0.25	0.22	0.55	0.48	0.15
Avail Cap(c_a), veh/h	347	1898	591	347	1321	591	1250	2142	958	590	1464	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	14.2	14.8	22.6	12.4	11.8	21.0	17.2	17.1	21.5	18.4	17.3
Incr Delay (d2), s/veh	1.4	0.3	1.5	0.9	0.2	0.2	0.9	0.2	0.4	1.5	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.0	3.7	0.4	1.9	1.0	1.0	1.0	0.8	1.2	1.9	0.5
LnGrp Delay(d),s/veh	25.0	14.4	16.3	23.5	12.5	11.9	21.8	17.4	17.5	23.0	18.9	17.5
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		1130			532			380			521	
Approach Delay, s/veh		15.1			13.5			19.2			20.2	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	13.7	7.1	19.7	9.5	13.3	5.8	21.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	30.0	5.0	18.5	18.0	20.5	5.0	18.5
Max Q Clear Time (g_c+I1), s	4.4	3.9	2.7	10.2	4.1	5.8	2.3	6.0
Green Ext Time (p_c), s	0.2	3.5	0.0	5.0	0.4	2.9	0.0	6.6

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	180	120	50	90	70	70	80	40	90	100	20
Future Volume (veh/h)	30	180	120	50	90	70	70	80	40	90	100	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	196	130	54	98	76	76	87	43	98	109	22
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	318	270	179	347	295	113	1274	570	250	1305	584
Arrive On Green	0.04	0.17	0.17	0.05	0.19	0.19	0.06	0.36	0.36	0.07	0.37	0.37
Sat Flow, veh/h	1774	1863	1583	3442	1863	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	33	196	130	54	98	76	76	87	43	98	109	22
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1721	1863	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.0	5.1	3.9	0.8	2.4	2.1	2.2	0.8	0.9	1.4	1.0	0.5
Cycle Q Clear(g_c), s	1.0	5.1	3.9	0.8	2.4	2.1	2.2	0.8	0.9	1.4	1.0	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	65	318	270	179	347	295	113	1274	570	250	1305	584
V/C Ratio(X)	0.51	0.62	0.48	0.30	0.28	0.26	0.67	0.07	0.08	0.39	0.08	0.04
Avail Cap(c_a), veh/h	170	642	546	330	642	546	187	1274	570	343	1305	584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	20.1	19.6	23.8	18.3	18.2	23.9	11.0	11.0	23.1	10.7	10.5
Incr Delay (d2), s/veh	6.1	2.0	1.3	0.9	0.4	0.5	6.7	0.1	0.3	1.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.8	1.8	0.4	1.2	1.0	1.3	0.4	0.4	0.7	0.5	0.2
LnGrp Delay(d),s/veh	30.8	22.0	20.9	24.8	18.7	18.6	30.6	11.1	11.2	24.1	10.9	10.7
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		359			228			206			229	
Approach Delay, s/veh		22.4			20.1			18.3			16.5	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	23.3	7.2	13.4	7.8	23.8	6.4	14.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.2	18.8	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	3.4	2.9	2.8	7.1	4.2	3.0	3.0	4.4
Green Ext Time (p_c), s	0.0	1.2	0.0	1.8	0.0	1.2	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.7
HCM 2010 LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	0	0	0	0	30
Future Volume (veh/h)	30	0	0	0	0	30
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	0	0	0	0	33
Adj No. of Lanes	2	2	2	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	139	143	12	6	1145	1022
Arrive On Green	0.04	0.00	0.00	0.00	0.00	0.65
Sat Flow, veh/h	3442	3632	-82054	1583	1774	1583
Grp Volume(v), veh/h	33	0	0	0	0	33
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	139	143	12	6	1145	1022
V/C Ratio(X)	0.24	0.00	0.00	0.00	0.00	0.03
Avail Cap(c_a), veh/h	601	3397	2223	995	1145	1022
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	0.0	0.0	1.8
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.0	0.0	0.4
LnGrp Delay(d),s/veh	14.2	0.0	0.0	0.0	0.0	1.9
LnGrp LOS	B					A
Approach Vol, veh/h		33	0		33	
Approach Delay, s/veh		14.2	0.0		1.9	
Approach LOS		B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				5.7		23.0	5.7	0.0
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				27.5		18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s				0.0		2.2	2.3	0.0
Green Ext Time (p_c), s				0.0		0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	320	90	100	100	0	70	0	20	0	0	0
Future Volume (veh/h)	0	320	90	100	100	0	70	0	20	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	348	98	109	109	0	76	0	22	0	0	0
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	8	1345	602	613	1345	602	149	412	351	8	8	7
Arrive On Green	0.00	0.38	0.38	0.38	0.38	0.00	0.08	0.00	0.22	0.00	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	940	3539	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	0	348	98	109	109	0	76	0	22	0	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	940	1770	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	1.5	0.9	2.0	0.4	0.0	0.9	0.0	0.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.5	0.9	3.6	0.4	0.0	0.9	0.0	0.2	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	8	1345	602	613	1345	602	149	412	351	8	8	7
V/C Ratio(X)	0.00	0.26	0.16	0.18	0.08	0.00	0.51	0.00	0.06	0.00	0.00	0.00
Avail Cap(c_a), veh/h	393	4310	1928	1005	2821	1262	432	1567	1332	393	1526	1297
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.8	4.6	6.0	4.5	0.0	9.9	0.0	6.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.1	0.0	0.0	2.7	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.4	0.5	0.2	0.0	0.6	0.0	0.1	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	4.9	4.8	6.2	4.5	0.0	12.6	0.0	7.0	0.0	0.0	0.0
LnGrp LOS		A	A	A	A		B		A			
Approach Vol, veh/h		446			218			98			0	
Approach Delay, s/veh		4.9			5.3			11.3			0.0	
Approach LOS		A			A			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	9.5		13.1	6.4	3.1	0.0	13.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0		27.5	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	0.0	2.2		3.5	2.9	0.0	0.0	5.6
Green Ext Time (p_c), s	0.0	0.0		4.0	0.0	0.0	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	5.8
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	70	10	10	0	20	20	10	0	20	30
Future Volume (veh/h)	20	10	70	10	10	0	20	20	10	0	20	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	11	76	11	11	0	22	22	11	0	22	33
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	183	156	25	160	136	48	1052	894	4	801	681
Arrive On Green	0.03	0.10	0.10	0.01	0.09	0.00	0.03	0.56	0.56	0.00	0.43	0.43
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	22	11	76	11	11	0	22	22	11	0	22	33
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.5	0.2	1.9	0.3	0.2	0.0	0.5	0.2	0.1	0.0	0.3	0.5
Cycle Q Clear(g_c), s	0.5	0.2	1.9	0.3	0.2	0.0	0.5	0.2	0.1	0.0	0.3	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	48	183	156	25	160	136	48	1052	894	4	801	681
V/C Ratio(X)	0.46	0.06	0.49	0.43	0.07	0.00	0.46	0.02	0.01	0.00	0.03	0.05
Avail Cap(c_a), veh/h	212	801	681	212	801	681	212	1052	894	212	801	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	20.1	17.1	17.9	20.5	17.6	0.0	20.1	4.0	4.0	0.0	6.9	6.9
Incr Delay (d2), s/veh	6.7	0.1	2.4	11.2	0.2	0.0	6.7	0.0	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.9	0.2	0.1	0.0	0.3	0.1	0.1	0.0	0.2	0.2
LnGrp Delay(d),s/veh	26.8	17.2	20.2	31.6	17.8	0.0	26.8	4.1	4.0	0.0	6.9	7.1
LnGrp LOS	C	B	C	C	B		C	A	A		A	A
Approach Vol, veh/h		109			22			55			55	
Approach Delay, s/veh		21.2			24.7			13.1			7.0	
Approach LOS		C			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	28.1	5.1	8.6	5.6	22.5	5.6	8.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	0.0	2.2	2.3	3.9	2.5	2.5	2.5	2.2
Green Ext Time (p_c), s	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	16.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	480	210	30	310	20	60	10	20	30	10	30
Future Volume (veh/h)	70	480	210	30	310	20	60	10	20	30	10	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	76	522	228	33	337	22	65	11	22	33	11	33
Adj No. of Lanes	1	3	1	2	2	1	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	1243	387	124	771	345	198	656	558	64	616	524
Arrive On Green	0.06	0.24	0.24	0.04	0.22	0.22	0.06	0.35	0.35	0.04	0.33	0.33
Sat Flow, veh/h	1774	5085	1583	3442	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	76	522	228	33	337	22	65	11	22	33	11	33
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.3	4.7	6.9	0.5	4.5	0.6	1.0	0.2	0.5	1.0	0.2	0.8
Cycle Q Clear(g_c), s	2.3	4.7	6.9	0.5	4.5	0.6	1.0	0.2	0.5	1.0	0.2	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	1243	387	124	771	345	198	656	558	64	616	524
V/C Ratio(X)	0.68	0.42	0.59	0.27	0.44	0.06	0.33	0.02	0.04	0.52	0.02	0.06
Avail Cap(c_a), veh/h	163	1683	524	316	1171	524	316	656	558	163	616	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	17.3	18.1	25.5	18.4	16.9	24.6	11.5	11.6	25.7	12.2	12.4
Incr Delay (d2), s/veh	7.1	0.2	1.4	1.1	0.4	0.1	1.0	0.0	0.1	6.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.2	3.1	0.3	2.2	0.3	0.5	0.1	0.2	0.6	0.1	0.4
LnGrp Delay(d),s/veh	32.1	17.5	19.6	26.6	18.8	16.9	25.6	11.5	11.7	32.0	12.3	12.7
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		826			392			98			77	
Approach Delay, s/veh		19.4			19.3			20.9			20.9	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	23.7	6.5	17.8	7.6	22.5	7.9	16.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	3.0	2.5	2.5	8.9	3.0	2.8	4.3	6.5
Green Ext Time (p_c), s	0.0	0.2	0.0	4.4	0.0	0.2	0.0	5.1

Intersection Summary	
HCM 2010 Ctrl Delay	19.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	160	50	60	110	20	20	10	30	20	10	10
Future Volume (veh/h)	10	160	50	60	110	20	20	10	30	20	10	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	11	174	54	65	120	22	22	11	33	22	11	11
Adj No. of Lanes	2	1	1	1	1	1	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	295	251	107	382	324	91	703	597	47	703	597
Arrive On Green	0.01	0.16	0.16	0.06	0.20	0.20	0.03	0.38	0.38	0.03	0.38	0.38
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	11	174	54	65	120	22	22	11	33	22	11	11
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.2	4.1	1.4	1.7	2.6	0.5	0.3	0.2	0.6	0.6	0.2	0.2
Cycle Q Clear(g_c), s	0.2	4.1	1.4	1.7	2.6	0.5	0.3	0.2	0.6	0.6	0.2	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	49	295	251	107	382	324	91	703	597	47	703	597
V/C Ratio(X)	0.22	0.59	0.22	0.61	0.31	0.07	0.24	0.02	0.06	0.47	0.02	0.02
Avail Cap(c_a), veh/h	361	703	597	186	703	597	361	703	597	186	703	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	18.6	17.5	21.9	16.1	15.3	22.8	9.3	9.5	22.9	9.3	9.3
Incr Delay (d2), s/veh	2.3	1.9	0.4	5.4	0.5	0.1	1.3	0.0	0.2	7.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.3	0.6	1.0	1.4	0.2	0.2	0.1	0.3	0.4	0.1	0.1
LnGrp Delay(d),s/veh	25.6	20.5	17.9	27.3	16.6	15.4	24.1	9.3	9.6	30.0	9.3	9.4
LnGrp LOS	C	C	B	C	B	B	C	A	A	C	A	A
Approach Vol, veh/h		239			207			66			44	
Approach Delay, s/veh		20.1			19.8			14.4			19.7	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	22.5	7.4	12.1	5.8	22.5	5.2	14.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.6	2.6	3.7	6.1	2.3	2.2	2.2	4.6
Green Ext Time (p_c), s	0.0	0.1	0.0	1.5	0.0	0.1	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	100	100	50	40	40
Future Volume (veh/h)	100	100	100	50	40	40
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	109	109	109	54	43	43
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	196	1765	651	291	165	147
Arrive On Green	0.11	0.50	0.18	0.18	0.09	0.09
Sat Flow, veh/h	1774	3632	3632	1583	1774	1583
Grp Volume(v), veh/h	109	109	109	54	43	43
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1583	1774	1583
Q Serve(g_s), s	1.3	0.4	0.6	0.6	0.5	0.6
Cycle Q Clear(g_c), s	1.3	0.4	0.6	0.6	0.5	0.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	196	1765	651	291	165	147
V/C Ratio(X)	0.56	0.06	0.17	0.19	0.26	0.29
Avail Cap(c_a), veh/h	427	4465	2891	1293	1465	1308
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.3	2.9	7.6	7.6	9.3	9.3
Incr Delay (d2), s/veh	2.5	0.0	0.1	0.3	0.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.2	0.3	0.0	0.3	0.0
LnGrp Delay(d),s/veh	11.7	2.9	7.7	7.9	10.1	10.4
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		218	163		86	
Approach Delay, s/veh		7.3	7.8		10.3	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				15.5		6.5	6.9	8.6
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				27.8		18.2	5.3	18.0
Max Q Clear Time (g_c+I1), s				2.4		2.6	3.3	2.6
Green Ext Time (p_c), s				1.5		0.2	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	60	790	40	110	1090
Future Volume (veh/h)	40	60	790	40	110	1090
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	43	65	859	43	120	1185
Adj No. of Lanes	1	1	3	1	2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	176	160	3055	951	1101	2126
Arrive On Green	0.10	0.10	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1774	1615	5253	1583	1194	3632
Grp Volume(v), veh/h	43	65	859	43	120	1185
Grp Sat Flow(s),veh/h/ln	1774	1615	1695	1583	597	1770
Q Serve(g_s), s	0.7	1.1	2.4	0.3	1.6	6.0
Cycle Q Clear(g_c), s	0.7	1.1	2.4	0.3	4.0	6.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	176	160	3055	951	1101	2126
V/C Ratio(X)	0.24	0.41	0.28	0.05	0.11	0.56
Avail Cap(c_a), veh/h	1066	970	3055	951	1101	2126
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	12.7	2.9	2.5	3.8	3.6
Incr Delay (d2), s/veh	0.7	1.7	0.2	0.1	0.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	1.2	0.2	0.3	3.1
LnGrp Delay(d),s/veh	13.2	14.3	3.1	2.5	4.0	4.7
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	108		902			1305
Approach Delay, s/veh	13.9		3.1			4.6
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		22.5				22.5		7.5
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		18.0				18.0		18.0
Max Q Clear Time (g_c+I1), s		4.4				8.0		3.1
Green Ext Time (p_c), s		10.3				8.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.4
HCM 2010 LOS	A

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	20	30	600	640	100
Future Volume (veh/h)	30	20	30	600	640	100
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	22	33	652	696	109
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	110	98	610	2214	2214	990
Arrive On Green	0.06	0.06	0.63	0.63	0.63	0.63
Sat Flow, veh/h	1774	1583	674	3632	3632	1583
Grp Volume(v), veh/h	33	22	33	652	696	109
Grp Sat Flow(s),veh/h/ln	1774	1583	674	1770	1770	1583
Q Serve(g_s), s	0.5	0.4	0.7	2.4	2.6	0.8
Cycle Q Clear(g_c), s	0.5	0.4	3.3	2.4	2.6	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	110	98	610	2214	2214	990
V/C Ratio(X)	0.30	0.22	0.05	0.29	0.31	0.11
Avail Cap(c_a), veh/h	1110	990	610	2214	2214	990
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.9	12.8	3.3	2.5	2.5	2.2
Incr Delay (d2), s/veh	1.5	1.1	0.2	0.3	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.2	0.2	1.3	1.4	0.4
LnGrp Delay(d),s/veh	14.4	14.0	3.5	2.8	2.9	2.4
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	55			685	805	
Approach Delay, s/veh	14.3			2.8	2.8	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		22.5		6.3		22.5		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		18.0		18.0		18.0		
Max Q Clear Time (g_c+I1), s		5.3		2.5		4.6		
Green Ext Time (p_c), s		7.6		0.1		7.9		

Intersection Summary	
HCM 2010 Ctrl Delay	3.2
HCM 2010 LOS	A

Appendix E

Analysis Worksheets for
Cumulative plus Proposed Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	512	230	160	655	90	190	2720	90	20	980	70
Future Volume (veh/h)	160	512	230	160	655	90	190	2720	90	20	980	70
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	174	557	250	174	712	98	207	2957	98	22	1065	0
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	530	450	126	530	450	229	2296	75	27	1731	539
Arrive On Green	0.07	0.28	0.28	0.07	0.28	0.28	0.13	0.45	0.45	0.02	0.34	0.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	5054	165	1774	5085	1583
Grp Volume(v), veh/h	174	557	250	174	712	98	207	1972	1083	22	1065	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1695	1829	1774	1695	1583
Q Serve(g_s), s	10.5	42.0	19.8	10.5	42.0	7.0	17.0	67.1	67.1	1.8	25.8	0.0
Cycle Q Clear(g_c), s	10.5	42.0	19.8	10.5	42.0	7.0	17.0	67.1	67.1	1.8	25.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	126	530	450	126	530	450	229	1540	831	27	1731	539
V/C Ratio(X)	1.38	1.05	0.56	1.38	1.34	0.22	0.90	1.28	1.30	0.81	0.62	0.00
Avail Cap(c_a), veh/h	126	530	450	126	530	450	287	1540	831	60	1731	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	68.6	52.8	44.9	68.6	52.8	40.3	63.4	40.3	40.3	72.5	40.6	0.0
Incr Delay (d2), s/veh	212.4	53.3	0.9	212.4	167.1	0.1	23.1	131.1	145.2	18.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	29.3	8.8	12.6	46.1	3.1	9.8	59.3	67.2	1.0	12.1	0.0
LnGrp Delay(d),s/veh	281.0	106.1	45.8	281.0	219.9	40.4	86.5	171.4	185.5	90.6	41.2	0.0
LnGrp LOS	F	F	D	F	F	D	F	F	F	F	D	
Approach Vol, veh/h		981			984			3262			1087	
Approach Delay, s/veh		121.8			212.8			170.7			42.2	
Approach LOS		F			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.6	57.7	16.0	49.4	7.8	74.5	16.0	49.4
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	23.9	48.2	10.5	41.6	5.0	67.1	10.5	* 42
Max Q Clear Time (g_c+I1), s	19.0	27.8	12.5	44.0	3.8	69.1	12.5	44.0
Green Ext Time (p_c), s	0.1	14.9	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	147.5
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	492	10	75	775	10	40	760	162	10	130	130
Future Volume (veh/h)	120	492	10	75	775	10	40	760	162	10	130	130
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	130	535	11	82	842	11	43	826	176	11	141	141
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	947	19	103	894	12	55	785	167	37	963	819
Arrive On Green	0.07	0.27	0.27	0.06	0.25	0.25	0.03	0.53	0.53	0.02	0.52	0.52
Sat Flow, veh/h	1774	3547	73	1774	3577	47	1774	1489	317	1774	1863	1583
Grp Volume(v), veh/h	130	267	279	82	416	437	43	0	1002	11	141	141
Grp Sat Flow(s),veh/h/ln	1774	1770	1850	1774	1770	1854	1774	0	1807	1774	1863	1583
Q Serve(g_s), s	9.8	17.4	17.4	6.1	30.9	30.9	3.2	0.0	70.5	0.8	5.3	6.3
Cycle Q Clear(g_c), s	9.8	17.4	17.4	6.1	30.9	30.9	3.2	0.0	70.5	0.8	5.3	6.3
Prop In Lane	1.00		0.04	1.00		0.03	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	133	472	494	103	442	464	55	0	952	37	963	819
V/C Ratio(X)	0.98	0.56	0.57	0.80	0.94	0.94	0.78	0.00	1.05	0.29	0.15	0.17
Avail Cap(c_a), veh/h	133	472	494	130	450	471	122	0	952	245	1111	945
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.8	42.3	42.3	62.2	49.2	49.2	64.3	0.0	31.6	64.5	16.9	17.1
Incr Delay (d2), s/veh	71.6	1.9	1.9	18.7	28.3	27.5	8.4	0.0	43.9	1.6	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	8.8	9.2	3.5	18.5	19.3	1.7	0.0	46.5	0.4	2.8	2.9
LnGrp Delay(d),s/veh	133.4	44.3	44.2	80.9	77.5	76.7	72.8	0.0	75.5	66.1	17.2	17.6
LnGrp LOS	F	D	D	F	E	E	E		F	E	B	B
Approach Vol, veh/h		676			935			1045			293	
Approach Delay, s/veh		61.4			77.4			75.4			19.2	
Approach LOS		E			E			E			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	37.9	8.2	73.7	11.7	40.2	6.8	75.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	10.0	34.0	9.2	79.8	9.8	34.2	18.5	70.5
Max Q Clear Time (g_c+I1), s	11.8	32.9	5.2	8.3	8.1	19.4	2.8	72.5
Green Ext Time (p_c), s	0.0	0.6	0.0	55.9	0.0	8.6	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	67.2
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	604	10	10	710	10	10	250	30	10	10	110
Future Volume (veh/h)	90	604	10	10	710	10	10	250	30	10	10	110
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	98	657	11	11	772	11	11	272	33	11	11	120
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	332	1057	18	407	1060	15	81	384	45	90	48	326
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	688	1827	31	766	1832	26	25	1602	190	49	200	1361
Grp Volume(v), veh/h	98	0	668	11	0	783	316	0	0	142	0	0
Grp Sat Flow(s),veh/h/ln	688	0	1857	766	0	1858	1817	0	0	1610	0	0
Q Serve(g_s), s	6.0	0.0	11.7	0.5	0.0	15.2	0.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	21.2	0.0	11.7	12.2	0.0	15.2	7.9	0.0	0.0	3.6	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.01	0.03		0.10	0.08		0.85
Lane Grp Cap(c), veh/h	332	0	1075	407	0	1075	510	0	0	464	0	0
V/C Ratio(X)	0.29	0.00	0.62	0.03	0.00	0.73	0.62	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	373	0	1183	452	0	1183	789	0	0	703	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.3	0.0	6.9	10.9	0.0	7.6	17.3	0.0	0.0	15.7	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.9	0.0	0.0	2.1	1.2	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	6.2	0.1	0.0	8.2	4.1	0.0	0.0	1.7	0.0	0.0
LnGrp Delay(d),s/veh	15.8	0.0	7.7	10.9	0.0	9.7	18.5	0.0	0.0	16.0	0.0	0.0
LnGrp LOS	B		A	B		A	B			B		
Approach Vol, veh/h		766			794			316			142	
Approach Delay, s/veh		8.8			9.7			18.5			16.0	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		16.3		33.1		16.3		33.1
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		19.5		31.5		19.5		31.5
Max Q Clear Time (g_c+I1), s		9.9		23.2		5.6		17.2
Green Ext Time (p_c), s		2.0		5.5		2.4		8.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	360	30	150	600	370	10	1172	40	160	605	200
Future Volume (veh/h)	294	360	30	150	600	370	10	1172	40	160	605	200
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	320	391	33	163	652	402	11	1274	43	174	658	217
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	606	515	186	557	473	38	1068	478	197	1386	827
Arrive On Green	0.13	0.33	0.33	0.10	0.30	0.30	0.02	0.30	0.30	0.11	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	320	391	33	163	652	402	11	1274	43	174	658	217
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	18.5	25.3	2.0	12.8	42.2	33.7	0.9	42.6	2.8	13.6	19.6	10.7
Cycle Q Clear(g_c), s	18.5	25.3	2.0	12.8	42.2	33.7	0.9	42.6	2.8	13.6	19.6	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	232	606	515	186	557	473	38	1068	478	197	1386	827
V/C Ratio(X)	1.38	0.65	0.06	0.88	1.17	0.85	0.29	1.19	0.09	0.88	0.47	0.26
Avail Cap(c_a), veh/h	232	606	515	225	557	473	239	1068	478	308	1386	827
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	40.7	32.8	62.3	49.5	46.5	68.0	49.3	35.4	61.8	32.1	18.6
Incr Delay (d2), s/veh	194.2	1.9	0.0	23.9	94.9	13.0	1.6	96.3	0.0	11.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.6	13.3	0.9	7.5	36.3	16.4	0.4	35.0	1.2	7.3	9.6	4.7
LnGrp Delay(d),s/veh	255.5	42.5	32.8	86.2	144.4	59.5	69.6	145.6	35.4	73.2	32.2	18.7
LnGrp LOS	F	D	C	F	F	E	E	F	D	E	C	B
Approach Vol, veh/h		744			1217			1328			1049	
Approach Delay, s/veh		133.7			108.6			141.4			36.2	
Approach LOS		F			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	49.0	7.5	61.7	19.3	52.7	20.2	49.0
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	18.5	42.2	19.0	* 49	17.9	42.8	24.5	42.6
Max Q Clear Time (g_c+I1), s	20.5	44.2	2.9	21.6	14.8	27.3	15.6	44.6
Green Ext Time (p_c), s	0.0	0.0	0.0	10.0	0.0	4.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	105.4
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	330	0	60	740	70	10	578	40	40	741	380
Future Volume (veh/h)	220	330	0	60	740	70	10	578	40	40	741	380
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	239	359	0	65	804	76	11	628	43	43	805	413
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	948	0	82	730	69	13	867	59	55	639	326
Arrive On Green	0.12	0.51	0.00	0.05	0.44	0.44	0.01	0.26	0.26	0.03	0.28	0.28
Sat Flow, veh/h	1774	1863	0	1774	1676	158	1774	3362	230	1774	2270	1158
Grp Volume(v), veh/h	239	359	0	65	0	880	11	330	341	43	627	591
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1774	0	1835	1774	1770	1822	1774	1770	1658
Q Serve(g_s), s	17.5	17.2	0.0	5.3	0.0	63.7	0.9	24.9	25.0	3.5	41.2	41.2
Cycle Q Clear(g_c), s	17.5	17.2	0.0	5.3	0.0	63.7	0.9	24.9	25.0	3.5	41.2	41.2
Prop In Lane	1.00		0.00	1.00		0.09	1.00		0.13	1.00		0.70
Lane Grp Cap(c), veh/h	212	948	0	82	0	799	13	456	470	55	498	467
V/C Ratio(X)	1.13	0.38	0.00	0.79	0.00	1.10	0.84	0.72	0.73	0.78	1.26	1.27
Avail Cap(c_a), veh/h	212	948	0	147	0	799	61	478	492	79	498	467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.4	21.9	0.0	69.0	0.0	41.3	72.5	49.5	49.5	70.4	52.5	52.5
Incr Delay (d2), s/veh	99.8	0.1	0.0	6.2	0.0	63.3	37.6	4.3	4.2	16.1	131.3	135.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.4	8.8	0.0	2.7	0.0	46.2	0.6	12.7	13.1	2.0	38.3	36.4
LnGrp Delay(d),s/veh	164.2	22.0	0.0	75.2	0.0	104.6	110.1	53.8	53.8	86.4	183.9	188.4
LnGrp LOS	F	C		E		F	F	D	D	F	F	F
Approach Vol, veh/h		598			945			682			1261	
Approach Delay, s/veh		78.8			102.5			54.7			182.7	
Approach LOS		E			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	70.5	5.6	48.2	11.3	81.2	9.1	44.7
Change Period (Y+Rc), s	4.5	6.8	4.5	* 7	4.5	* 6.8	4.5	7.0
Max Green Setting (Gmax), s	17.5	63.7	5.0	* 41	12.1	* 70	6.5	39.5
Max Q Clear Time (g_c+I1), s	19.5	65.7	2.9	43.2	7.3	19.2	5.5	27.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	5.1	0.0	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	118.1
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	50	10	41	208	508	70	310	22	214	120	30
Future Volume (veh/h)	50	50	10	41	208	508	70	310	22	214	120	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	54	54	11	45	226	552	76	337	24	233	130	33
Adj No. of Lanes	2	1	1	2	1	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	724	724	615	1273	724	615	610	627	281	474	488	218
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.18	0.18	0.18	0.14	0.14	0.14
Sat Flow, veh/h	1340	1863	1583	2583	1863	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	54	54	11	45	226	552	76	337	24	233	130	33
Grp Sat Flow(s),veh/h/ln	670	1863	1583	1291	1863	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.3	0.8	0.2	0.5	3.8	14.9	0.8	3.9	0.6	2.9	1.5	0.8
Cycle Q Clear(g_c), s	5.2	0.8	0.2	1.3	3.8	14.9	0.8	3.9	0.6	2.9	1.5	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	724	724	615	1273	724	615	610	627	281	474	488	218
V/C Ratio(X)	0.07	0.07	0.02	0.04	0.31	0.90	0.12	0.54	0.09	0.49	0.27	0.15
Avail Cap(c_a), veh/h	747	756	643	1318	756	643	1511	1554	695	1360	1398	626
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	8.8	8.6	9.2	9.7	13.1	15.8	17.0	15.7	18.2	17.6	17.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.2	15.0	0.1	0.7	0.1	0.8	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.4	0.1	0.2	2.0	9.0	0.4	2.0	0.3	1.4	0.7	0.4
LnGrp Delay(d),s/veh	11.5	8.8	8.6	9.2	9.9	28.1	15.9	17.8	15.8	18.9	17.9	17.6
LnGrp LOS	B	A	A	A	A	C	B	B	B	B	B	B
Approach Vol, veh/h		119			823			437			396	
Approach Delay, s/veh		10.0			22.1			17.3			18.5	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		12.6		22.2		10.8		22.2
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		20.0		18.5		18.0		18.5
Max Q Clear Time (g_c+I1), s		5.9		7.2		4.9		16.9
Green Ext Time (p_c), s		2.1		3.6		1.4		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	222	0	30	1040	480	305
Future Volume (veh/h)	222	0	30	1040	480	305
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	241	0	33	1130	522	332
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	302	270	41	1867	759	482
Arrive On Green	0.17	0.00	0.02	0.53	0.36	0.36
Sat Flow, veh/h	1774	1583	1774	3632	2172	1320
Grp Volume(v), veh/h	241	0	33	1130	444	410
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1630
Q Serve(g_s), s	5.1	0.0	0.7	8.7	8.4	8.4
Cycle Q Clear(g_c), s	5.1	0.0	0.7	8.7	8.4	8.4
Prop In Lane	1.00	1.00	1.00			0.81
Lane Grp Cap(c), veh/h	302	270	41	1867	646	595
V/C Ratio(X)	0.80	0.00	0.81	0.61	0.69	0.69
Avail Cap(c_a), veh/h	1062	948	945	4940	1257	1158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	19.2	6.5	10.6	10.6
Incr Delay (d2), s/veh	1.8	0.0	12.7	0.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.5	4.3	4.2	3.8
LnGrp Delay(d),s/veh	17.5	0.0	31.9	6.6	11.1	11.2
LnGrp LOS	B		C	A	B	B
Approach Vol, veh/h	241			1163	854	
Approach Delay, s/veh	17.5			7.3	11.1	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.4	20.9				27.3		12.1
Change Period (Y+Rc), s	5.5	* 6.5				* 6.5		5.4
Max Green Setting (Gmax), s	21.0	* 28				* 55		23.6
Max Q Clear Time (g_c+I1), s	2.7	10.4				10.7		7.1
Green Ext Time (p_c), s	0.0	4.0				4.3		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	10	60	30	70	202	20	1210	20	75	1190	40
Future Volume (veh/h)	90	10	60	30	70	202	20	1210	20	75	1190	40
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	98	11	65	33	76	220	22	1315	22	82	1293	43
Adj No. of Lanes	2	1	1	1	1	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	365	310	59	318	270	85	1605	718	130	1778	795
Arrive On Green	0.06	0.20	0.20	0.03	0.17	0.17	0.02	0.45	0.45	0.07	0.50	0.50
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	98	11	65	33	76	220	22	1315	22	82	1293	43
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.0	0.4	2.5	1.4	2.6	9.9	0.5	23.9	0.6	3.3	21.2	1.0
Cycle Q Clear(g_c), s	2.0	0.4	2.5	1.4	2.6	9.9	0.5	23.9	0.6	3.3	21.2	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	365	310	59	318	270	85	1605	718	130	1778	795
V/C Ratio(X)	0.49	0.03	0.21	0.56	0.24	0.81	0.26	0.82	0.03	0.63	0.73	0.05
Avail Cap(c_a), veh/h	233	454	386	120	454	386	233	1605	718	432	2107	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	24.0	24.9	35.2	26.5	29.5	35.4	17.6	11.2	33.2	14.4	9.4
Incr Delay (d2), s/veh	1.8	0.0	0.3	8.0	0.4	8.6	1.6	3.5	0.0	4.9	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	1.1	0.8	1.4	4.9	0.2	12.3	0.3	1.8	10.5	0.4
LnGrp Delay(d),s/veh	35.5	24.1	25.2	43.2	26.9	38.1	37.0	21.1	11.2	38.1	15.5	9.4
LnGrp LOS	D	C	C	D	C	D	D	C	B	D	B	A
Approach Vol, veh/h		174			329			1359			1418	
Approach Delay, s/veh		30.9			36.0			21.2			16.6	
Approach LOS		C			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	41.6	7.0	19.0	9.9	38.0	8.8	17.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	44.0	5.0	18.0	18.0	31.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.5	23.2	3.4	4.5	5.3	25.9	4.0	11.9
Green Ext Time (p_c), s	0.0	14.0	0.0	1.1	0.1	4.7	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1030	626	10	45	746	10	10	50	22	10	10	460
Future Volume (veh/h)	1030	626	10	45	746	10	10	50	22	10	10	460
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	1120	680	0	49	811	11	11	54	24	11	11	500
Adj No. of Lanes	1	2	1	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	682	2014	901	63	786	11	14	69	31	149	149	869
Arrive On Green	0.38	0.57	0.00	0.04	0.22	0.22	0.07	0.07	0.07	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1583	1774	3575	48	217	1068	474	909	909	1583
Grp Volume(v), veh/h	1120	680	0	49	401	421	89	0	0	22	0	500
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1854	1759	0	0	1817	0	1583
Q Serve(g_s), s	52.5	14.0	0.0	3.7	30.0	30.0	6.8	0.0	0.0	1.4	0.0	22.4
Cycle Q Clear(g_c), s	52.5	14.0	0.0	3.7	30.0	30.0	6.8	0.0	0.0	1.4	0.0	22.4
Prop In Lane	1.00		1.00	1.00		0.03	0.12		0.27	0.50		1.00
Lane Grp Cap(c), veh/h	682	2014	901	63	389	408	114	0	0	298	0	869
V/C Ratio(X)	1.64	0.34	0.00	0.78	1.03	1.03	0.78	0.00	0.00	0.07	0.00	0.58
Avail Cap(c_a), veh/h	682	2014	901	120	389	408	289	0	0	298	0	869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.0	15.7	0.0	65.3	53.2	53.2	62.8	0.0	0.0	48.3	0.0	20.3
Incr Delay (d2), s/veh	295.1	0.0	0.0	7.5	54.1	53.1	4.2	0.0	0.0	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	81.5	6.8	0.0	2.0	20.4	21.3	3.4	0.0	0.0	0.7	0.0	12.5
LnGrp Delay(d),s/veh	337.1	15.7	0.0	72.7	107.3	106.3	67.1	0.0	0.0	48.3	0.0	20.9
LnGrp LOS	F	B		E	F	F	E			D		C
Approach Vol, veh/h		1800			871			89			522	
Approach Delay, s/veh		215.7			104.9			67.1			22.1	
Approach LOS		F			F			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	58.0	36.0		14.5	10.3	83.7		28.0
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		5.6
Max Green Setting (Gmax), s	52.5	30.0		* 22	9.2	* 74		22.4
Max Q Clear Time (g_c+I1), s	54.5	32.0		8.8	5.7	16.0		24.4
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	2.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	151.5
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	490	620	30	10	30	1277	1081	80	130	50	284	10
Future Volume (veh/h)	490	620	30	10	30	1277	1081	80	130	50	284	10
Number	1	6	16		5	2	12	3	8	18	7	4
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900		1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	533	674	33		33	1388	1175	87	141	54	309	11
Adj No. of Lanes	1	2	0		2	3	1	1	1	0	2	2
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	383	2160	106		60	2173	668	108	161	62	248	484
Arrive On Green	0.22	0.63	0.63		0.02	0.43	0.43	0.06	0.13	0.13	0.07	0.14
Sat Flow, veh/h	1774	3435	168		3442	5085	1563	1774	1284	492	3442	3539
Grp Volume(v), veh/h	533	347	360		33	1388	1175	87	0	195	309	11
Grp Sat Flow(s),veh/h/ln	1774	1770	1833		1721	1695	1563	1774	0	1776	1721	1770
Q Serve(g_s), s	28.5	11.9	12.0		1.3	28.4	56.4	6.4	0.0	14.2	9.5	0.4
Cycle Q Clear(g_c), s	28.5	11.9	12.0		1.3	28.4	56.4	6.4	0.0	14.2	9.5	0.4
Prop In Lane	1.00		0.09		1.00		1.00	1.00		0.28	1.00	
Lane Grp Cap(c), veh/h	383	1113	1153		60	2173	668	108	0	223	248	484
V/C Ratio(X)	1.39	0.31	0.31		0.55	0.64	1.76	0.80	0.00	0.87	1.25	0.02
Avail Cap(c_a), veh/h	383	1113	1153		138	2173	668	113	0	471	248	960
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	11.3	11.3		64.3	29.8	37.8	61.2	0.0	56.7	61.2	49.3
Incr Delay (d2), s/veh	191.5	0.1	0.1		3.0	0.5	348.0	29.6	0.0	4.2	140.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	34.3	5.8	6.0		0.6	13.3	88.8	4.0	0.0	7.2	9.3	0.2
LnGrp Delay(d),s/veh	243.2	11.4	11.4		67.3	30.3	385.8	90.8	0.0	60.8	201.6	49.3
LnGrp LOS	F	B	B		E	C	F	F		E	F	D
Approach Vol, veh/h		1240				2596			282			418
Approach Delay, s/veh		111.0				191.6			70.1			162.8
Approach LOS		F				F			E			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.0	61.3	13.5	23.1	7.4	87.9	15.0	21.7
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	28.5	* 56	8.4	* 36	* 5.3	* 80	9.5	* 35
Max Q Clear Time (g_c+I1), s	30.5	58.4	8.4	9.5	3.3	14.0	11.5	16.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	6.1	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	159.4
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	90
Future Volume (veh/h)	90
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	98
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	216
Arrive On Green	0.14
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	98
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	7.5
Cycle Q Clear(g_c), s	7.5
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	216
V/C Ratio(X)	0.45
Avail Cap(c_a), veh/h	429
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	52.4
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	3.3
LnGrp Delay(d),s/veh	53.0
LnGrp LOS	D
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	332	282	130	1353	263	1025	2276	160	52	810	170
Future Volume (veh/h)	270	332	282	130	1353	263	1025	2276	160	52	810	170
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	293	361	307	141	1471	286	1114	2474	174	57	880	185
Adj No. of Lanes	2	3	1	2	3	1	2	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	228	1601	499	187	1540	480	733	2174	668	94	1229	383
Arrive On Green	0.07	0.31	0.31	0.05	0.30	0.30	0.21	0.43	0.43	0.03	0.24	0.24
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	1564	3442	5085	1583
Grp Volume(v), veh/h	293	361	307	141	1471	286	1114	2474	174	57	880	185
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1564	1721	1695	1583
Q Serve(g_s), s	9.5	7.5	23.6	5.8	40.6	22.0	30.5	61.2	10.3	2.3	22.7	14.4
Cycle Q Clear(g_c), s	9.5	7.5	23.6	5.8	40.6	22.0	30.5	61.2	10.3	2.3	22.7	14.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	228	1601	499	187	1540	480	733	2174	668	94	1229	383
V/C Ratio(X)	1.28	0.23	0.62	0.75	0.96	0.60	1.52	1.14	0.26	0.61	0.72	0.48
Avail Cap(c_a), veh/h	228	1601	499	274	1570	489	733	2174	668	120	1265	394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.8	36.2	41.7	66.7	48.9	42.5	56.3	41.0	26.4	68.9	49.8	46.6
Incr Delay (d2), s/veh	156.4	0.0	1.7	3.1	13.3	1.3	240.6	68.3	0.1	2.4	1.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	3.5	10.6	2.8	21.0	9.8	39.0	42.3	4.5	1.1	10.9	6.3
LnGrp Delay(d),s/veh	223.2	36.2	43.4	69.8	62.2	43.8	296.9	109.3	26.5	71.2	51.4	47.0
LnGrp LOS	F	D	D	E	E	D	F	F	C	E	D	D
Approach Vol, veh/h		961			1898			3762			1122	
Approach Delay, s/veh		95.5			60.0			161.0			51.7	
Approach LOS		F			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	68.6	13.3	51.9	36.0	42.0	15.0	50.2
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	5.0	* 61	11.4	* 42	30.5	* 36	9.5	44.2
Max Q Clear Time (g_c+I1), s	4.3	63.2	7.8	25.6	32.5	24.7	11.5	42.6
Green Ext Time (p_c), s	0.0	0.0	0.0	4.4	0.0	7.2	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	112.3
HCM 2010 LOS	F

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	380	120	410	1237	824	160
Future Volume (veh/h)	380	120	410	1237	824	160
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	272	282	446	1345	896	174
Adj No. of Lanes	1	1	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	370	337	572	2078	1181	528
Arrive On Green	0.21	0.21	0.17	0.59	0.33	0.33
Sat Flow, veh/h	1774	1615	3442	3632	3632	1583
Grp Volume(v), veh/h	272	282	446	1345	896	174
Grp Sat Flow(s),veh/h/ln	1774	1615	1721	1770	1770	1583
Q Serve(g_s), s	7.6	8.8	6.6	13.4	11.9	4.3
Cycle Q Clear(g_c), s	7.6	8.8	6.6	13.4	11.9	4.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	370	337	572	2078	1181	528
V/C Ratio(X)	0.73	0.84	0.78	0.65	0.76	0.33
Avail Cap(c_a), veh/h	597	544	1302	3127	1460	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	20.1	21.1	7.3	15.7	13.2
Incr Delay (d2), s/veh	1.1	3.0	0.9	0.1	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.2	3.2	6.4	5.9	1.9
LnGrp Delay(d),s/veh	20.6	23.1	22.0	7.4	17.1	13.3
LnGrp LOS	C	C	C	A	B	B
Approach Vol, veh/h	554			1791	1070	
Approach Delay, s/veh	21.9			11.0	16.5	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.4	23.7				37.1		15.7
Change Period (Y+Rc), s	* 4.6	* 6.1				* 6.1		4.7
Max Green Setting (Gmax), s	* 20	* 22				* 47		17.8
Max Q Clear Time (g_c+I1), s	8.6	13.9				15.4		10.8
Green Ext Time (p_c), s	0.2	3.7				5.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.5
HCM 2010 LOS	B

Notes

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	10	10	630	350	400	740	60	380	165	580	60	182
Future Volume (veh/h)	10	10	630	350	400	740	60	380	165	580	60	182
Number		1	6	16	5	2	12	7	4	14	3	8
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.96	1.00		0.99	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863
Adj Flow Rate, veh/h		11	685	0	435	804	65	335	462	444	65	198
Adj No. of Lanes		1	2	1	2	2	0	1	1	1	0	2
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		14	807	361	492	1197	97	516	541	454	94	294
Arrive On Green		0.01	0.23	0.00	0.14	0.36	0.36	0.29	0.29	0.29	0.14	0.14
Sat Flow, veh/h		1774	3539	1583	3442	3305	267	1774	1863	1560	654	2040
Grp Volume(v), veh/h		11	685	0	435	430	439	335	462	444	182	0
Grp Sat Flow(s),veh/h/ln		1774	1770	1583	1721	1770	1803	1774	1863	1560	1830	0
Q Serve(g_s), s		0.7	19.6	0.0	13.1	21.7	21.7	17.5	24.8	29.9	10.0	0.0
Cycle Q Clear(g_c), s		0.7	19.6	0.0	13.1	21.7	21.7	17.5	24.8	29.9	10.0	0.0
Prop In Lane		1.00		1.00	1.00		0.15	1.00		1.00	0.36	
Lane Grp Cap(c), veh/h		14	807	361	492	641	653	516	541	454	264	0
V/C Ratio(X)		0.79	0.85	0.00	0.88	0.67	0.67	0.65	0.85	0.98	0.69	0.00
Avail Cap(c_a), veh/h		72	905	405	503	641	653	516	541	454	449	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		52.5	39.2	0.0	44.6	28.5	28.5	32.9	35.5	37.3	43.1	0.0
Incr Delay (d2), s/veh		29.9	6.3	0.0	16.0	2.2	2.2	2.3	12.0	36.6	1.2	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.4	10.3	0.0	7.3	11.0	11.2	8.9	14.5	17.5	5.1	0.0
LnGrp Delay(d),s/veh		82.4	45.5	0.0	60.6	30.7	30.7	35.1	47.4	73.8	44.3	0.0
LnGrp LOS		F	D		E	C	C	D	D	E	D	
Approach Vol, veh/h			696			1304			1241			339
Approach Delay, s/veh			46.1			40.7			53.6			44.1
Approach LOS			D			D			D			D

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	43.1		36.0	20.3	28.9		20.8
Change Period (Y+Rc), s	* 5.3	* 4.7		* 5.2	* 5.2	* 4.7		5.5
Max Green Setting (Gmax), s	* 4.3	* 38		* 31	* 16	* 27		26.0
Max Q Clear Time (g_c+I1), s	2.7	23.7		31.9	15.1	21.6		12.0
Green Ext Time (p_c), s	0.0	2.6		0.0	0.0	1.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	46.5
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	70
Future Volume (veh/h)	70
Number	18
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.95
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	76
Adj No. of Lanes	0
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	117
Arrive On Green	0.14
Sat Flow, veh/h	810
Grp Volume(v), veh/h	157
Grp Sat Flow(s),veh/h/ln	1674
Q Serve(g_s), s	9.4
Cycle Q Clear(g_c), s	9.4
Prop In Lane	0.48
Lane Grp Cap(c), veh/h	241
V/C Ratio(X)	0.65
Avail Cap(c_a), veh/h	411
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	42.8
Incr Delay (d2), s/veh	1.1
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	4.4
LnGrp Delay(d),s/veh	44.0
LnGrp LOS	D
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1180	0	350	0	1025	706	0	1122	150
Future Volume (veh/h)	0	0	0	1180	0	350	0	1025	706	0	1122	150
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				832	632	380	0	1114	0	0	1220	0
Adj No. of Lanes				1	1	0	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	0	2	2	0	2	2
Cap, veh/h				991	608	365	0	1466	456	0	1466	456
Arrive On Green				0.56	0.56	0.56	0.00	0.29	0.00	0.00	0.29	0.00
Sat Flow, veh/h				1774	1088	654	0	5253	1583	0	5253	1583
Grp Volume(v), veh/h				832	0	1012	0	1114	0	0	1220	0
Grp Sat Flow(s),veh/h/ln				1774	0	1742	0	1695	1583	0	1695	1583
Q Serve(g_s), s				25.2	0.0	36.1	0.0	12.9	0.0	0.0	14.5	0.0
Cycle Q Clear(g_c), s				25.2	0.0	36.1	0.0	12.9	0.0	0.0	14.5	0.0
Prop In Lane				1.00		0.38	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				991	0	973	0	1466	456	0	1466	456
V/C Ratio(X)				0.84	0.00	1.04	0.00	0.76	0.00	0.00	0.83	0.00
Avail Cap(c_a), veh/h				991	0	973	0	1495	465	0	1550	483
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				11.9	0.0	14.3	0.0	21.0	0.0	0.0	21.5	0.0
Incr Delay (d2), s/veh				6.2	0.0	39.8	0.0	2.0	0.0	0.0	3.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				13.7	0.0	27.8	0.0	6.3	0.0	0.0	7.3	0.0
LnGrp Delay(d),s/veh				18.0	0.0	54.1	0.0	23.0	0.0	0.0	25.1	0.0
LnGrp LOS				B		F		C			C	
Approach Vol, veh/h					1844			1114			1220	
Approach Delay, s/veh					37.8			23.0			25.1	
Approach LOS					D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		23.6				23.6		41.0
Change Period (Y+Rc), s		* 5				5.0		4.9
Max Green Setting (Gmax), s		* 20				19.0		36.1
Max Q Clear Time (g_c+I1), s		16.5				14.9		38.1
Green Ext Time (p_c), s		2.1				2.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	0	1234	0	0	0	0	1341	490	0	1722	420
Future Volume (veh/h)	280	0	1234	0	0	0	0	1341	490	0	1722	420
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	203	0	1450				0	1458	0	0	1872	0
Adj No. of Lanes	1	0	2				0	3	0	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	2
Cap, veh/h	817	0	1457				0	2038	0	0	2038	634
Arrive On Green	0.46	0.00	0.46				0.00	0.40	0.00	0.00	0.40	0.00
Sat Flow, veh/h	1774	0	3163				0	5421	0	0	5253	1583
Grp Volume(v), veh/h	203	0	1450				0	1458	0	0	1872	0
Grp Sat Flow(s),veh/h/ln	1774	0	1581				0	1695	0	0	1695	1583
Q Serve(g_s), s	5.2	0.0	34.3				0.0	18.1	0.0	0.0	26.2	0.0
Cycle Q Clear(g_c), s	5.2	0.0	34.3				0.0	18.1	0.0	0.0	26.2	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	817	0	1457				0	2038	0	0	2038	634
V/C Ratio(X)	0.25	0.00	1.00				0.00	0.72	0.00	0.00	0.92	0.00
Avail Cap(c_a), veh/h	817	0	1457				0	2038	0	0	2066	643
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	12.3	0.0	20.2				0.0	18.9	0.0	0.0	21.3	0.0
Incr Delay (d2), s/veh	0.1	0.0	22.3				0.0	1.1	0.0	0.0	6.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	19.2				0.0	8.6	0.0	0.0	13.4	0.0
LnGrp Delay(d),s/veh	12.4	0.0	42.5				0.0	20.0	0.0	0.0	28.3	0.0
LnGrp LOS	B		D					B			C	
Approach Vol, veh/h		1653						1458			1872	
Approach Delay, s/veh		38.8						20.0			28.3	
Approach LOS		D						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		35.1		40.0		35.1		
Change Period (Y+Rc), s		* 5		* 5.4		5.0		
Max Green Setting (Gmax), s		* 31		* 35		30.0		
Max Q Clear Time (g_c+I1), s		28.2		36.3		20.1		
Green Ext Time (p_c), s		1.9		0.0		6.8		

Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	1036	750	20	10	711	270	10
Future Volume (veh/h)	1036	750	20	10	711	270	10
Number	6	16		5	2	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	1126	0		11	773	293	11
Adj No. of Lanes	3	0		1	3	2	1
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2949	0		15	3539	430	198
Arrive On Green	0.58	0.00		0.01	0.70	0.13	0.13
Sat Flow, veh/h	5421	0		1774	5253	3442	1583
Grp Volume(v), veh/h	1126	0		11	773	293	11
Grp Sat Flow(s),veh/h/ln	1695	0		1774	1695	1721	1583
Q Serve(g_s), s	5.7	0.0		0.3	2.6	3.9	0.3
Cycle Q Clear(g_c), s	5.7	0.0		0.3	2.6	3.9	0.3
Prop In Lane		0.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2949	0		15	3539	430	198
V/C Ratio(X)	0.38	0.00		0.73	0.22	0.68	0.06
Avail Cap(c_a), veh/h	3310	0		243	4553	2103	967
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.4	0.0		23.5	2.6	19.9	18.3
Incr Delay (d2), s/veh	0.2	0.0		21.5	0.1	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0		0.2	1.2	1.9	0.1
LnGrp Delay(d),s/veh	5.5	0.0		45.0	2.7	20.6	18.3
LnGrp LOS	A			D	A	C	B
Approach Vol, veh/h	1126				784	304	
Approach Delay, s/veh	5.5				3.2	20.5	
Approach LOS	A				A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		38.0			5.5	32.5		9.4
Change Period (Y+Rc), s		5.0			* 5.1	5.0		3.5
Max Green Setting (Gmax), s		42.5			* 6.5	30.9		29.0
Max Q Clear Time (g_c+I1), s		4.6			2.3	7.7		5.9
Green Ext Time (p_c), s		28.4			0.0	19.1		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.8
HCM 2010 LOS	A

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	10	220	750	224	20	200	840	70	20	450	1406	220
Future Volume (veh/h)	10	220	750	224	20	200	840	70	20	450	1406	220
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1863
Adj Flow Rate, veh/h		239	815	243		217	913	76		489	1528	239
Adj No. of Lanes		2	3	0		2	3	1		2	3	1
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		272	982	291		281	1301	398		551	1781	553
Arrive On Green		0.08	0.25	0.25		0.08	0.26	0.26		0.16	0.35	0.35
Sat Flow, veh/h		3442	3881	1148		3442	5085	1558		3442	5085	1579
Grp Volume(v), veh/h		239	711	347		217	913	76		489	1528	239
Grp Sat Flow(s),veh/h/ln		1721	1695	1639		1721	1695	1558		1721	1695	1579
Q Serve(g_s), s		6.9	19.9	20.1		6.2	16.3	3.8		13.9	28.0	11.6
Cycle Q Clear(g_c), s		6.9	19.9	20.1		6.2	16.3	3.8		13.9	28.0	11.6
Prop In Lane		1.00		0.70		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		272	858	415		281	1301	398		551	1781	553
V/C Ratio(X)		0.88	0.83	0.84		0.77	0.70	0.19		0.89	0.86	0.43
Avail Cap(c_a), veh/h		272	968	468		285	1473	451		601	1781	553
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		45.7	35.3	35.4		45.1	33.8	29.2		41.2	30.2	24.9
Incr Delay (d2), s/veh		25.7	4.9	10.2		11.0	1.0	0.1		13.4	4.2	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.3	9.9	10.2		3.4	7.7	1.6		7.6	13.7	5.1
LnGrp Delay(d),s/veh		71.4	40.2	45.6		56.1	34.8	29.2		54.6	34.5	25.1
LnGrp LOS		E	D	D		E	C	C		D	C	C
Approach Vol, veh/h			1297				1206				2256	
Approach Delay, s/veh			47.4				38.3				37.8	
Approach LOS			D				D				D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.5	33.8	13.4	31.4	14.7	40.7	13.7	31.1
Change Period (Y+Rc), s	5.5	* 5.6	5.5	5.8	5.5	* 5.6	5.5	5.8
Max Green Setting (Gmax), s	17.5	* 28	7.9	29.0	10.8	* 35	8.3	28.6
Max Q Clear Time (g_c+I1), s	15.9	30.2	8.9	18.3	9.1	30.0	8.2	22.1
Green Ext Time (p_c), s	0.1	0.0	0.0	4.0	0.0	3.3	0.0	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	46.1
HCM 2010 LOS	D

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	230	498	450
Future Volume (veh/h)	230	498	450
Number	5	2	12
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900
Adj Flow Rate, veh/h	250	541	489
Adj No. of Lanes	2	3	0
Peak Hour Factor	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2
Cap, veh/h	315	955	440
Arrive On Green	0.09	0.28	0.28
Sat Flow, veh/h	3442	3390	1561
Grp Volume(v), veh/h	250	541	489
Grp Sat Flow(s),veh/h/ln	1721	1695	1561
Q Serve(g_s), s	7.1	13.7	28.2
Cycle Q Clear(g_c), s	7.1	13.7	28.2
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	315	955	440
V/C Ratio(X)	0.79	0.57	1.11
Avail Cap(c_a), veh/h	371	955	440
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	30.7	36.0
Incr Delay (d2), s/veh	8.1	0.5	77.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	6.5	21.5
LnGrp Delay(d),s/veh	52.7	31.2	113.0
LnGrp LOS	D	C	F
Approach Vol, veh/h		1280	
Approach Delay, s/veh		66.7	
Approach LOS		E	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	110	10	130	140	620	50	1646	140	720	1798	750
Future Volume (veh/h)	30	110	10	130	140	620	50	1646	140	720	1798	750
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	33	120	11	141	152	674	54	1789	152	783	1954	815
Adj No. of Lanes	2	3	0	2	1	2	2	3	0	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	740	66	190	358	1349	90	1846	156	823	3050	934
Arrive On Green	0.02	0.16	0.16	0.05	0.19	0.19	0.03	0.39	0.39	0.24	0.60	0.60
Sat Flow, veh/h	3442	4740	422	3548	1863	3077	3442	4774	404	3442	5085	1557
Grp Volume(v), veh/h	33	85	46	141	152	674	54	1269	672	783	1954	815
Grp Sat Flow(s),veh/h/ln	1721	1695	1772	1774	1863	1538	1721	1695	1788	1721	1695	1557
Q Serve(g_s), s	1.3	3.0	3.1	5.4	9.9	22.0	2.1	50.6	51.0	30.9	34.5	60.7
Cycle Q Clear(g_c), s	1.3	3.0	3.1	5.4	9.9	22.0	2.1	50.6	51.0	30.9	34.5	60.7
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	59	529	277	190	358	1349	90	1311	691	823	3050	934
V/C Ratio(X)	0.56	0.16	0.17	0.74	0.42	0.50	0.60	0.97	0.97	0.95	0.64	0.87
Avail Cap(c_a), veh/h	132	688	360	190	413	1440	122	1327	700	836	3050	934
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.3	50.4	50.4	64.4	49.0	28.6	66.5	41.5	41.6	51.7	18.0	23.2
Incr Delay (d2), s/veh	3.0	0.1	0.1	13.0	0.3	0.1	2.3	17.3	26.8	19.8	0.4	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.4	1.5	3.0	5.1	9.3	1.0	26.8	30.3	16.9	16.2	28.1
LnGrp Delay(d),s/veh	70.3	50.4	50.5	77.3	49.3	28.7	68.8	58.7	68.4	71.5	18.3	32.0
LnGrp LOS	E	D	D	E	D	C	E	E	E	E	B	C
Approach Vol, veh/h		164			967			1995			3552	
Approach Delay, s/veh		54.5			39.0			62.3			33.2	
Approach LOS		D			D			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	88.4	7.9	32.5	38.5	59.1	12.9	27.5
Change Period (Y+Rc), s	5.5	* 5.7	5.5	* 6	5.5	* 5.7	5.5	* 6
Max Green Setting (Gmax), s	4.9	* 82	5.3	* 31	33.5	* 54	7.4	* 28
Max Q Clear Time (g_c+I1), s	4.1	62.7	3.3	24.0	32.9	53.0	7.4	5.1
Green Ext Time (p_c), s	0.0	13.2	0.0	0.9	0.1	0.4	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	43.2
HCM 2010 LOS	D

Notes

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	450	10	910	1324	170	50	1436	710	10	1894	220
Future Volume (vph)	450	10	910	1324	170	50	1436	710	10	1894	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8	6.8	4.5		4.6			4.6	4.0
Lane Util. Factor		0.91	0.86	0.91	0.88		0.86			0.91	1.00
Frpb, ped/bikes		1.00	0.99	0.98	1.00		0.99			1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.94	0.85	0.85		0.95			1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1610	2989	1418	2787		6039			5085	1545
Flt Permitted		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		1610	2989	1418	2787		6039			5085	1545
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	489	11	989	1439	185	54	1561	772	11	2059	239
RTOR Reduction (vph)	0	0	1	30	72	0	1	0	0	0	0
Lane Group Flow (vph)	0	499	1665	733	167	0	2343	0	0	2059	239
Confl. Peds. (#/hr)	6	6		6	3	3		3	3		6
Confl. Bikes (#/hr)								2	2		3
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		5		6			2	
Permitted Phases				4							Free
Actuated Green, G (s)		55.2	55.2	55.2	6.5		42.4			53.4	120.0
Effective Green, g (s)		55.2	55.2	55.2	6.5		42.4			53.4	120.0
Actuated g/C Ratio		0.46	0.46	0.46	0.05		0.35			0.44	1.00
Clearance Time (s)		6.8	6.8	6.8	4.5		4.6			4.6	
Vehicle Extension (s)		1.0	1.0	1.0	3.0		1.0			1.0	
Lane Grp Cap (vph)		740	1374	652	150		2133			2262	1545
v/s Ratio Prot		0.31	c0.56		0.06		c0.39			c0.40	
v/s Ratio Perm				0.52							0.15
v/c Ratio		0.67	1.21	1.12	1.11		1.39dr			0.91	0.15
Uniform Delay, d1		25.4	32.4	32.4	56.8		38.8			31.1	0.0
Progression Factor		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		1.9	102.3	74.8	107.4		52.3			5.9	0.2
Delay (s)		27.3	134.7	107.2	164.1		91.1			37.0	0.2
Level of Service		C	F	F	F		F			D	A
Approach Delay (s)			109.2				91.1			33.1	
Approach LOS			F				F			C	

Intersection Summary			
HCM 2000 Control Delay	83.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1210	0	170	0	860	866	0	1154	480
Future Volume (veh/h)	0	0	0	1210	0	170	0	860	866	0	1154	480
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				1315	0	185	0	935	0	0	1254	0
Adj No. of Lanes				2	0	1	0	3	2	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				1603	0	738	0	1733	950	0	1733	540
Arrive On Green				0.47	0.00	0.47	0.00	0.34	0.00	0.00	0.34	0.00
Sat Flow, veh/h				3442	0	1583	0	5253	2787	0	5253	1583
Grp Volume(v), veh/h				1315	0	185	0	935	0	0	1254	0
Grp Sat Flow(s),veh/h/ln				1721	0	1583	0	1695	1393	0	1695	1583
Q Serve(g_s), s				15.6	0.0	3.3	0.0	7.0	0.0	0.0	10.2	0.0
Cycle Q Clear(g_c), s				15.6	0.0	3.3	0.0	7.0	0.0	0.0	10.2	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1603	0	738	0	1733	950	0	1733	540
V/C Ratio(X)				0.82	0.00	0.25	0.00	0.54	0.00	0.00	0.72	0.00
Avail Cap(c_a), veh/h				1937	0	891	0	2095	1148	0	2095	652
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				10.9	0.0	7.6	0.0	12.5	0.0	0.0	13.6	0.0
Incr Delay (d2), s/veh				2.5	0.0	0.2	0.0	0.1	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				7.9	0.0	1.5	0.0	3.2	0.0	0.0	4.8	0.0
LnGrp Delay(d),s/veh				13.3	0.0	7.8	0.0	12.6	0.0	0.0	14.3	0.0
LnGrp LOS				B		A		B			B	
Approach Vol, veh/h					1500			935			1254	
Approach Delay, s/veh					12.7			12.6			14.3	
Approach LOS					B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		20.6				20.6		26.4
Change Period (Y+Rc), s		4.6				4.6		4.5
Max Green Setting (Gmax), s		19.4				19.4		26.5
Max Q Clear Time (g_c+I1), s		9.0				12.2		17.6
Green Ext Time (p_c), s		4.6				3.7		4.4

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	50	240	340	206	10	250	1090	180	40	306	1581	140
Future Volume (veh/h)	50	240	340	206	10	250	1090	180	40	306	1581	140
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		1.00		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		261	370	224		272	1185	196		333	1718	152
Adj No. of Lanes		2	2	1		2	3	1		2	3	1
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		283	831	365		283	1194	370		310	1974	606
Arrive On Green		0.09	0.26	0.26		0.09	0.26	0.26		0.10	0.43	0.43
Sat Flow, veh/h		3097	3185	1401		3097	4577	1420		3097	4577	1405
Grp Volume(v), veh/h		261	370	224		272	1185	196		333	1718	152
Grp Sat Flow(s),veh/h/ln		1549	1593	1401		1549	1526	1420		1549	1526	1405
Q Serve(g_s), s		9.6	11.2	16.2		10.1	29.7	13.6		11.5	39.3	7.9
Cycle Q Clear(g_c), s		9.6	11.2	16.2		10.1	29.7	13.6		11.5	39.3	7.9
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		283	831	365		283	1194	370		310	1974	606
V/C Ratio(X)		0.92	0.45	0.61		0.96	0.99	0.53		1.08	0.87	0.25
Avail Cap(c_a), veh/h		283	831	365		283	1194	370		310	1974	606
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		51.8	35.5	37.4		52.1	42.4	36.4		51.8	29.8	20.8
Incr Delay (d2), s/veh		33.3	0.8	4.3		42.7	24.3	4.1		72.5	4.8	0.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.4	5.0	6.7		6.0	15.2	5.8		8.0	17.4	3.1
LnGrp Delay(d),s/veh		85.2	36.3	41.7		94.8	66.7	40.5		124.3	34.6	21.3
LnGrp LOS		F	D	D		F	E	D		F	C	C
Approach Vol, veh/h			855				1653				2203	
Approach Delay, s/veh			52.6				68.2				47.2	
Approach LOS			D				E				D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	46.0	16.0	36.0	7.6	55.4	16.0	36.0
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	11.5	* 40	10.5	30.0	4.0	* 48	10.5	30.0
Max Q Clear Time (g_c+I1), s	13.5	42.2	11.6	31.7	3.2	41.3	12.1	18.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	6.6	0.0	10.9

Intersection Summary	
HCM 2010 Ctrl Delay	66.6
HCM 2010 LOS	E

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	20	30	920	600
Future Volume (veh/h)	20	30	920	600
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676
Adj Flow Rate, veh/h		33	1000	652
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2
Cap, veh/h		56	1600	490
Arrive On Green		0.02	0.35	0.35
Sat Flow, veh/h		3097	4577	1402
Grp Volume(v), veh/h		33	1000	652
Grp Sat Flow(s),veh/h/ln		1549	1526	1402
Q Serve(g_s), s		1.2	20.9	40.2
Cycle Q Clear(g_c), s		1.2	20.9	40.2
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		56	1600	490
V/C Ratio(X)		0.58	0.63	1.33
Avail Cap(c_a), veh/h		108	1600	490
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		56.0	31.1	37.4
Incr Delay (d2), s/veh		3.5	1.1	162.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	9.0	37.6
LnGrp Delay(d),s/veh		59.5	32.2	199.5
LnGrp LOS		E	C	F
Approach Vol, veh/h			1685	
Approach Delay, s/veh			97.5	
Approach LOS			F	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	170	20	140	430	140	30	1641	120	170	2016	450
Future Volume (veh/h)	400	170	20	140	430	140	30	1641	120	170	2016	450
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	435	185	22	152	467	152	33	1784	130	185	2191	489
Adj No. of Lanes	2	2	1	2	2	1	2	4	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	474	1022	451	206	779	320	60	2594	639	237	2321	715
Arrive On Green	0.14	0.29	0.29	0.06	0.21	0.21	0.02	0.40	0.40	0.07	0.46	0.46
Sat Flow, veh/h	3442	3539	1562	3548	3725	1529	3442	6408	1579	3442	5085	1568
Grp Volume(v), veh/h	435	185	22	152	467	152	33	1784	130	185	2191	489
Grp Sat Flow(s),veh/h/ln	1721	1770	1562	1774	1863	1529	1721	1602	1579	1721	1695	1568
Q Serve(g_s), s	15.8	5.0	1.3	5.4	14.4	11.1	1.2	29.2	6.8	6.7	52.3	31.3
Cycle Q Clear(g_c), s	15.8	5.0	1.3	5.4	14.4	11.1	1.2	29.2	6.8	6.7	52.3	31.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	474	1022	451	206	779	320	60	2594	639	237	2321	715
V/C Ratio(X)	0.92	0.18	0.05	0.74	0.60	0.48	0.55	0.69	0.20	0.78	0.94	0.68
Avail Cap(c_a), veh/h	474	1075	475	307	938	385	108	2594	639	341	2358	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.1	33.9	32.6	58.9	45.4	44.1	61.9	31.2	24.5	58.2	33.0	27.3
Incr Delay (d2), s/veh	22.4	0.1	0.1	2.0	1.3	1.9	4.8	0.7	0.1	4.1	8.9	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	2.5	0.6	2.7	7.5	4.8	0.6	13.0	3.0	3.3	26.3	14.1
LnGrp Delay(d),s/veh	76.4	34.0	32.6	60.9	46.7	46.0	66.7	31.9	24.6	62.3	41.9	30.7
LnGrp LOS	E	C	C	E	D	D	E	C	C	E	D	C
Approach Vol, veh/h		642			771			1947			2865	
Approach Delay, s/veh		62.7			49.4			32.0			41.3	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	63.8	23.0	32.6	14.3	57.2	12.9	42.7
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	* 6
Max Green Setting (Gmax), s	4.0	* 59	17.5	32.0	12.6	* 50	11.0	* 39
Max Q Clear Time (g_c+I1), s	3.2	54.3	17.8	16.4	8.7	31.2	7.4	7.0
Green Ext Time (p_c), s	0.0	3.7	0.0	6.6	0.0	18.8	0.0	9.1

Intersection Summary	
HCM 2010 Ctrl Delay	41.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1330	0	670	0	0	0	0	1811	500	0	1916	440
Future Volume (veh/h)	1330	0	670	0	0	0	0	1811	500	0	1916	440
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	1446	0	728				0	1968	0	0	2083	0
Adj No. of Lanes	3	0	2				0	4	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	1709	0	952				0	3608	767	0	2706	767
Arrive On Green	0.34	0.00	0.34				0.00	0.48	0.00	0.00	0.48	0.00
Sat Flow, veh/h	5003	0	2787				0	7451	1583	0	5588	1583
Grp Volume(v), veh/h	1446	0	728				0	1968	0	0	2083	0
Grp Sat Flow(s),veh/h/ln	1668	0	1393				0	1863	1583	0	1863	1583
Q Serve(g_s), s	14.1	0.0	12.3				0.0	9.8	0.0	0.0	16.2	0.0
Cycle Q Clear(g_c), s	14.1	0.0	12.3				0.0	9.8	0.0	0.0	16.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	1709	0	952				0	3608	767	0	2706	767
V/C Ratio(X)	0.85	0.00	0.76				0.00	0.55	0.00	0.00	0.77	0.00
Avail Cap(c_a), veh/h	1752	0	976				0	3906	830	0	2887	818
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	16.1	0.0	15.5				0.0	9.5	0.0	0.0	11.2	0.0
Incr Delay (d2), s/veh	4.0	0.0	3.6				0.0	0.1	0.0	0.0	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.0	5.1				0.0	4.9	0.0	0.0	8.4	0.0
LnGrp Delay(d),s/veh	20.1	0.0	19.1				0.0	9.6	0.0	0.0	12.3	0.0
LnGrp LOS	C		B					A			B	
Approach Vol, veh/h		2174						1968			2083	
Approach Delay, s/veh		19.8						9.6			12.3	
Approach LOS		B						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.3		22.5		30.3		
Change Period (Y+Rc), s		* 4.7		4.5		4.7		
Max Green Setting (Gmax), s		* 28		18.5		27.3		
Max Q Clear Time (g_c+I1), s		11.8		16.1		18.2		
Green Ext Time (p_c), s		11.5		1.9		7.4		

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	190	0	400	0	2821	370	0	2196	1670
Future Volume (veh/h)	0	0	0	190	0	400	0	2821	370	0	2196	1670
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				207	0	435	0	3066	0	0	2387	0
Adj No. of Lanes				2	0	2	0	3	1	0	3	2
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				636	0	515	0	3919	1110	0	3566	1954
Arrive On Green				0.18	0.00	0.18	0.00	0.70	0.00	0.00	0.70	0.00
Sat Flow, veh/h				3442	0	2787	0	5588	1583	0	5253	2787
Grp Volume(v), veh/h				207	0	435	0	3066	0	0	2387	0
Grp Sat Flow(s),veh/h/ln				1721	0	1393	0	1863	1583	0	1695	1393
Q Serve(g_s), s				4.3	0.0	12.6	0.0	30.3	0.0	0.0	22.0	0.0
Cycle Q Clear(g_c), s				4.3	0.0	12.6	0.0	30.3	0.0	0.0	22.0	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				636	0	515	0	3919	1110	0	3566	1954
V/C Ratio(X)				0.33	0.00	0.84	0.00	0.78	0.00	0.00	0.67	0.00
Avail Cap(c_a), veh/h				723	0	585	0	4244	1202	0	3844	2106
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				29.5	0.0	32.8	0.0	8.2	0.0	0.0	7.0	0.0
Incr Delay (d2), s/veh				0.3	0.0	10.0	0.0	0.8	0.0	0.0	0.3	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	5.5	0.0	15.6	0.0	0.0	10.3	0.0
LnGrp Delay(d),s/veh				29.8	0.0	42.8	0.0	9.0	0.0	0.0	7.3	0.0
LnGrp LOS				C		D		A			A	
Approach Vol, veh/h					642			3066			2387	
Approach Delay, s/veh					38.6			9.0			7.3	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		63.4				63.4		19.9
Change Period (Y+Rc), s		* 5				5.0		4.5
Max Green Setting (Gmax), s		* 63				63.0		17.5
Max Q Clear Time (g_c+I1), s		32.3				24.0		14.6
Green Ext Time (p_c), s		26.2				31.6		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	11.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	120	10	412	30	30	40	30	465	2766	20	40	3354
Future Volume (veh/h)	120	10	412	30	30	40	30	465	2766	20	40	3354
Number	7	4	14	3	8	18		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	130	241	294	33	33	43		505	3007	22	43	3646
Adj No. of Lanes	0	1	1	1	1	0		2	3	0	1	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	144	267	354	114	47	62		299	2596	19	55	2238
Arrive On Green	0.22	0.22	0.22	0.06	0.06	0.06		0.09	0.50	0.50	0.03	0.44
Sat Flow, veh/h	641	1189	1575	1774	733	956		3442	5208	38	1774	5085
Grp Volume(v), veh/h	371	0	294	33	0	76		505	1955	1074	43	3646
Grp Sat Flow(s),veh/h/ln	1831	0	1575	1774	0	1689		1721	1695	1856	1774	1695
Q Serve(g_s), s	22.5	0.0	20.3	2.0	0.0	5.0		9.9	56.9	56.9	2.7	50.2
Cycle Q Clear(g_c), s	22.5	0.0	20.3	2.0	0.0	5.0		9.9	56.9	56.9	2.7	50.2
Prop In Lane	0.35		1.00	1.00		0.57		1.00		0.02	1.00	
Lane Grp Cap(c), veh/h	411	0	354	114	0	109		299	1690	925	55	2238
V/C Ratio(X)	0.90	0.00	0.83	0.29	0.00	0.70		1.69	1.16	1.16	0.78	1.63
Avail Cap(c_a), veh/h	514	0	442	498	0	474		299	1690	925	73	2238
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	0.0	42.2	50.9	0.0	52.3		52.1	28.6	28.6	54.9	31.9
Incr Delay (d2), s/veh	14.8	0.0	8.6	0.5	0.0	3.0		325.0	77.7	84.5	23.2	285.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	0.0	9.7	1.0	0.0	2.4		18.2	44.8	50.8	1.7	82.5
LnGrp Delay(d),s/veh	57.8	0.0	50.8	51.4	0.0	55.3		377.1	106.3	113.1	78.1	317.2
LnGrp LOS	E		D	D		E		F	F	F	E	F
Approach Vol, veh/h		665			109				3534			3732
Approach Delay, s/veh		54.7			54.1				147.0			311.0
Approach LOS		D			D				F			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	55.1		31.1	8.3	61.8		12.9
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 9.9	* 50		32.0	* 4.7	* 56		32.0
Max Q Clear Time (g_c+I1), s	11.9	52.2		24.5	4.7	58.9		7.0
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	214.3
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	40
Future Volume (veh/h)	40
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.97
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	43
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	679
Arrive On Green	0.44
Sat Flow, veh/h	1542
Grp Volume(v), veh/h	43
Grp Sat Flow(s),veh/h/ln	1542
Q Serve(g_s), s	1.8
Cycle Q Clear(g_c), s	1.8
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	679
V/C Ratio(X)	0.06
Avail Cap(c_a), veh/h	679
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	18.4
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.8
LnGrp Delay(d),s/veh	18.4
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	330	20	10	1797	974	920
Future Volume (veh/h)	330	20	10	1797	974	920
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	359	22	11	1953	1059	1000
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	463	226	15	2406	2086	1146
Arrive On Green	0.13	0.13	0.01	0.68	0.59	0.59
Sat Flow, veh/h	3442	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	359	22	11	1953	1059	1000
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770	1770	1583
Q Serve(g_s), s	6.7	0.8	0.4	26.3	11.7	31.6
Cycle Q Clear(g_c), s	6.7	0.8	0.4	26.3	11.7	31.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	463	226	15	2406	2086	1146
V/C Ratio(X)	0.78	0.10	0.75	0.81	0.51	0.87
Avail Cap(c_a), veh/h	1339	629	106	2749	2230	1211
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	24.9	33.1	7.6	8.0	6.9
Incr Delay (d2), s/veh	1.1	0.1	24.0	1.5	0.1	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.8	0.3	13.0	5.6	20.4
LnGrp Delay(d),s/veh	29.0	25.0	57.0	9.1	8.1	13.5
LnGrp LOS	C	C	E	A	A	B
Approach Vol, veh/h	381			1964	2059	
Approach Delay, s/veh	28.8			9.4	10.7	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	6.1	46.3		14.5		52.3		
Change Period (Y+Rc), s	5.5	* 6.9		5.5		* 6.9		
Max Green Setting (Gmax), s	4.0	* 42		26.0		* 52		
Max Q Clear Time (g_c+I1), s	2.4	33.6		8.7		28.3		
Green Ext Time (p_c), s	0.0	5.7		0.3		10.2		

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	871	1236	0	1316	110	50	618
Future Volume (veh/h)	871	1236	0	1316	110	50	618
Number	1	6		2	12	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h	947	1343		1430	120	54	672
Adj No. of Lanes	2	2		2	1	1	1
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	964	2488		1313	587	310	277
Arrive On Green	0.28	0.70		0.37	0.37	0.17	0.17
Sat Flow, veh/h	3442	3632		3632	1583	1774	1583
Grp Volume(v), veh/h	947	1343		1430	120	54	672
Grp Sat Flow(s),veh/h/ln	1721	1770		1770	1583	1774	1583
Q Serve(g_s), s	27.3	18.2		37.1	5.2	2.6	17.5
Cycle Q Clear(g_c), s	27.3	18.2		37.1	5.2	2.6	17.5
Prop In Lane	1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h	964	2488		1313	587	310	277
V/C Ratio(X)	0.98	0.54		1.09	0.20	0.17	2.43
Avail Cap(c_a), veh/h	964	2488		1313	587	310	277
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	7.1		31.4	21.4	35.1	41.3
Incr Delay (d2), s/veh	24.7	0.1		52.8	0.1	0.1	652.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.2	8.8		27.7	2.3	1.3	57.9
LnGrp Delay(d),s/veh	60.4	7.2		84.3	21.5	35.2	693.5
LnGrp LOS	E	A		F	C	D	F
Approach Vol, veh/h		2290		1550		726	
Approach Delay, s/veh		29.2		79.4		644.5	
Approach LOS		C		E		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	33.2	43.8				77.0		23.0
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 28	* 37				* 61		17.5
Max Q Clear Time (g_c+I1), s	29.3	39.1				20.2		19.5
Green Ext Time (p_c), s	0.0	0.0				8.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	144.1
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	50	10	60	360	0	10	0	30	0	0	0
Future Volume (veh/h)	0	50	10	60	360	0	10	0	30	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	54	11	65	391	0	11	0	33	0	0	0
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	407	182	110	978	438	25	2665	830	4	2085	649
Arrive On Green	0.00	0.11	0.11	0.06	0.28	0.00	0.01	0.00	0.52	0.00	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	5085	1583	1774	5085	1583
Grp Volume(v), veh/h	0	54	11	65	391	0	11	0	33	0	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1695	1583	1774	1695	1583
Q Serve(g_s), s	0.0	0.6	0.3	1.6	4.1	0.0	0.3	0.0	0.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.6	0.3	1.6	4.1	0.0	0.3	0.0	0.5	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	4	407	182	110	978	438	25	2665	830	4	2085	649
V/C Ratio(X)	0.00	0.13	0.06	0.59	0.40	0.00	0.43	0.00	0.04	0.00	0.00	0.00
Avail Cap(c_a), veh/h	197	1412	632	216	1451	649	197	2665	830	197	2085	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.9	17.8	20.6	13.3	0.0	22.1	0.0	5.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	5.0	0.3	0.0	11.3	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.1	0.9	2.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	18.1	17.9	25.7	13.5	0.0	33.4	0.0	5.3	0.0	0.0	0.0
LnGrp LOS		B	B	C	B		C		A			
Approach Vol, veh/h		65			456			44			0	
Approach Delay, s/veh		18.1			15.3			12.3			0.0	
Approach LOS		B			B			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	28.1	7.3	9.7	5.1	23.0	0.0	17.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5
Max Q Clear Time (g_c+I1), s	0.0	2.5	3.6	2.6	2.3	0.0	0.0	6.1
Green Ext Time (p_c), s	0.0	0.0	0.0	2.6	0.0	0.0	0.0	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	140	250	0	450	300	330	1156	0	100	842	490
Future Volume (veh/h)	200	140	250	0	450	300	330	1156	0	100	842	490
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	217	152	272	0	489	326	359	1257	0	109	915	533
Adj No. of Lanes	2	2	1	2	2	1	2	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	1288	576	4	800	358	439	2082	648	197	1724	537
Arrive On Green	0.08	0.36	0.36	0.00	0.23	0.23	0.13	0.41	0.00	0.06	0.34	0.34
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	5085	1583	3442	5085	1583
Grp Volume(v), veh/h	217	152	272	0	489	326	359	1257	0	109	915	533
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1695	1583	1721	1695	1583
Q Serve(g_s), s	4.9	2.3	10.5	0.0	9.9	16.0	8.1	15.4	0.0	2.5	11.6	26.7
Cycle Q Clear(g_c), s	4.9	2.3	10.5	0.0	9.9	16.0	8.1	15.4	0.0	2.5	11.6	26.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	1288	576	4	800	358	439	2082	648	197	1724	537
V/C Ratio(X)	0.77	0.12	0.47	0.00	0.61	0.91	0.82	0.60	0.00	0.55	0.53	0.99
Avail Cap(c_a), veh/h	281	1288	576	216	800	358	454	2082	648	255	1724	537
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	16.8	19.4	0.0	27.7	30.0	33.8	18.5	0.0	36.6	21.2	26.2
Incr Delay (d2), s/veh	12.5	0.0	0.6	0.0	1.4	26.7	11.0	1.3	0.0	2.4	1.2	37.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	1.1	4.7	0.0	5.0	9.6	4.5	7.5	0.0	1.2	5.6	17.2
LnGrp Delay(d),s/veh	48.3	16.9	20.0	0.0	29.1	56.7	44.8	19.8	0.0	39.0	22.4	63.4
LnGrp LOS	D	B	C		C	E	D	B		D	C	E
Approach Vol, veh/h		641			815			1616			1557	
Approach Delay, s/veh		28.9			40.1			25.3			37.6	
Approach LOS		C			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	37.1	0.0	33.5	14.7	31.5	11.0	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.9	31.6	5.0	19.5	10.5	27.0	6.5	18.0
Max Q Clear Time (g_c+I1), s	4.5	17.4	0.0	12.5	10.1	28.7	6.9	18.0
Green Ext Time (p_c), s	0.0	12.1	0.0	3.6	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	100	30	12	140	10	50	791	75	10	258	240
Future Volume (veh/h)	290	100	30	12	140	10	50	791	75	10	258	240
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	315	109	33	13	152	11	54	860	82	11	280	261
Adj No. of Lanes	1	2	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	369	1130	505	29	237	202	86	1307	585	25	1185	530
Arrive On Green	0.21	0.32	0.32	0.02	0.13	0.13	0.05	0.37	0.37	0.01	0.33	0.33
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	315	109	33	13	152	11	54	860	82	11	280	261
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	10.9	1.4	0.9	0.5	5.0	0.4	1.9	12.9	2.2	0.4	3.7	8.4
Cycle Q Clear(g_c), s	10.9	1.4	0.9	0.5	5.0	0.4	1.9	12.9	2.2	0.4	3.7	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	369	1130	505	29	237	202	86	1307	585	25	1185	530
V/C Ratio(X)	0.85	0.10	0.07	0.45	0.64	0.05	0.63	0.66	0.14	0.45	0.24	0.49
Avail Cap(c_a), veh/h	486	1689	756	139	525	446	142	1307	585	139	1185	530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	15.3	15.1	31.2	26.5	24.5	29.9	16.8	13.4	31.3	15.4	16.9
Incr Delay (d2), s/veh	10.9	0.0	0.1	10.8	2.9	0.1	7.4	2.6	0.5	12.2	0.5	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	0.7	0.4	0.3	2.7	0.2	1.1	6.8	1.0	0.3	1.9	4.1
LnGrp Delay(d),s/veh	35.3	15.3	15.2	42.0	29.4	24.6	37.3	19.4	13.9	43.4	15.8	20.2
LnGrp LOS	D	B	B	D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		457			176			996			552	
Approach Delay, s/veh		29.1			30.0			19.9			18.4	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	28.1	5.5	24.9	7.6	25.9	17.8	12.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	21.5	5.0	30.5	5.1	21.4	17.5	18.0
Max Q Clear Time (g_c+I1), s	2.4	14.9	2.5	3.4	3.9	10.4	12.9	7.0
Green Ext Time (p_c), s	0.0	4.4	0.0	1.7	0.0	6.5	0.4	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	22.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	220	186	62	830	220	461	392	95	60	156	20
Future Volume (veh/h)	30	220	186	62	830	220	461	392	95	60	156	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	239	202	67	902	239	501	426	103	65	170	22
Adj No. of Lanes	2	3	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	1532	477	195	1141	511	663	985	441	192	500	224
Arrive On Green	0.04	0.30	0.30	0.06	0.32	0.32	0.19	0.28	0.28	0.06	0.14	0.14
Sat Flow, veh/h	3442	5085	1583	3442	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	33	239	202	67	902	239	501	426	103	65	170	22
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	0.5	2.0	6.0	1.1	13.5	7.0	8.0	5.8	2.9	1.1	2.5	0.7
Cycle Q Clear(g_c), s	0.5	2.0	6.0	1.1	13.5	7.0	8.0	5.8	2.9	1.1	2.5	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	1532	477	195	1141	511	663	985	441	192	500	224
V/C Ratio(X)	0.27	0.16	0.42	0.34	0.79	0.47	0.76	0.43	0.23	0.34	0.34	0.10
Avail Cap(c_a), veh/h	294	1783	555	294	1241	555	1060	1907	853	294	1120	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	15.0	16.4	26.5	18.0	15.8	22.3	17.3	16.3	26.6	22.6	21.9
Incr Delay (d2), s/veh	1.2	0.0	0.6	1.0	3.3	0.7	1.8	0.3	0.3	1.0	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.9	2.7	0.5	7.0	3.1	4.0	2.8	1.3	0.5	1.3	0.3
LnGrp Delay(d),s/veh	28.6	15.0	17.0	27.6	21.3	16.5	24.1	17.6	16.6	27.6	23.0	22.0
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	C	C
Approach Vol, veh/h		474			1208			1030			257	
Approach Delay, s/veh		16.8			20.7			20.6			24.1	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	20.8	7.8	22.1	15.8	12.8	6.6	23.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	31.5	5.0	20.5	18.0	18.5	5.0	20.5
Max Q Clear Time (g_c+I1), s	3.1	7.8	3.1	8.0	10.0	4.5	2.5	15.5
Green Ext Time (p_c), s	0.0	4.5	0.0	6.6	1.2	3.7	0.0	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	80	50	40	230	80	140	88	70	40	111	30
Future Volume (veh/h)	20	80	50	40	230	80	140	88	70	40	111	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	87	54	43	250	87	152	96	76	43	121	33
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	327	278	152	361	307	192	1416	634	152	1189	532
Arrive On Green	0.03	0.18	0.18	0.04	0.19	0.19	0.11	0.40	0.40	0.04	0.34	0.34
Sat Flow, veh/h	1774	1863	1583	3442	1863	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	22	87	54	43	250	87	152	96	76	43	121	33
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1721	1863	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	0.7	2.2	1.6	0.6	6.7	2.5	4.5	0.9	1.6	0.6	1.3	0.8
Cycle Q Clear(g_c), s	0.7	2.2	1.6	0.6	6.7	2.5	4.5	0.9	1.6	0.6	1.3	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	327	278	152	361	307	192	1416	634	152	1189	532
V/C Ratio(X)	0.48	0.27	0.19	0.28	0.69	0.28	0.79	0.07	0.12	0.28	0.10	0.06
Avail Cap(c_a), veh/h	166	626	532	321	626	532	199	1416	634	321	1189	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	19.1	18.8	24.8	20.1	18.4	23.3	9.9	10.1	24.8	12.2	12.1
Incr Delay (d2), s/veh	7.4	0.4	0.3	1.0	2.4	0.5	18.7	0.1	0.4	1.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.7	0.3	3.6	1.1	3.2	0.5	0.8	0.3	0.6	0.4
LnGrp Delay(d),s/veh	33.1	19.5	19.2	25.8	22.5	18.9	42.0	10.0	10.5	25.8	12.4	12.3
LnGrp LOS	C	B	B	C	C	B	D	A	B	C	B	B
Approach Vol, veh/h		163			380			324			197	
Approach Delay, s/veh		21.3			22.1			25.1			15.3	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	25.9	6.9	13.9	10.3	22.5	5.9	14.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	6.0	18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.6	3.6	2.6	4.2	6.5	3.3	2.7	8.7
Green Ext Time (p_c), s	0.0	1.5	0.0	2.1	0.0	1.4	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.6
HCM 2010 LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	0	0	0	0	30
Future Volume (veh/h)	30	0	0	0	0	30
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	0	0	0	0	33
Adj No. of Lanes	2	2	2	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	139	143	12	6	1145	1022
Arrive On Green	0.04	0.00	0.00	0.00	0.00	0.65
Sat Flow, veh/h	3442	3632	-82054	1583	1774	1583
Grp Volume(v), veh/h	33	0	0	0	0	33
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	139	143	12	6	1145	1022
V/C Ratio(X)	0.24	0.00	0.00	0.00	0.00	0.03
Avail Cap(c_a), veh/h	601	3397	2223	995	1145	1022
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	0.0	0.0	1.8
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.0	0.0	0.4
LnGrp Delay(d),s/veh	14.2	0.0	0.0	0.0	0.0	1.9
LnGrp LOS	B					A
Approach Vol, veh/h		33	0		33	
Approach Delay, s/veh		14.2	0.0		1.9	
Approach LOS		B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				5.7		23.0	5.7	0.0
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				27.5		18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s				0.0		2.2	2.3	0.0
Green Ext Time (p_c), s				0.0		0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	50	60	0	400	0	130	0	150	0	0	0
Future Volume (veh/h)	0	50	60	0	400	0	130	0	150	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	54	65	0	435	0	141	0	163	0	0	0
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	9	1134	507	9	1134	507	238	452	384	9	9	8
Arrive On Green	0.00	0.32	0.32	0.00	0.32	0.00	0.13	0.00	0.24	0.00	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	0	54	65	0	435	0	141	0	163	0	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	0.2	0.6	0.0	2.0	0.0	1.5	0.0	1.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.2	0.6	0.0	2.0	0.0	1.5	0.0	1.8	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	9	1134	507	9	1134	507	238	452	384	9	9	8
V/C Ratio(X)	0.00	0.05	0.13	0.00	0.38	0.00	0.59	0.00	0.42	0.00	0.00	0.00
Avail Cap(c_a), veh/h	431	3093	1384	431	3093	1384	508	1718	1460	431	1637	1391
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.8	5.0	0.0	5.4	0.0	8.4	0.0	6.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.0	0.2	0.0	2.3	0.0	0.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.3	0.0	0.9	0.0	0.9	0.0	0.8	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	4.8	5.1	0.0	5.6	0.0	10.7	0.0	7.3	0.0	0.0	0.0
LnGrp LOS		A	A		A		B		A			
Approach Vol, veh/h		119			435			304			0	
Approach Delay, s/veh		5.0			5.6			8.9			0.0	
Approach LOS		A			A			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	9.5	0.0	11.1	7.3	2.2	0.0	11.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.9	18.1	5.0	18.0
Max Q Clear Time (g_c+I1), s	0.0	3.8	0.0	2.6	3.5	0.0	0.0	4.0
Green Ext Time (p_c), s	0.0	0.4	0.0	3.1	0.1	0.0	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	6.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	10	20	10	10	0	80	30	10	0	20	10
Future Volume (veh/h)	40	10	20	10	10	0	80	30	10	0	20	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	43	11	22	11	11	0	87	33	11	0	22	11
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	164	139	25	104	88	132	1099	934	4	769	654
Arrive On Green	0.05	0.09	0.09	0.01	0.06	0.00	0.07	0.59	0.59	0.00	0.41	0.41
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	43	11	22	11	11	0	87	33	11	0	22	11
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.0	0.2	0.6	0.3	0.2	0.0	2.1	0.3	0.1	0.0	0.3	0.2
Cycle Q Clear(g_c), s	1.0	0.2	0.6	0.3	0.2	0.0	2.1	0.3	0.1	0.0	0.3	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	82	164	139	25	104	88	132	1099	934	4	769	654
V/C Ratio(X)	0.52	0.07	0.16	0.43	0.11	0.00	0.66	0.03	0.01	0.00	0.03	0.02
Avail Cap(c_a), veh/h	202	765	650	202	765	650	239	1099	934	202	769	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	18.3	18.5	21.4	19.7	0.0	19.7	3.8	3.7	0.0	7.6	7.6
Incr Delay (d2), s/veh	5.0	0.2	0.5	11.2	0.4	0.0	5.5	0.1	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	0.3	0.2	0.1	0.0	1.2	0.2	0.1	0.0	0.2	0.1
LnGrp Delay(d),s/veh	25.4	18.5	19.0	32.7	20.1	0.0	25.2	3.8	3.7	0.0	7.7	7.7
LnGrp LOS	C	B	B	C	C		C	A	A		A	A
Approach Vol, veh/h		76			22			131			33	
Approach Delay, s/veh		22.6			26.4			18.0			7.7	
Approach LOS		C			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	30.4	5.1	8.4	7.8	22.6	6.5	6.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.9	18.1	5.0	18.0
Max Q Clear Time (g_c+I1), s	0.0	2.3	2.3	2.6	4.1	2.3	3.0	2.2
Green Ext Time (p_c), s	0.0	0.2	0.0	0.1	0.0	0.2	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	18.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	270	50	20	530	30	250	20	50	20	10	80
Future Volume (veh/h)	20	270	50	20	530	30	250	20	50	20	10	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	293	54	22	576	33	272	22	54	22	11	87
Adj No. of Lanes	1	3	1	2	2	1	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	1240	386	89	863	386	353	730	620	46	586	498
Arrive On Green	0.03	0.24	0.24	0.03	0.24	0.24	0.10	0.39	0.39	0.03	0.31	0.31
Sat Flow, veh/h	1774	5085	1583	3442	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	22	293	54	22	576	33	272	22	54	22	11	87
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.7	2.7	1.5	0.4	8.5	0.9	4.4	0.4	1.2	0.7	0.2	2.3
Cycle Q Clear(g_c), s	0.7	2.7	1.5	0.4	8.5	0.9	4.4	0.4	1.2	0.7	0.2	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	1240	386	89	863	386	353	730	620	46	586	498
V/C Ratio(X)	0.48	0.24	0.14	0.25	0.67	0.09	0.77	0.03	0.09	0.48	0.02	0.17
Avail Cap(c_a), veh/h	154	1592	496	299	1108	496	353	730	620	154	586	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	17.4	17.0	27.5	19.6	16.8	25.1	10.8	11.0	27.6	13.6	14.3
Incr Delay (d2), s/veh	7.6	0.1	0.2	1.4	1.0	0.1	10.0	0.1	0.3	7.6	0.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	0.7	0.2	4.2	0.4	2.6	0.2	0.6	0.4	0.1	1.1
LnGrp Delay(d),s/veh	35.3	17.5	17.2	28.9	20.7	16.9	35.1	10.8	11.3	35.3	13.6	15.0
LnGrp LOS	D	B	B	C	C	B	D	B	B	D	B	B
Approach Vol, veh/h		369			631			348			120	
Approach Delay, s/veh		18.5			20.8			29.9			18.6	
Approach LOS		B			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	27.0	6.0	18.5	10.4	22.6	6.0	18.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.9	18.1	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.7	3.2	2.4	4.7	6.4	4.3	2.7	10.5
Green Ext Time (p_c), s	0.0	0.5	0.0	5.2	0.0	0.5	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	22.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	182	10	20	310	20	50	10	100	20	10	14
Future Volume (veh/h)	20	182	10	20	310	20	50	10	100	20	10	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	198	11	22	337	22	54	11	109	22	11	15
Adj No. of Lanes	2	1	1	1	1	1	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	451	383	46	451	383	177	690	586	46	642	546
Arrive On Green	0.03	0.24	0.24	0.03	0.24	0.24	0.05	0.37	0.37	0.03	0.34	0.34
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	22	198	11	22	337	22	54	11	109	22	11	15
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.3	4.8	0.3	0.7	9.0	0.6	0.8	0.2	2.5	0.7	0.2	0.3
Cycle Q Clear(g_c), s	0.3	4.8	0.3	0.7	9.0	0.6	0.8	0.2	2.5	0.7	0.2	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	451	383	46	451	383	177	690	586	46	642	546
V/C Ratio(X)	0.25	0.44	0.03	0.48	0.75	0.06	0.30	0.02	0.19	0.48	0.02	0.03
Avail Cap(c_a), veh/h	321	642	546	165	642	546	321	690	586	165	642	546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	17.2	15.5	25.8	18.8	15.6	24.5	10.7	11.4	25.8	11.6	11.6
Incr Delay (d2), s/veh	1.4	0.7	0.0	7.4	2.9	0.1	1.0	0.0	0.7	7.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.6	0.1	0.4	5.0	0.3	0.4	0.1	1.2	0.4	0.1	0.2
LnGrp Delay(d),s/veh	27.0	17.9	15.5	33.2	21.8	15.7	25.5	10.7	12.1	33.2	11.6	11.7
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		231			381			174			48	
Approach Delay, s/veh		18.7			22.1			16.2			21.5	
Approach LOS		B			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	24.4	5.9	17.5	7.3	23.0	5.9	17.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.0	18.5	5.0	18.5	5.0	18.5
Max Q Clear Time (g_c+I1), s	2.7	4.5	2.7	6.8	2.8	2.3	2.3	11.0
Green Ext Time (p_c), s	0.0	0.4	0.0	2.6	0.0	0.4	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	100	100	30	60	120
Future Volume (veh/h)	30	100	100	30	60	120
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	109	109	33	65	130
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	74	1513	635	284	282	252
Arrive On Green	0.04	0.43	0.18	0.18	0.16	0.16
Sat Flow, veh/h	1774	3632	3632	1583	1774	1583
Grp Volume(v), veh/h	33	109	109	33	65	130
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1583	1774	1583
Q Serve(g_s), s	0.4	0.4	0.6	0.4	0.7	1.6
Cycle Q Clear(g_c), s	0.4	0.4	0.6	0.4	0.7	1.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	74	1513	635	284	282	252
V/C Ratio(X)	0.45	0.07	0.17	0.12	0.23	0.52
Avail Cap(c_a), veh/h	432	4519	2926	1309	1483	1324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.2	3.7	7.6	7.5	8.0	8.4
Incr Delay (d2), s/veh	4.2	0.0	0.1	0.2	0.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.2	0.3	0.4	0.4	1.5
LnGrp Delay(d),s/veh	14.4	3.7	7.7	7.7	8.4	10.0
LnGrp LOS	B	A	A	A	A	B
Approach Vol, veh/h		142	142		195	
Approach Delay, s/veh		6.2	7.7		9.5	
Approach LOS		A	A		A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				13.8		8.0	5.4	8.4
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				27.8		18.2	5.3	18.0
Max Q Clear Time (g_c+I1), s				2.4		3.6	2.4	2.6
Green Ext Time (p_c), s				1.5		0.5	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	81	311	1490	42	52	660
Future Volume (veh/h)	81	311	1490	42	52	660
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	88	338	1620	46	57	717
Adj No. of Lanes	1	1	3	1	2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	439	399	2330	726	181	2093
Arrive On Green	0.25	0.25	0.46	0.46	0.05	0.59
Sat Flow, veh/h	1774	1615	5253	1583	3442	3632
Grp Volume(v), veh/h	88	338	1620	46	57	717
Grp Sat Flow(s),veh/h/ln	1774	1615	1695	1583	1721	1770
Q Serve(g_s), s	2.2	11.1	14.1	0.9	0.9	5.8
Cycle Q Clear(g_c), s	2.2	11.1	14.1	0.9	0.9	5.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	439	399	2330	726	181	2093
V/C Ratio(X)	0.20	0.85	0.70	0.06	0.32	0.34
Avail Cap(c_a), veh/h	572	521	2330	726	308	2093
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	20.0	12.0	8.4	25.5	5.8
Incr Delay (d2), s/veh	0.2	9.8	1.7	0.2	1.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	6.0	6.8	0.4	0.4	2.9
LnGrp Delay(d),s/veh	16.9	29.8	13.8	8.6	26.4	6.3
LnGrp LOS	B	C	B	A	C	A
Approach Vol, veh/h	426		1666			774
Approach Delay, s/veh	27.1		13.6			7.8
Approach LOS	C		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.4	30.1				37.5		18.3
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5				33.0		18.0
Max Q Clear Time (g_c+I1), s	2.9	16.1				7.8		13.1
Green Ext Time (p_c), s	0.0	6.3				17.2		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	217	35	22	730	740	48
Future Volume (veh/h)	217	35	22	730	740	48
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	236	38	24	793	804	52
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	315	281	51	2202	1746	781
Arrive On Green	0.18	0.18	0.03	0.62	0.49	0.49
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	236	38	24	793	804	52
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	5.7	0.9	0.6	4.9	6.7	0.8
Cycle Q Clear(g_c), s	5.7	0.9	0.6	4.9	6.7	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	315	281	51	2202	1746	781
V/C Ratio(X)	0.75	0.14	0.47	0.36	0.46	0.07
Avail Cap(c_a), veh/h	710	633	197	2202	1746	781
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	15.6	21.5	4.1	7.5	6.0
Incr Delay (d2), s/veh	3.6	0.2	6.6	0.5	0.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.9	0.4	2.5	3.5	0.4
LnGrp Delay(d),s/veh	21.1	15.8	28.1	4.6	8.3	6.1
LnGrp LOS	C	B	C	A	A	A
Approach Vol, veh/h	274			817	856	
Approach Delay, s/veh	20.4			5.3	8.2	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		32.5		12.5	5.8	26.7		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		28.0		18.0	5.0	18.5		
Max Q Clear Time (g_c+I1), s		6.9		7.7	2.6	8.7		
Green Ext Time (p_c), s		11.9		0.6	0.0	6.9		

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	50	716	240	110	604	0	10	240	1150	140	10	150
Future Volume (veh/h)	50	716	240	110	604	0	10	240	1150	140	10	150
Number	3	8	18	7	4	14		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1900		1863
Adj Flow Rate, veh/h	54	778	261	120	657	0		261	1250	152		163
Adj No. of Lanes	1	1	1	1	1	1		1	3	0		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92		0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	69	570	484	100	603	512		183	1658	202		185
Arrive On Green	0.04	0.31	0.31	0.06	0.32	0.00		0.10	0.36	0.36		0.10
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583		1774	4583	557		1774
Grp Volume(v), veh/h	54	778	261	120	657	0		261	925	477		163
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583		1774	1695	1750		1774
Q Serve(g_s), s	4.5	46.0	20.6	8.5	48.6	0.0		15.5	36.0	36.0		13.6
Cycle Q Clear(g_c), s	4.5	46.0	20.6	8.5	48.6	0.0		15.5	36.0	36.0		13.6
Prop In Lane	1.00		1.00	1.00		1.00		1.00		0.32		1.00
Lane Grp Cap(c), veh/h	69	570	484	100	603	512		183	1226	633		185
V/C Ratio(X)	0.78	1.37	0.54	1.20	1.09	0.00		1.43	0.75	0.75		0.88
Avail Cap(c_a), veh/h	71	570	484	100	603	512		183	1226	633		250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	71.6	52.2	43.4	70.9	50.9	0.0		67.4	42.1	42.1		66.4
Incr Delay (d2), s/veh	38.0	175.6	0.7	152.1	63.7	0.0		221.0	2.4	4.6		19.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	3.0	51.4	9.1	8.4	35.6	0.0		18.8	17.2	18.2		7.7
LnGrp Delay(d),s/veh	109.7	227.8	44.0	223.1	114.6	0.0		288.5	44.5	46.7		85.4
LnGrp LOS	F	F	D	F	F			F	D	D		F
Approach Vol, veh/h		1093			777				1663			
Approach Delay, s/veh		178.1			131.3				83.4			
Approach LOS		F			F				F			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	62.0	11.4	56.0	21.2	61.8	14.0	53.4
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	15.5	54.6	6.0	48.1	21.2	48.9	8.5	* 46
Max Q Clear Time (g_c+I1), s	17.5	56.6	6.5	50.6	15.6	38.0	10.5	48.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	10.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	195.7
HCM 2010 LOS	F

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2610	70
Future Volume (veh/h)	2610	70
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	2837	0
Adj No. of Lanes	3	1
Peak Hour Factor	0.92	0.92
Percent Heavy Veh, %	2	2
Cap, veh/h	1846	575
Arrive On Green	0.36	0.00
Sat Flow, veh/h	5085	1583
Grp Volume(v), veh/h	2837	0
Grp Sat Flow(s),veh/h/ln	1695	1583
Q Serve(g_s), s	54.6	0.0
Cycle Q Clear(g_c), s	54.6	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	1846	575
V/C Ratio(X)	1.54	0.00
Avail Cap(c_a), veh/h	1846	575
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	47.9	0.0
Incr Delay (d2), s/veh	244.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	67.2	0.0
LnGrp Delay(d),s/veh	292.2	0.0
LnGrp LOS	F	
Approach Vol, veh/h	3000	
Approach Delay, s/veh	281.0	
Approach LOS	F	
Timer		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	786	50	154	584	10	10	150	76	20	680	160
Future Volume (veh/h)	160	786	50	154	584	10	10	150	76	20	680	160
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	174	854	54	167	635	11	11	163	83	22	739	174
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	873	55	149	919	16	12	486	248	64	832	707
Arrive On Green	0.08	0.26	0.26	0.08	0.26	0.26	0.01	0.42	0.42	0.04	0.45	0.45
Sat Flow, veh/h	1774	3381	214	1774	3560	62	1774	1165	593	1774	1863	1583
Grp Volume(v), veh/h	174	447	461	167	316	330	11	0	246	22	739	174
Grp Sat Flow(s),veh/h/ln	1774	1770	1825	1774	1770	1852	1774	0	1758	1774	1863	1583
Q Serve(g_s), s	7.0	20.9	20.9	7.0	13.4	13.4	0.5	0.0	7.9	1.0	30.3	5.7
Cycle Q Clear(g_c), s	7.0	20.9	20.9	7.0	13.4	13.4	0.5	0.0	7.9	1.0	30.3	5.7
Prop In Lane	1.00		0.12	1.00		0.03	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	149	457	471	149	457	478	12	0	734	64	832	707
V/C Ratio(X)	1.17	0.98	0.98	1.12	0.69	0.69	0.91	0.00	0.34	0.34	0.89	0.25
Avail Cap(c_a), veh/h	149	457	471	149	457	478	117	0	734	394	873	742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	30.6	30.6	38.1	27.9	27.9	41.3	0.0	16.4	39.2	21.1	14.3
Incr Delay (d2), s/veh	125.4	36.4	35.8	109.4	4.9	4.7	53.3	0.0	1.2	1.2	13.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	14.8	15.2	7.9	7.1	7.5	0.4	0.0	4.1	0.5	18.5	2.6
LnGrp Delay(d),s/veh	163.6	67.0	66.4	147.5	32.7	32.5	94.6	0.0	17.7	40.3	34.7	15.1
LnGrp LOS	F	E	E	F	C	C	F		B	D	C	B
Approach Vol, veh/h		1082			813			257			935	
Approach Delay, s/veh		82.3			56.2			21.0			31.2	
Approach LOS		F			E			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	26.0	4.6	41.7	11.0	26.0	7.0	39.2
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	7.0	21.5	5.5	39.0	7.0	21.5	18.5	26.0
Max Q Clear Time (g_c+I1), s	9.0	15.4	2.5	32.3	9.0	22.9	3.0	9.9
Green Ext Time (p_c), s	0.0	4.6	0.0	4.9	0.0	0.0	0.0	13.8

Intersection Summary	
HCM 2010 Ctrl Delay	54.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	792	0	20	618	10	10	10	10	10	230	130
Future Volume (veh/h)	80	792	0	20	618	10	10	10	10	10	230	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	87	861	0	22	672	11	11	11	11	11	250	141
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	360	1037	0	247	1018	17	182	176	134	74	307	169
Arrive On Green	0.56	0.56	0.00	0.56	0.56	0.56	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	755	1863	0	639	1828	30	337	639	488	18	1117	613
Grp Volume(v), veh/h	87	861	0	22	0	683	33	0	0	402	0	0
Grp Sat Flow(s),veh/h/ln	755	1863	0	639	0	1857	1463	0	0	1748	0	0
Q Serve(g_s), s	4.9	20.4	0.0	1.6	0.0	13.8	0.0	0.0	0.0	2.4	0.0	0.0
Cycle Q Clear(g_c), s	18.7	20.4	0.0	22.0	0.0	13.8	0.7	0.0	0.0	11.6	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.02	0.33		0.33	0.03		0.35
Lane Grp Cap(c), veh/h	360	1037	0	247	0	1035	492	0	0	550	0	0
V/C Ratio(X)	0.24	0.83	0.00	0.09	0.00	0.66	0.07	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	399	1132	0	279	0	1129	586	0	0	668	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.9	9.8	0.0	18.8	0.0	8.3	14.4	0.0	0.0	18.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	5.0	0.0	0.2	0.0	1.3	0.1	0.0	0.0	3.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	11.7	0.0	0.3	0.0	7.4	0.4	0.0	0.0	6.1	0.0	0.0
LnGrp Delay(d),s/veh	15.2	14.8	0.0	19.0	0.0	9.6	14.4	0.0	0.0	21.5	0.0	0.0
LnGrp LOS	B	B		B		A	B			C		
Approach Vol, veh/h		948			705			33			402	
Approach Delay, s/veh		14.8			9.9			14.4			21.5	
Approach LOS		B			A			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		19.3		34.4		19.3		34.4
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.4		32.6		18.4		32.6
Max Q Clear Time (g_c+I1), s		2.7		22.4		13.6		24.0
Green Ext Time (p_c), s		2.5		6.7		1.2		5.9

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	620	20	50	440	160	20	486	100	260	1174	268
Future Volume (veh/h)	222	620	20	50	440	160	20	486	100	260	1174	268
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	241	674	22	54	478	174	22	528	109	283	1276	291
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	718	610	69	518	440	49	831	372	306	1346	834
Arrive On Green	0.15	0.39	0.39	0.04	0.28	0.28	0.03	0.23	0.23	0.17	0.38	0.38
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	241	674	22	54	478	174	22	528	109	283	1276	291
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	17.7	46.1	1.1	4.0	33.0	11.8	1.6	17.7	7.5	20.8	46.2	14.1
Cycle Q Clear(g_c), s	17.7	46.1	1.1	4.0	33.0	11.8	1.6	17.7	7.5	20.8	46.2	14.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	260	718	610	69	518	440	49	831	372	306	1346	834
V/C Ratio(X)	0.93	0.94	0.04	0.78	0.92	0.40	0.45	0.64	0.29	0.92	0.95	0.35
Avail Cap(c_a), veh/h	260	745	633	71	546	464	255	912	408	476	1364	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	39.1	25.3	63.0	46.4	38.7	63.4	45.5	41.6	53.9	39.7	18.1
Incr Delay (d2), s/veh	36.0	18.8	0.0	37.2	20.3	0.2	2.4	0.8	0.2	13.0	13.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	27.3	0.5	2.7	19.9	5.2	0.8	8.8	3.3	11.3	25.1	6.1
LnGrp Delay(d),s/veh	91.8	57.9	25.3	100.2	66.7	39.0	65.8	46.4	41.7	66.9	53.3	18.2
LnGrp LOS	F	E	C	F	E	D	E	D	D	E	D	B
Approach Vol, veh/h		937			706			659			1850	
Approach Delay, s/veh		65.9			62.4			46.2			49.9	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.9	43.6	8.1	56.7	9.7	57.8	27.4	37.5
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	19.4	38.8	19.0	* 51	5.3	52.9	35.5	34.1
Max Q Clear Time (g_c+I1), s	19.7	35.0	3.6	48.2	6.0	48.1	22.8	19.7
Green Ext Time (p_c), s	0.0	1.8	0.0	2.1	0.0	2.1	0.1	7.3

Intersection Summary	
HCM 2010 Ctrl Delay	55.0
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	680	10	70	380	60	10	723	70	70	635	250
Future Volume (veh/h)	300	680	10	70	380	60	10	723	70	70	635	250
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	326	739	11	76	413	65	11	786	76	76	690	272
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	342	766	11	97	441	69	14	798	77	90	713	281
Arrive On Green	0.19	0.42	0.42	0.05	0.28	0.28	0.01	0.24	0.24	0.05	0.29	0.29
Sat Flow, veh/h	1774	1831	27	1774	1572	247	1774	3261	315	1774	2482	978
Grp Volume(v), veh/h	326	0	750	76	0	478	11	426	436	76	492	470
Grp Sat Flow(s),veh/h/ln	1774	0	1858	1774	0	1819	1774	1770	1807	1774	1770	1690
Q Serve(g_s), s	17.9	0.0	38.8	4.2	0.0	25.3	0.6	23.6	23.6	4.2	27.0	27.0
Cycle Q Clear(g_c), s	17.9	0.0	38.8	4.2	0.0	25.3	0.6	23.6	23.6	4.2	27.0	27.0
Prop In Lane	1.00		0.01	1.00		0.14	1.00		0.17	1.00		0.58
Lane Grp Cap(c), veh/h	342	0	777	97	0	510	14	433	442	90	509	486
V/C Ratio(X)	0.95	0.00	0.96	0.78	0.00	0.94	0.78	0.99	0.99	0.84	0.97	0.97
Avail Cap(c_a), veh/h	342	0	777	207	0	537	90	433	442	90	509	486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	0.0	27.9	46.0	0.0	34.6	48.8	37.0	37.0	46.4	34.6	34.6
Incr Delay (d2), s/veh	36.0	0.0	23.8	5.0	0.0	23.1	28.7	39.1	38.8	46.5	31.4	32.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	0.0	24.9	2.2	0.0	15.9	0.4	16.2	16.5	3.2	17.6	16.9
LnGrp Delay(d),s/veh	75.3	0.0	51.7	51.0	0.0	57.7	77.4	76.1	75.8	92.8	66.0	66.9
LnGrp LOS	E		D	D		E	E	E	E	F	E	E
Approach Vol, veh/h		1076			554			873			1038	
Approach Delay, s/veh		58.9			56.8			76.0			68.4	
Approach LOS		E			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.5	34.4	5.3	35.3	9.9	48.0	9.5	31.1
Change Period (Y+Rc), s	4.5	6.8	4.5	* 7	4.5	* 6.8	4.5	7.0
Max Green Setting (Gmax), s	19.0	29.1	5.0	* 24	11.5	* 37	5.0	24.1
Max Q Clear Time (g_c+I1), s	19.9	27.3	2.6	29.0	6.2	40.8	6.2	25.6
Green Ext Time (p_c), s	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	65.6
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	107	20	32	76	335	10	170	45	536	320	40
Future Volume (veh/h)	30	107	20	32	76	335	10	170	45	536	320	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	116	22	35	83	364	11	185	49	583	348	43
Adj No. of Lanes	2	1	1	2	1	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	812	553	470	935	553	470	413	425	190	941	967	433
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.12	0.12	0.12	0.27	0.27	0.27
Sat Flow, veh/h	1822	1863	1583	2417	1863	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	33	116	22	35	83	364	11	185	49	583	348	43
Grp Sat Flow(s),veh/h/ln	911	1863	1583	1209	1863	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	0.6	2.0	0.4	0.5	1.4	9.1	0.1	2.1	1.2	6.5	3.5	0.9
Cycle Q Clear(g_c), s	2.0	2.0	0.4	2.5	1.4	9.1	0.1	2.1	1.2	6.5	3.5	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	812	553	470	935	553	470	413	425	190	941	967	433
V/C Ratio(X)	0.04	0.21	0.05	0.04	0.15	0.77	0.03	0.44	0.26	0.62	0.36	0.10
Avail Cap(c_a), veh/h	1044	791	672	1243	791	672	1540	1583	708	1461	1502	672
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.0	11.5	10.9	12.4	11.3	14.0	16.9	17.8	17.4	13.9	12.8	11.8
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.1	3.6	0.0	0.7	0.7	0.7	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	0.2	0.2	0.8	4.4	0.1	1.1	0.6	3.1	1.7	0.4
LnGrp Delay(d),s/veh	12.0	11.7	11.0	12.4	11.4	17.5	17.0	18.5	18.1	14.5	13.0	11.9
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		171			482			245			974	
Approach Delay, s/veh		11.7			16.1			18.4			13.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		9.7		17.4		16.4		17.4
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		19.5		18.5		18.5		18.5
Max Q Clear Time (g_c+I1), s		4.1		4.0		8.5		11.1
Green Ext Time (p_c), s		1.1		2.5		3.5		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	236	30	10	400	1040	244
Future Volume (veh/h)	236	30	10	400	1040	244
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	257	33	11	435	1130	265
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	317	283	15	2062	1322	308
Arrive On Green	0.18	0.18	0.01	0.58	0.46	0.46
Sat Flow, veh/h	1774	1583	1774	3632	2945	664
Grp Volume(v), veh/h	257	33	11	435	698	697
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1746
Q Serve(g_s), s	6.9	0.9	0.3	2.9	17.4	17.7
Cycle Q Clear(g_c), s	6.9	0.9	0.3	2.9	17.4	17.7
Prop In Lane	1.00	1.00	1.00			0.38
Lane Grp Cap(c), veh/h	317	283	15	2062	821	809
V/C Ratio(X)	0.81	0.12	0.73	0.21	0.85	0.86
Avail Cap(c_a), veh/h	841	750	748	4619	1350	1332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	17.2	24.6	4.9	11.8	11.9
Incr Delay (d2), s/veh	1.9	0.1	21.8	0.0	1.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.4	0.2	1.4	8.6	8.7
LnGrp Delay(d),s/veh	21.6	17.2	46.4	5.0	13.2	13.6
LnGrp LOS	C	B	D	A	B	B
Approach Vol, veh/h	290			446	1395	
Approach Delay, s/veh	21.1			6.0	13.4	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.9	29.6				35.5		14.3
Change Period (Y+Rc), s	5.5	* 6.5				* 6.5		5.4
Max Green Setting (Gmax), s	21.0	* 38				* 65		23.6
Max Q Clear Time (g_c+I1), s	2.3	19.7				4.9		8.9
Green Ext Time (p_c), s	0.0	3.3				3.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	70	40	20	20	86	40	1090	20	254	1120	90
Future Volume (veh/h)	40	70	40	20	20	86	40	1090	20	254	1120	90
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	43	76	43	22	22	93	43	1185	22	276	1217	98
Adj No. of Lanes	2	1	1	1	1	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	206	175	44	177	150	139	1501	672	326	2009	899
Arrive On Green	0.04	0.11	0.11	0.02	0.10	0.10	0.04	0.42	0.42	0.18	0.57	0.57
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	43	76	43	22	22	93	43	1185	22	276	1217	98
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.9	2.7	1.7	0.9	0.8	4.0	0.9	20.3	0.6	10.6	15.9	2.0
Cycle Q Clear(g_c), s	0.9	2.7	1.7	0.9	0.8	4.0	0.9	20.3	0.6	10.6	15.9	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	139	206	175	44	177	150	139	1501	672	326	2009	899
V/C Ratio(X)	0.31	0.37	0.25	0.50	0.12	0.62	0.31	0.79	0.03	0.85	0.61	0.11
Avail Cap(c_a), veh/h	245	478	406	126	478	406	245	1563	699	455	2218	992
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	28.9	28.5	33.8	29.1	30.5	32.7	17.5	11.8	27.7	10.0	7.0
Incr Delay (d2), s/veh	1.2	1.1	0.7	8.5	0.3	4.1	1.2	2.7	0.0	10.1	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.4	0.8	0.5	0.4	1.9	0.4	10.4	0.3	6.1	7.7	0.9
LnGrp Delay(d),s/veh	34.0	30.0	29.3	42.3	29.4	34.6	34.0	20.2	11.8	37.8	10.4	7.0
LnGrp LOS	C	C	C	D	C	C	C	C	B	D	B	A
Approach Vol, veh/h		162			137			1250			1591	
Approach Delay, s/veh		30.9			35.0			20.5			14.9	
Approach LOS		C			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	44.4	6.2	12.3	17.4	34.3	7.3	11.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	44.0	5.0	18.0	18.0	31.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.9	17.9	2.9	4.7	12.6	22.3	2.9	6.0
Green Ext Time (p_c), s	0.0	18.4	0.0	0.7	0.4	7.4	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	370	707	10	34	681	10	10	20	46	10	50	1010
Future Volume (veh/h)	370	707	10	34	681	10	10	20	46	10	50	1010
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	402	768	0	37	740	11	11	22	50	11	54	1098
Adj No. of Lanes	1	2	1	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	431	1618	724	46	858	13	15	31	70	69	341	736
Arrive On Green	0.24	0.46	0.00	0.03	0.24	0.24	0.07	0.07	0.07	0.22	0.22	0.22
Sat Flow, veh/h	1774	3539	1583	1774	3570	53	220	439	998	313	1535	1583
Grp Volume(v), veh/h	402	768	0	37	367	384	83	0	0	65	0	1098
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1853	1657	0	0	1847	0	1583
Q Serve(g_s), s	22.4	15.2	0.0	2.1	20.0	20.0	4.9	0.0	0.0	2.9	0.0	22.4
Cycle Q Clear(g_c), s	22.4	15.2	0.0	2.1	20.0	20.0	4.9	0.0	0.0	2.9	0.0	22.4
Prop In Lane	1.00		1.00	1.00		0.03	0.13		0.60	0.17		1.00
Lane Grp Cap(c), veh/h	431	1618	724	46	425	445	116	0	0	410	0	736
V/C Ratio(X)	0.93	0.47	0.00	0.80	0.86	0.86	0.72	0.00	0.00	0.16	0.00	1.49
Avail Cap(c_a), veh/h	906	2656	1188	123	544	570	368	0	0	410	0	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.4	19.0	0.0	48.9	36.7	36.7	46.0	0.0	0.0	31.6	0.0	27.0
Incr Delay (d2), s/veh	4.1	0.1	0.0	10.8	9.3	8.9	3.1	0.0	0.0	0.1	0.0	228.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.4	7.4	0.0	1.2	10.9	11.3	2.4	0.0	0.0	1.5	0.0	67.1
LnGrp Delay(d),s/veh	41.5	19.1	0.0	59.7	46.0	45.6	49.1	0.0	0.0	31.7	0.0	255.4
LnGrp LOS	D	B		E	D	D	D			C		F
Approach Vol, veh/h		1170			788			83			1163	
Approach Delay, s/veh		26.8			46.4			49.1			242.9	
Approach LOS		C			D			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	30.0	30.2		12.6	8.1	52.1		28.0
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		5.6
Max Green Setting (Gmax), s	51.5	31.0		* 22	7.0	* 76		22.4
Max Q Clear Time (g_c+I1), s	24.4	22.0		6.9	4.1	17.2		24.4
Green Ext Time (p_c), s	0.1	2.2		0.1	0.0	2.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	110.6
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1026	160	50	784	423	20	20	30	1029	140	490
Future Volume (veh/h)	110	1026	160	50	784	423	20	20	30	1029	140	490
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	120	1115	174	54	852	460	22	22	33	1118	152	533
Adj No. of Lanes	1	2	0	2	3	1	1	1	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	1205	188	94	1697	521	27	37	56	1172	1348	603
Arrive On Green	0.08	0.39	0.39	0.03	0.33	0.33	0.01	0.06	0.06	0.34	0.38	0.38
Sat Flow, veh/h	1774	3070	478	3442	5085	1562	1774	674	1011	3442	3539	1583
Grp Volume(v), veh/h	120	641	648	54	852	460	22	0	55	1118	152	533
Grp Sat Flow(s),veh/h/ln	1774	1770	1778	1721	1695	1562	1774	0	1684	1721	1770	1583
Q Serve(g_s), s	7.4	38.6	38.9	1.7	15.0	31.1	1.4	0.0	3.6	35.5	3.1	35.1
Cycle Q Clear(g_c), s	7.4	38.6	38.9	1.7	15.0	31.1	1.4	0.0	3.6	35.5	3.1	35.1
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.60	1.00		1.00
Lane Grp Cap(c), veh/h	146	695	698	94	1697	521	27	0	93	1172	1348	603
V/C Ratio(X)	0.82	0.92	0.93	0.58	0.50	0.88	0.83	0.00	0.59	0.95	0.11	0.88
Avail Cap(c_a), veh/h	211	749	753	157	1766	542	97	0	528	1303	2245	1004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	32.3	32.4	53.7	29.8	35.2	54.9	0.0	51.5	36.0	22.4	32.3
Incr Delay (d2), s/veh	10.2	15.7	16.4	2.1	0.1	14.6	20.6	0.0	2.2	14.0	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	21.7	22.2	0.9	7.0	15.5	0.8	0.0	1.7	19.1	1.5	15.8
LnGrp Delay(d),s/veh	60.7	48.1	48.8	55.8	29.9	49.8	75.5	0.0	53.7	50.0	22.4	35.2
LnGrp LOS	E	D	D	E	C	D	E		D	D	C	D
Approach Vol, veh/h		1409			1366			77			1803	
Approach Delay, s/veh		49.5			37.6			59.9			43.3	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	42.2	7.2	47.7	8.1	48.8	43.6	11.3
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	13.3	* 39	6.1	* 71	* 5.1	* 47	42.3	* 35
Max Q Clear Time (g_c+I1), s	9.4	33.1	3.4	37.1	3.7	40.9	37.5	5.6
Green Ext Time (p_c), s	0.0	2.8	0.0	0.6	0.0	3.0	0.6	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	43.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	160	1149	656	170	503	178	10	384	948	160	461	2169
Future Volume (veh/h)	160	1149	656	170	503	178	10	384	948	160	461	2169
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	174	1249	713	185	547	193		417	1030	174	501	2358
Adj No. of Lanes	2	3	1	2	3	1		2	3	1	2	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	220	1447	451	154	1351	421		344	1723	530	544	2019
Arrive On Green	0.06	0.28	0.28	0.04	0.27	0.27		0.10	0.34	0.34	0.16	0.40
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583		3442	5085	1563	3442	5085
Grp Volume(v), veh/h	174	1249	713	185	547	193		417	1030	174	501	2358
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583		1721	1695	1563	1721	1695
Q Serve(g_s), s	7.2	33.8	41.3	6.5	12.8	14.8		14.5	24.4	12.0	20.8	57.6
Cycle Q Clear(g_c), s	7.2	33.8	41.3	6.5	12.8	14.8		14.5	24.4	12.0	20.8	57.6
Prop In Lane	1.00		1.00	1.00		1.00		1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	220	1447	451	154	1351	421		344	1723	530	544	2019
V/C Ratio(X)	0.79	0.86	1.58	1.20	0.40	0.46		1.21	0.60	0.33	0.92	1.17
Avail Cap(c_a), veh/h	296	1447	451	154	1351	421		344	1723	530	600	2019
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.0	49.2	51.9	69.3	43.8	44.6		65.3	39.8	35.7	60.2	43.8
Incr Delay (d2), s/veh	7.0	5.4	272.4	136.2	0.1	0.3		119.5	0.4	0.1	17.8	81.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	16.6	52.1	6.0	6.0	6.5		12.6	11.5	5.2	11.2	42.1
LnGrp Delay(d),s/veh	74.0	54.6	324.3	205.5	43.9	44.8		184.8	40.2	35.8	78.0	125.1
LnGrp LOS	E	D	F	F	D	D		F	D	D	E	F
Approach Vol, veh/h		2136			925				1621			3087
Approach Delay, s/veh		146.2			76.4				76.9			110.5
Approach LOS		F			E				E			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.4	56.6	12.0	48.1	20.0	65.0	14.8	45.3
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	25.3	* 47	6.5	* 41	14.5	* 58	12.5	35.2
Max Q Clear Time (g_c+I1), s	22.8	26.4	8.5	43.3	16.5	59.6	9.2	16.8
Green Ext Time (p_c), s	0.1	10.6	0.0	0.0	0.0	0.0	0.0	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	109.3
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	210
Future Volume (veh/h)	210
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	228
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	629
Arrive On Green	0.40
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	228
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	14.7
Cycle Q Clear(g_c), s	14.7
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	629
V/C Ratio(X)	0.36
Avail Cap(c_a), veh/h	629
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	30.8
Incr Delay (d2), s/veh	0.1
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	6.5
LnGrp Delay(d),s/veh	31.0
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	260	380	200	891	1199	240
Future Volume (veh/h)	260	380	200	891	1199	240
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	283	413	217	968	1303	261
Adj No. of Lanes	1	1	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	483	440	315	1990	1417	634
Arrive On Green	0.27	0.27	0.09	0.56	0.40	0.40
Sat Flow, veh/h	1774	1615	3442	3632	3632	1583
Grp Volume(v), veh/h	283	413	217	968	1303	261
Grp Sat Flow(s),veh/h/ln	1774	1615	1721	1770	1770	1583
Q Serve(g_s), s	9.0	16.3	4.0	10.8	22.8	7.7
Cycle Q Clear(g_c), s	9.0	16.3	4.0	10.8	22.8	7.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	483	440	315	1990	1417	634
V/C Ratio(X)	0.59	0.94	0.69	0.49	0.92	0.41
Avail Cap(c_a), veh/h	483	440	1053	2800	1452	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	23.2	28.8	8.6	18.6	14.1
Incr Delay (d2), s/veh	1.2	27.7	1.0	0.1	9.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	10.6	1.9	5.1	12.9	3.4
LnGrp Delay(d),s/veh	21.8	51.0	29.8	8.7	28.0	14.2
LnGrp LOS	C	D	C	A	C	B
Approach Vol, veh/h	696			1185	1564	
Approach Delay, s/veh	39.1			12.5	25.7	
Approach LOS	D			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.6	32.3				42.8		22.5
Change Period (Y+Rc), s	* 4.6	* 6.1				* 6.1		4.7
Max Green Setting (Gmax), s	* 20	* 27				* 52		17.8
Max Q Clear Time (g_c+I1), s	6.0	24.8				12.8		18.3
Green Ext Time (p_c), s	0.1	1.3				5.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	870	350	400	690	70	360	334	710	70	126	20
Future Volume (veh/h)	80	870	350	400	690	70	360	334	710	70	126	20
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	87	946	0	435	750	76	382	563	572	76	137	22
Adj No. of Lanes	1	2	1	2	2	0	1	1	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	1074	481	179	942	95	472	496	415	143	273	45
Arrive On Green	0.06	0.30	0.00	0.05	0.29	0.29	0.27	0.27	0.27	0.13	0.13	0.13
Sat Flow, veh/h	1774	3539	1583	3442	3230	327	1774	1863	1558	1113	2123	351
Grp Volume(v), veh/h	87	946	0	435	411	415	382	563	572	123	0	112
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1788	1774	1863	1558	1807	0	1779
Q Serve(g_s), s	4.0	21.0	0.0	4.3	17.7	17.7	16.6	22.0	22.0	5.3	0.0	4.8
Cycle Q Clear(g_c), s	4.0	21.0	0.0	4.3	17.7	17.7	16.6	22.0	22.0	5.3	0.0	4.8
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	0.62		0.20
Lane Grp Cap(c), veh/h	111	1074	481	179	516	521	472	496	415	233	0	229
V/C Ratio(X)	0.78	0.88	0.00	2.43	0.80	0.80	0.81	1.13	1.38	0.53	0.00	0.49
Avail Cap(c_a), veh/h	144	1161	519	179	529	535	472	496	415	569	0	560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.2	27.3	0.0	39.2	27.0	27.0	28.3	30.3	30.3	33.7	0.0	33.5
Incr Delay (d2), s/veh	13.9	7.2	0.0	659.2	7.4	7.4	9.4	83.0	184.7	0.7	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	11.3	0.0	18.4	9.7	9.8	9.4	22.6	30.7	2.7	0.0	2.4
LnGrp Delay(d),s/veh	52.0	34.5	0.0	698.4	34.4	34.4	37.7	113.3	215.0	34.3	0.0	34.0
LnGrp LOS	D	C		F	C	C	D	F	F	C		C
Approach Vol, veh/h		1033			1261			1517			235	
Approach Delay, s/veh		36.0			263.4			132.6			34.2	
Approach LOS		D			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	28.8		27.2	9.5	29.8		16.1
Change Period (Y+Rc), s	* 5.3	* 4.7		* 5.2	* 5.2	* 4.7		5.5
Max Green Setting (Gmax), s	* 6.7	* 25		* 22	* 4.3	* 27		26.0
Max Q Clear Time (g_c+I1), s	6.0	19.7		24.0	6.3	23.0		7.3
Green Ext Time (p_c), s	0.0	2.0		0.0	0.0	1.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	143.0
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	460	0	450	0	1244	1305	0	976	310
Future Volume (veh/h)	0	0	0	460	0	450	0	1244	1305	0	976	310
Number				3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				494	8	489	0	1352	0	0	1061	0
Adj No. of Lanes				1	1	0	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	0	2	2	0	2	2
Cap, veh/h				642	9	559	0	2023	630	0	2023	630
Arrive On Green				0.36	0.36	0.36	0.00	0.40	0.00	0.00	0.40	0.00
Sat Flow, veh/h				1774	25	1545	0	5253	1583	0	5253	1583
Grp Volume(v), veh/h				494	0	497	0	1352	0	0	1061	0
Grp Sat Flow(s),veh/h/ln				1774	0	1570	0	1695	1583	0	1695	1583
Q Serve(g_s), s				10.1	0.0	12.2	0.0	9.0	0.0	0.0	6.5	0.0
Cycle Q Clear(g_c), s				10.1	0.0	12.2	0.0	9.0	0.0	0.0	6.5	0.0
Prop In Lane				1.00		0.98	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				642	0	568	0	2023	630	0	2023	630
V/C Ratio(X)				0.77	0.00	0.87	0.00	0.67	0.00	0.00	0.52	0.00
Avail Cap(c_a), veh/h				758	0	671	0	2777	865	0	2863	891
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				11.6	0.0	12.3	0.0	10.2	0.0	0.0	9.4	0.0
Incr Delay (d2), s/veh				3.3	0.0	9.8	0.0	0.1	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.5	0.0	6.8	0.0	4.2	0.0	0.0	3.1	0.0
LnGrp Delay(d),s/veh				14.9	0.0	22.1	0.0	10.3	0.0	0.0	9.5	0.0
LnGrp LOS				B		C		B			A	
Approach Vol, veh/h					991			1352			1061	
Approach Delay, s/veh					18.5			10.3			9.5	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		21.4				21.4		19.8
Change Period (Y+Rc), s		* 5				5.0		4.9
Max Green Setting (Gmax), s		* 23				22.5		17.6
Max Q Clear Time (g_c+I1), s		8.5				11.0		14.2
Green Ext Time (p_c), s		6.1				5.4		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	0	40	0	0	0	0	849	390	0	86	120
Future Volume (veh/h)	270	0	40	0	0	0	0	849	390	0	86	120
Number	7	4	14				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	306	0	29				0	923	0	0	93	0
Adj No. of Lanes	2	0	1				0	3	0	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	2
Cap, veh/h	563	0	250				0	1771	0	0	1771	551
Arrive On Green	0.16	0.00	0.16				0.00	0.35	0.00	0.00	0.35	0.00
Sat Flow, veh/h	3548	0	1577				0	5421	0	0	5253	1583
Grp Volume(v), veh/h	306	0	29				0	923	0	0	93	0
Grp Sat Flow(s),veh/h/ln	1774	0	1577				0	1695	0	0	1695	1583
Q Serve(g_s), s	1.7	0.0	0.3				0.0	3.0	0.0	0.0	0.3	0.0
Cycle Q Clear(g_c), s	1.7	0.0	0.3				0.0	3.0	0.0	0.0	0.3	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	563	0	250				0	1771	0	0	1771	551
V/C Ratio(X)	0.54	0.00	0.12				0.00	0.52	0.00	0.00	0.05	0.00
Avail Cap(c_a), veh/h	3129	0	1391				0	5064	0	0	5184	1614
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	8.2	0.0	7.6				0.0	5.5	0.0	0.0	4.6	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.1				0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2				0.0	1.4	0.0	0.0	0.1	0.0
LnGrp Delay(d),s/veh	8.5	0.0	7.7				0.0	5.6	0.0	0.0	4.6	0.0
LnGrp LOS	A		A					A			A	
Approach Vol, veh/h		335						923			93	
Approach Delay, s/veh		8.4						5.6			4.6	
Approach LOS		A						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		12.3		8.7		12.3		
Change Period (Y+Rc), s		* 5		* 5.4		5.0		
Max Green Setting (Gmax), s		* 22		* 19		21.0		
Max Q Clear Time (g_c+I1), s		2.3		3.7		5.0		
Green Ext Time (p_c), s		2.4		0.2		2.3		

Intersection Summary	
HCM 2010 Ctrl Delay	6.2
HCM 2010 LOS	A

Notes

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	736	230	10	10	1149	620	20
Future Volume (veh/h)	736	230	10	10	1149	620	20
Number	6	16		5	2	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	800	0		11	1249	674	22
Adj No. of Lanes	3	0		1	3	2	1
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2394	0		15	2979	815	375
Arrive On Green	0.47	0.00		0.01	0.59	0.24	0.24
Sat Flow, veh/h	5421	0		1774	5253	3442	1583
Grp Volume(v), veh/h	800	0		11	1249	674	22
Grp Sat Flow(s),veh/h/ln	1695	0		1774	1695	1721	1583
Q Serve(g_s), s	4.7	0.0		0.3	6.5	8.9	0.5
Cycle Q Clear(g_c), s	4.7	0.0		0.3	6.5	8.9	0.5
Prop In Lane		0.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2394	0		15	2979	815	375
V/C Ratio(X)	0.33	0.00		0.73	0.42	0.83	0.06
Avail Cap(c_a), veh/h	2394	0		196	3397	2119	975
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.0	0.0		23.7	5.4	17.3	14.1
Incr Delay (d2), s/veh	0.2	0.0		21.6	0.2	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0		0.2	3.1	4.3	0.2
LnGrp Delay(d),s/veh	8.1	0.0		45.3	5.6	18.2	14.2
LnGrp LOS	A			D	A	B	B
Approach Vol, veh/h	800				1260	696	
Approach Delay, s/veh	8.1				6.0	18.1	
Approach LOS	A				A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		33.1			5.5	27.6		14.8
Change Period (Y+Rc), s		5.0			* 5.1	5.0		3.5
Max Green Setting (Gmax), s		32.0			* 5.3	21.6		29.5
Max Q Clear Time (g_c+I1), s		8.5			2.3	6.7		10.9
Green Ext Time (p_c), s		19.6			0.0	13.3		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	10	440	900	532	30	320	920	220	10	237	592	170
Future Volume (veh/h)	10	440	900	532	30	320	920	220	10	237	592	170
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99		1.00		0.98		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1863
Adj Flow Rate, veh/h		478	978	578		348	1000	239		258	643	185
Adj No. of Lanes		2	3	0		2	3	1		2	3	1
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		524	1024	471		392	1341	411		306	1943	604
Arrive On Green		0.15	0.30	0.30		0.11	0.26	0.26		0.09	0.38	0.38
Sat Flow, veh/h		3442	3390	1560		3442	5085	1558		3442	5085	1580
Grp Volume(v), veh/h		478	978	578		348	1000	239		258	643	185
Grp Sat Flow(s),veh/h/ln		1721	1695	1560		1721	1695	1558		1721	1695	1580
Q Serve(g_s), s		19.1	39.5	42.2		13.9	25.2	18.6		10.3	12.5	11.5
Cycle Q Clear(g_c), s		19.1	39.5	42.2		13.9	25.2	18.6		10.3	12.5	11.5
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		524	1024	471		392	1341	411		306	1943	604
V/C Ratio(X)		0.91	0.96	1.23		0.89	0.75	0.58		0.84	0.33	0.31
Avail Cap(c_a), veh/h		613	1024	471		397	1341	411		431	2016	626
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		58.3	47.8	48.8		61.0	47.1	44.7		62.7	30.5	30.2
Incr Delay (d2), s/veh		15.3	18.1	119.7		20.0	2.1	1.4		7.5	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		10.2	21.1	33.7		7.7	12.0	8.2		5.2	5.8	5.0
LnGrp Delay(d),s/veh		73.6	66.0	168.5		81.0	49.2	46.1		70.3	30.6	30.3
LnGrp LOS		E	E	F		F	D	D		E	C	C
Approach Vol, veh/h			2034				1587				1086	
Approach Delay, s/veh			96.9				55.7				40.0	
Approach LOS			F				E				D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.9	52.4	26.8	42.7	11.3	59.0	21.4	48.0
Change Period (Y+Rc), s	5.5	* 5.6	5.5	5.8	5.5	* 5.6	5.5	5.8
Max Green Setting (Gmax), s	17.5	* 47	24.9	33.4	8.9	* 55	16.1	42.2
Max Q Clear Time (g_c+I1), s	12.3	48.8	21.1	27.2	5.9	14.5	15.9	44.2
Green Ext Time (p_c), s	0.1	0.0	0.2	3.9	0.0	7.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	71.9
HCM 2010 LOS	E

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	90	1231	330
Future Volume (veh/h)	90	1231	330
Number	5	2	12
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900
Adj Flow Rate, veh/h	98	1338	359
Adj No. of Lanes	2	3	0
Peak Hour Factor	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2
Cap, veh/h	143	1334	357
Arrive On Green	0.04	0.33	0.33
Sat Flow, veh/h	3442	3982	1066
Grp Volume(v), veh/h	98	1139	558
Grp Sat Flow(s),veh/h/ln	1721	1695	1657
Q Serve(g_s), s	3.9	46.8	46.8
Cycle Q Clear(g_c), s	3.9	46.8	46.8
Prop In Lane	1.00		0.64
Lane Grp Cap(c), veh/h	143	1135	555
V/C Ratio(X)	0.69	1.00	1.01
Avail Cap(c_a), veh/h	219	1135	555
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.1	46.5	46.5
Incr Delay (d2), s/veh	2.2	27.4	39.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	26.1	27.4
LnGrp Delay(d),s/veh	68.2	73.9	86.1
LnGrp LOS	E	F	F
Approach Vol, veh/h		1795	
Approach Delay, s/veh		77.4	
Approach LOS		E	
Timer			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	540	260	20	220	170	420	40	1522	130	690	1501	170
Future Volume (veh/h)	540	260	20	220	170	420	40	1522	130	690	1501	170
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	587	283	22	239	185	457	43	1654	141	750	1632	185
Adj No. of Lanes	2	3	0	2	1	2	2	3	0	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	534	1135	87	289	302	1103	75	1563	133	658	2528	773
Arrive On Green	0.16	0.24	0.24	0.08	0.16	0.16	0.02	0.33	0.33	0.19	0.50	0.50
Sat Flow, veh/h	3442	4810	367	3548	1863	3067	3442	4771	406	3442	5085	1555
Grp Volume(v), veh/h	587	198	107	239	185	457	43	1175	620	750	1632	185
Grp Sat Flow(s),veh/h/ln	1721	1695	1787	1774	1863	1534	1721	1695	1787	1721	1695	1555
Q Serve(g_s), s	21.5	6.6	6.7	9.2	12.8	15.7	1.7	45.4	45.4	26.5	32.9	9.4
Cycle Q Clear(g_c), s	21.5	6.6	6.7	9.2	12.8	15.7	1.7	45.4	45.4	26.5	32.9	9.4
Prop In Lane	1.00		0.21	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	534	800	422	289	302	1103	75	1111	585	658	2528	773
V/C Ratio(X)	1.10	0.25	0.25	0.83	0.61	0.41	0.58	1.06	1.06	1.14	0.65	0.24
Avail Cap(c_a), veh/h	534	834	440	433	403	1269	129	1111	585	658	2528	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	43.0	43.0	62.7	54.0	34.0	67.2	46.6	46.6	56.0	25.8	19.9
Incr Delay (d2), s/veh	68.9	0.1	0.1	5.0	0.7	0.1	2.6	43.6	54.1	80.3	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.3	3.1	3.3	4.7	6.6	6.7	0.8	27.9	31.1	19.9	15.5	4.1
LnGrp Delay(d),s/veh	127.5	43.0	43.1	67.7	54.7	34.1	69.7	90.2	100.7	136.4	26.3	19.9
LnGrp LOS	F	D	D	E	D	C	E	F	F	F	C	B
Approach Vol, veh/h		892			881			1838			2567	
Approach Delay, s/veh		98.6			47.6			93.3			58.0	
Approach LOS		F			D			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	74.6	27.0	28.5	32.0	51.1	16.8	38.7
Change Period (Y+Rc), s	5.5	* 5.7	5.5	* 6	5.5	* 5.7	5.5	* 6
Max Green Setting (Gmax), s	5.2	* 66	21.5	* 30	26.5	* 45	16.9	* 34
Max Q Clear Time (g_c+I1), s	3.7	34.9	23.5	17.7	28.5	47.4	11.2	8.7
Green Ext Time (p_c), s	0.0	13.2	0.0	1.2	0.0	0.0	0.1	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	72.9
HCM 2010 LOS	E

Notes

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	690	10	120	1130	910	140	1932	490	10	1281	170
Future Volume (vph)	690	10	120	1130	910	140	1932	490	10	1281	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8	6.8	4.5		4.6			4.6	4.0
Lane Util. Factor		0.91	0.86	0.91	0.88		0.86			0.91	1.00
Frpb, ped/bikes		1.00	0.99	0.98	1.00		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.88	0.85	0.85		0.97			1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1610	2770	1415	2787		6180			5085	1545
Flt Permitted		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		1610	2770	1415	2787		6180			5085	1545
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	750	11	130	1228	989	152	2100	533	11	1392	185
RTOR Reduction (vph)	0	0	32	38	59	0	1	0	0	0	0
Lane Group Flow (vph)	0	751	722	576	1082	0	2643	0	0	1392	185
Confl. Peds. (#/hr)	6	6		6	3	3		3	3		6
Confl. Bikes (#/hr)								2	2		3
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		5		6			2	
Permitted Phases				4							Free
Actuated Green, G (s)		37.2	37.2	37.2	26.5		40.4			71.4	120.0
Effective Green, g (s)		37.2	37.2	37.2	26.5		40.4			71.4	120.0
Actuated g/C Ratio		0.31	0.31	0.31	0.22		0.34			0.60	1.00
Clearance Time (s)		6.8	6.8	6.8	4.5		4.6			4.6	
Vehicle Extension (s)		1.0	1.0	1.0	3.0		1.0			1.0	
Lane Grp Cap (vph)		499	858	438	615		2080			3025	1545
v/s Ratio Prot		c0.47	0.26		c0.39		c0.43			0.27	
v/s Ratio Perm				0.41							0.12
v/c Ratio		1.51	1.30dr	1.32	1.76		1.27			0.46	0.12
Uniform Delay, d1		41.4	38.7	41.4	46.8		39.8			13.6	0.0
Progression Factor		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		237.5	7.2	157.3	348.2		125.8			0.0	0.2
Delay (s)		278.9	45.9	198.7	395.0		165.6			13.6	0.2
Level of Service		F	D	F	F		F			B	A
Approach Delay (s)			172.8				165.6			12.0	
Approach LOS			F				F			B	

Intersection Summary			
HCM 2000 Control Delay	170.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	115.3%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	660	0	340	0	1467	2075	0	1111	670
Future Volume (veh/h)	0	0	0	660	0	340	0	1467	2075	0	1111	670
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				717	0	370	0	1595	0	0	1208	0
Adj No. of Lanes				2	0	1	0	3	2	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				1095	0	504	0	2260	1238	0	2260	704
Arrive On Green				0.32	0.00	0.32	0.00	0.44	0.00	0.00	0.44	0.00
Sat Flow, veh/h				3442	0	1583	0	5253	2787	0	5253	1583
Grp Volume(v), veh/h				717	0	370	0	1595	0	0	1208	0
Grp Sat Flow(s),veh/h/ln				1721	0	1583	0	1695	1393	0	1695	1583
Q Serve(g_s), s				6.9	0.0	8.0	0.0	9.7	0.0	0.0	6.6	0.0
Cycle Q Clear(g_c), s				6.9	0.0	8.0	0.0	9.7	0.0	0.0	6.6	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1095	0	504	0	2260	1238	0	2260	704
V/C Ratio(X)				0.65	0.00	0.73	0.00	0.71	0.00	0.00	0.53	0.00
Avail Cap(c_a), veh/h				1392	0	640	0	2707	1483	0	2707	843
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				11.3	0.0	11.6	0.0	8.6	0.0	0.0	7.8	0.0
Incr Delay (d2), s/veh				0.7	0.0	3.3	0.0	0.5	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.3	0.0	3.8	0.0	4.5	0.0	0.0	3.0	0.0
LnGrp Delay(d),s/veh				12.0	0.0	14.9	0.0	9.1	0.0	0.0	7.8	0.0
LnGrp LOS				B		B		A			A	
Approach Vol, veh/h					1087			1595			1208	
Approach Delay, s/veh					13.0			9.1			7.8	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		21.6				21.6		16.7
Change Period (Y+Rc), s		4.6				4.6		4.5
Max Green Setting (Gmax), s		20.4				20.4		15.5
Max Q Clear Time (g_c+I1), s		11.7				8.6		10.0
Green Ext Time (p_c), s		5.3				6.4		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	40	530	1340	427	10	350	690	40	70	461	1106	340
Future Volume (veh/h)	40	530	1340	427	10	350	690	40	70	461	1106	340
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		1.00		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		576	1457	464		380	750	43		501	1202	370
Adj No. of Lanes		2	2	1		2	3	1		2	3	1
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		613	1098	484		267	1067	331		374	1472	452
Arrive On Green		0.20	0.34	0.34		0.09	0.23	0.23		0.12	0.32	0.32
Sat Flow, veh/h		3097	3185	1403		3097	4577	1420		3097	4577	1404
Grp Volume(v), veh/h		576	1457	464		380	750	43		501	1202	370
Grp Sat Flow(s),veh/h/ln		1549	1593	1403		1549	1526	1420		1549	1526	1404
Q Serve(g_s), s		26.6	50.0	47.0		12.5	21.8	3.5		17.5	35.0	35.2
Cycle Q Clear(g_c), s		26.6	50.0	47.0		12.5	21.8	3.5		17.5	35.0	35.2
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		613	1098	484		267	1067	331		374	1472	452
V/C Ratio(X)		0.94	1.33	0.96		1.42	0.70	0.13		1.34	0.82	0.82
Avail Cap(c_a), veh/h		641	1098	484		267	1067	331		374	1472	452
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		57.3	47.5	46.5		66.3	51.0	44.0		63.8	45.2	45.3
Incr Delay (d2), s/veh		21.1	153.3	31.1		210.9	3.3	0.6		170.1	4.1	12.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		13.2	45.4	22.3		13.2	9.5	1.4		16.3	15.4	15.2
LnGrp Delay(d),s/veh		78.4	200.8	77.6		277.1	54.3	44.6		233.9	49.4	57.8
LnGrp LOS		E	F	E		F	D	D		F	D	E
Approach Vol, veh/h			2497				1173				2073	
Approach Delay, s/veh			149.7				126.1				95.5	
Approach LOS			F				F				F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	48.0	34.2	39.8	18.6	52.4	18.0	56.0
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	17.5	* 42	30.0	32.5	14.2	* 46	12.5	50.0
Max Q Clear Time (g_c+I1), s	19.5	44.2	28.6	23.8	13.0	37.2	14.5	52.0
Green Ext Time (p_c), s	0.0	0.0	0.1	8.5	0.0	8.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	125.2
HCM 2010 LOS	F

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	40	220	1447	170
Future Volume (veh/h)	40	220	1447	170
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676
Adj Flow Rate, veh/h		239	1573	185
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2
Cap, veh/h		279	1332	408
Arrive On Green		0.09	0.29	0.29
Sat Flow, veh/h		3097	4577	1401
Grp Volume(v), veh/h		239	1573	185
Grp Sat Flow(s),veh/h/ln		1549	1526	1401
Q Serve(g_s), s		11.0	42.2	15.6
Cycle Q Clear(g_c), s		11.0	42.2	15.6
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		279	1332	408
V/C Ratio(X)		0.86	1.18	0.45
Avail Cap(c_a), veh/h		303	1332	408
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		65.1	51.4	42.0
Incr Delay (d2), s/veh		18.3	89.4	1.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.4	28.8	6.2
LnGrp Delay(d),s/veh		83.4	140.8	43.6
LnGrp LOS		F	F	D
Approach Vol, veh/h			1997	
Approach Delay, s/veh			125.0	
Approach LOS			F	
Timer				

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	510	340	30	10	180	300	210	90	1049	60	190	1386
Future Volume (veh/h)	510	340	30	10	180	300	210	90	1049	60	190	1386
Number	3	8	18		7	4	14	1	6	16	5	2
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99		1.00		0.97	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863		1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	554	370	33		196	391	185	98	1140	65	207	1507
Adj No. of Lanes	2	2	1		2	2	1	2	4	1	2	3
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	382	1028	454		267	949	391	156	2006	494	277	1770
Arrive On Green	0.11	0.29	0.29		0.08	0.25	0.25	0.05	0.31	0.31	0.08	0.35
Sat Flow, veh/h	3442	3539	1562		3548	3725	1536	3442	6408	1577	3442	5085
Grp Volume(v), veh/h	554	370	33		196	391	185	98	1140	65	207	1507
Grp Sat Flow(s),veh/h/ln	1721	1770	1562		1774	1863	1536	1721	1602	1577	1721	1695
Q Serve(g_s), s	10.5	7.8	1.4		5.1	8.3	9.7	2.6	14.1	2.8	5.6	26.0
Cycle Q Clear(g_c), s	10.5	7.8	1.4		5.1	8.3	9.7	2.6	14.1	2.8	5.6	26.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	382	1028	454		267	949	391	156	2006	494	277	1770
V/C Ratio(X)	1.45	0.36	0.07		0.73	0.41	0.47	0.63	0.57	0.13	0.75	0.85
Avail Cap(c_a), veh/h	382	1200	530		394	1260	519	160	2006	494	491	1907
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	26.6	24.3		42.8	29.4	29.9	44.4	27.2	23.3	42.6	28.6
Incr Delay (d2), s/veh	217.1	0.3	0.1		1.5	0.5	1.5	6.1	0.3	0.1	1.5	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.4	3.8	0.6		2.6	4.3	4.3	1.4	6.2	1.2	2.7	12.8
LnGrp Delay(d),s/veh	259.2	26.9	24.4		44.3	29.9	31.4	50.5	27.5	23.4	44.1	32.8
LnGrp LOS	F	C	C		D	C	C	D	C	C	D	C
Approach Vol, veh/h		957				772			1303			1986
Approach Delay, s/veh		161.3				33.9			29.0			33.0
Approach LOS		F				C			C			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	38.7	16.0	30.1	13.1	35.4	12.6	33.5
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	* 6
Max Green Setting (Gmax), s	4.4	* 36	10.5	32.0	13.5	* 26	10.5	* 32
Max Q Clear Time (g_c+I1), s	4.6	28.0	12.5	11.7	7.6	16.1	7.1	9.8
Green Ext Time (p_c), s	0.0	5.0	0.0	8.8	0.1	9.7	0.0	9.3

Intersection Summary	
HCM 2010 Ctrl Delay	56.6
HCM 2010 LOS	E

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	250
Future Volume (veh/h)	250
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.99
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	272
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	544
Arrive On Green	0.35
Sat Flow, veh/h	1563
Grp Volume(v), veh/h	272
Grp Sat Flow(s),veh/h/ln	1563
Q Serve(g_s), s	13.0
Cycle Q Clear(g_c), s	13.0
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	544
V/C Ratio(X)	0.50
Avail Cap(c_a), veh/h	586
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	24.3
Incr Delay (d2), s/veh	1.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	5.8
LnGrp Delay(d),s/veh	25.8
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1260	0	350	0	0	0	0	1639	110	0	1476	400
Future Volume (veh/h)	1260	0	350	0	0	0	0	1639	110	0	1476	400
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	1370	0	380				0	1782	0	0	1604	0
Adj No. of Lanes	3	0	2				0	4	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	1844	0	1027				0	3276	696	0	2457	696
Arrive On Green	0.37	0.00	0.37				0.00	0.44	0.00	0.00	0.44	0.00
Sat Flow, veh/h	5003	0	2787				0	7451	1583	0	5588	1583
Grp Volume(v), veh/h	1370	0	380				0	1782	0	0	1604	0
Grp Sat Flow(s),veh/h/ln	1668	0	1393				0	1863	1583	0	1863	1583
Q Serve(g_s), s	11.4	0.0	4.8				0.0	8.4	0.0	0.0	10.8	0.0
Cycle Q Clear(g_c), s	11.4	0.0	4.8				0.0	8.4	0.0	0.0	10.8	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	1844	0	1027				0	3276	696	0	2457	696
V/C Ratio(X)	0.74	0.00	0.37				0.00	0.54	0.00	0.00	0.65	0.00
Avail Cap(c_a), veh/h	2139	0	1191				0	3994	849	0	2949	835
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	13.2	0.0	11.1				0.0	9.9	0.0	0.0	10.6	0.0
Incr Delay (d2), s/veh	1.2	0.0	0.2				0.0	0.1	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	1.8				0.0	4.3	0.0	0.0	5.5	0.0
LnGrp Delay(d),s/veh	14.4	0.0	11.3				0.0	9.9	0.0	0.0	10.8	0.0
LnGrp LOS	B		B					A			B	
Approach Vol, veh/h		1750						1782			1604	
Approach Delay, s/veh		13.7						9.9			10.8	
Approach LOS		B						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		25.8		22.2		25.8		
Change Period (Y+Rc), s		* 4.7		4.5		4.7		
Max Green Setting (Gmax), s		* 26		20.5		25.3		
Max Q Clear Time (g_c+I1), s		10.4		13.4		12.8		
Green Ext Time (p_c), s		9.3		4.3		8.1		

Intersection Summary	
HCM 2010 Ctrl Delay	11.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	270	0	640	0	2479	390	0	1616	1350
Future Volume (veh/h)	0	0	0	270	0	640	0	2479	390	0	1616	1350
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	0	1863	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h				293	0	696	0	2695	0	0	1757	0
Adj No. of Lanes				2	0	2	0	3	1	0	3	2
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				969	0	784	0	3308	937	0	3010	1650
Arrive On Green				0.28	0.00	0.28	0.00	0.59	0.00	0.00	0.59	0.00
Sat Flow, veh/h				3442	0	2787	0	5588	1583	0	5253	2787
Grp Volume(v), veh/h				293	0	696	0	2695	0	0	1757	0
Grp Sat Flow(s),veh/h/ln				1721	0	1393	0	1863	1583	0	1695	1393
Q Serve(g_s), s				5.0	0.0	17.9	0.0	28.5	0.0	0.0	16.2	0.0
Cycle Q Clear(g_c), s				5.0	0.0	17.9	0.0	28.5	0.0	0.0	16.2	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				969	0	784	0	3308	937	0	3010	1650
V/C Ratio(X)				0.30	0.00	0.89	0.00	0.81	0.00	0.00	0.58	0.00
Avail Cap(c_a), veh/h				1032	0	836	0	3598	1019	0	3254	1783
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				21.2	0.0	25.8	0.0	12.1	0.0	0.0	9.5	0.0
Incr Delay (d2), s/veh				0.2	0.0	11.0	0.0	1.3	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.4	0.0	8.1	0.0	14.9	0.0	0.0	7.5	0.0
LnGrp Delay(d),s/veh				21.3	0.0	36.8	0.0	13.3	0.0	0.0	9.7	0.0
LnGrp LOS				C		D		B			A	
Approach Vol, veh/h					989			2695			1757	
Approach Delay, s/veh					32.2			13.3			9.7	
Approach LOS					C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		49.4				49.4		25.6
Change Period (Y+Rc), s		* 5				5.0		4.5
Max Green Setting (Gmax), s		* 48				48.0		22.5
Max Q Clear Time (g_c+I1), s		30.5				18.2		19.9
Green Ext Time (p_c), s		13.9				20.3		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	15.6
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	130	40	316	60	20	60	30	364	2635	20	60	2520
Future Volume (veh/h)	130	40	316	60	20	60	30	364	2635	20	60	2520
Number	7	4	14	3	8	18		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	141	162	264	65	22	65		396	2864	22	65	2739
Adj No. of Lanes	0	1	1	1	1	0		2	3	0	1	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	164	188	304	132	31	91		308	2595	20	83	2306
Arrive On Green	0.19	0.19	0.19	0.07	0.07	0.07		0.09	0.50	0.50	0.05	0.45
Sat Flow, veh/h	847	973	1573	1774	415	1226		3442	5206	40	1774	5085
Grp Volume(v), veh/h	303	0	264	65	0	87		396	1863	1023	65	2739
Grp Sat Flow(s),veh/h/ln	1820	0	1573	1774	0	1641		1721	1695	1856	1774	1695
Q Serve(g_s), s	17.8	0.0	18.0	3.9	0.0	5.7		9.9	55.2	55.2	4.0	50.2
Cycle Q Clear(g_c), s	17.8	0.0	18.0	3.9	0.0	5.7		9.9	55.2	55.2	4.0	50.2
Prop In Lane	0.47		1.00	1.00		0.75		1.00		0.02	1.00	
Lane Grp Cap(c), veh/h	352	0	304	132	0	122		308	1690	925	83	2306
V/C Ratio(X)	0.86	0.00	0.87	0.49	0.00	0.71		1.29	1.10	1.11	0.78	1.19
Avail Cap(c_a), veh/h	526	0	455	513	0	474		308	1690	925	179	2306
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	0.0	43.3	49.2	0.0	50.1		50.4	27.8	27.8	52.2	30.3
Incr Delay (d2), s/veh	6.4	0.0	7.9	1.1	0.0	2.9		151.4	55.4	63.1	5.8	89.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	0.0	8.5	2.0	0.0	2.7		11.1	38.6	44.2	2.1	42.3
LnGrp Delay(d),s/veh	49.6	0.0	51.2	50.3	0.0	53.0		201.8	83.2	90.9	58.0	119.5
LnGrp LOS	D		D	D		D		F	F	F	E	F
Approach Vol, veh/h		567			152				3282			2934
Approach Delay, s/veh		50.3			51.8				99.9			113.6
Approach LOS		D			D				F			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	55.1		26.9	10.0	60.1		13.7
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 9.9	* 50		32.0	* 11	* 49		32.0
Max Q Clear Time (g_c+I1), s	11.9	52.2		20.0	6.0	57.2		7.7
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	0.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	100.6
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	120
Future Volume (veh/h)	120
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.97
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	130
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	699
Arrive On Green	0.45
Sat Flow, veh/h	1542
Grp Volume(v), veh/h	130
Grp Sat Flow(s),veh/h/ln	1542
Q Serve(g_s), s	5.6
Cycle Q Clear(g_c), s	5.6
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	699
V/C Ratio(X)	0.19
Avail Cap(c_a), veh/h	699
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	18.1
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	2.4
LnGrp Delay(d),s/veh	18.1
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1160	20	20	1161	1539	340
Future Volume (veh/h)	1160	20	20	1161	1539	340
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1261	22	22	1262	1673	370
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1298	621	27	1860	1654	740
Arrive On Green	0.38	0.38	0.02	0.53	0.47	0.47
Sat Flow, veh/h	3442	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	1261	22	22	1262	1673	370
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770	1770	1583
Q Serve(g_s), s	45.9	1.1	1.6	33.5	59.6	20.7
Cycle Q Clear(g_c), s	45.9	1.1	1.6	33.5	59.6	20.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1298	621	27	1860	1654	740
V/C Ratio(X)	0.97	0.04	0.82	0.68	1.01	0.50
Avail Cap(c_a), veh/h	1309	626	56	1926	1654	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.0	23.9	62.6	22.3	34.0	23.6
Incr Delay (d2), s/veh	18.2	0.0	19.3	0.7	25.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.0	1.3	0.9	16.5	34.7	9.1
LnGrp Delay(d),s/veh	57.3	23.9	81.9	23.0	58.9	23.8
LnGrp LOS	E	C	F	C	F	C
Approach Vol, veh/h	1283			1284	2043	
Approach Delay, s/veh	56.7			24.0	52.6	
Approach LOS	E			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	7.4	66.5		53.6		73.9		
Change Period (Y+Rc), s	5.5	* 6.9		5.5		* 6.9		
Max Green Setting (Gmax), s	4.0	* 60		48.5		* 69		
Max Q Clear Time (g_c+I1), s	3.6	61.6		47.9		35.5		
Green Ext Time (p_c), s	0.0	0.0		0.2		9.5		

Intersection Summary	
HCM 2010 Ctrl Delay	45.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	894	1447	0	1036	120	50	783
Future Volume (veh/h)	894	1447	0	1036	120	50	783
Number	1	6		2	12	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h	972	1573		1126	130	54	851
Adj No. of Lanes	2	2		2	1	1	1
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1034	2313		1042	466	370	330
Arrive On Green	0.30	0.65		0.29	0.29	0.21	0.21
Sat Flow, veh/h	3442	3632		3632	1583	1774	1583
Grp Volume(v), veh/h	972	1573		1126	130	54	851
Grp Sat Flow(s),veh/h/ln	1721	1770		1770	1583	1774	1583
Q Serve(g_s), s	24.4	24.6		26.1	5.6	2.2	18.5
Cycle Q Clear(g_c), s	24.4	24.6		26.1	5.6	2.2	18.5
Prop In Lane	1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1034	2313		1042	466	370	330
V/C Ratio(X)	0.94	0.68		1.08	0.28	0.15	2.57
Avail Cap(c_a), veh/h	1087	2313		1042	466	370	330
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	9.6		31.3	24.0	28.6	35.1
Incr Delay (d2), s/veh	14.3	0.7		52.2	0.1	0.1	717.5
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.7	12.0		20.2	2.5	1.1	74.0
LnGrp Delay(d),s/veh	44.5	10.2		83.5	24.2	28.7	752.6
LnGrp LOS	D	B		F	C	C	F
Approach Vol, veh/h		2545		1256		905	
Approach Delay, s/veh		23.3		77.4		709.4	
Approach LOS		C		E		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	31.8	32.8				64.6		24.0
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 28	* 26				* 50		18.5
Max Q Clear Time (g_c+I1), s	26.4	28.1				26.6		20.5
Green Ext Time (p_c), s	0.2	0.0				7.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	169.7
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	170	10	180	70	0	10	0	110	0	0	0
Future Volume (veh/h)	0	170	10	180	70	0	10	0	110	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	185	11	196	76	0	11	0	120	0	0	0
Adj No. of Lanes	1	2	1	1	2	1	1	3	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	410	184	188	1124	503	25	2500	778	4	1942	605
Arrive On Green	0.00	0.12	0.12	0.11	0.32	0.00	0.01	0.00	0.49	0.00	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	5085	1583	1774	5085	1583
Grp Volume(v), veh/h	0	185	11	196	76	0	11	0	120	0	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1695	1583	1774	1695	1583
Q Serve(g_s), s	0.0	2.3	0.3	5.0	0.7	0.0	0.3	0.0	2.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.3	0.3	5.0	0.7	0.0	0.3	0.0	2.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	4	410	184	188	1124	503	25	2500	778	4	1942	605
V/C Ratio(X)	0.00	0.45	0.06	1.04	0.07	0.00	0.44	0.00	0.15	0.00	0.00	0.00
Avail Cap(c_a), veh/h	188	1352	605	188	1352	605	188	2500	778	188	1942	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.4	18.5	21.1	11.2	0.0	23.0	0.0	6.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.1	76.9	0.0	0.0	11.4	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.1	6.4	0.3	0.0	0.2	0.0	0.9	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	20.2	18.7	98.1	11.2	0.0	34.4	0.0	7.0	0.0	0.0	0.0
LnGrp LOS		C	B	F	B		C		A			
Approach Vol, veh/h		196			272			131			0	
Approach Delay, s/veh		20.1			73.8			9.3			0.0	
Approach LOS		C			E			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	27.7	9.5	10.0	5.2	22.5	0.0	19.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	0.0	4.0	7.0	4.3	2.3	0.0	0.0	2.7
Green Ext Time (p_c), s	0.0	0.3	0.0	1.3	0.0	0.0	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	42.1
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	380	340	0	160	170	230	919	0	280	1033	370
Future Volume (veh/h)	470	380	340	0	160	170	230	919	0	280	1033	370
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	511	413	370	0	174	185	250	999	0	304	1123	402
Adj No. of Lanes	2	2	1	2	2	1	2	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	608	1425	638	5	562	252	334	1435	447	391	1519	473
Arrive On Green	0.18	0.40	0.40	0.00	0.16	0.16	0.10	0.28	0.00	0.11	0.30	0.30
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	5085	1583	3442	5085	1583
Grp Volume(v), veh/h	511	413	370	0	174	185	250	999	0	304	1123	402
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1695	1583	1721	1695	1583
Q Serve(g_s), s	9.6	5.3	12.2	0.0	2.9	7.5	4.7	11.8	0.0	5.8	13.3	16.0
Cycle Q Clear(g_c), s	9.6	5.3	12.2	0.0	2.9	7.5	4.7	11.8	0.0	5.8	13.3	16.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	608	1425	638	5	562	252	334	1435	447	391	1519	473
V/C Ratio(X)	0.84	0.29	0.58	0.00	0.31	0.74	0.75	0.70	0.00	0.78	0.74	0.85
Avail Cap(c_a), veh/h	642	1425	638	257	951	426	334	1435	447	391	1519	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	13.5	15.6	0.0	24.9	26.8	29.4	21.5	0.0	28.9	21.1	22.1
Incr Delay (d2), s/veh	9.4	0.1	1.3	0.0	0.3	4.2	9.0	2.8	0.0	9.6	3.3	17.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	2.6	5.5	0.0	1.5	3.5	2.7	5.8	0.0	3.3	6.7	9.2
LnGrp Delay(d),s/veh	36.1	13.6	16.9	0.0	25.2	31.0	38.4	24.3	0.0	38.5	24.4	39.3
LnGrp LOS	D	B	B		C	C	D	C		D	C	D
Approach Vol, veh/h		1294			359			1249			1829	
Approach Delay, s/veh		23.4			28.2			27.1			30.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	23.4	0.0	31.5	11.0	24.5	16.3	15.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.6	18.9	5.0	25.5	6.5	20.0	12.5	18.0
Max Q Clear Time (g_c+I1), s	7.8	13.8	0.0	14.2	6.7	18.0	11.6	9.5
Green Ext Time (p_c), s	0.0	4.7	0.0	4.6	0.0	1.9	0.2	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	27.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	140	50	56	100	10	40	351	14	10	681	280
Future Volume (veh/h)	250	140	50	56	100	10	40	351	14	10	681	280
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	272	152	54	61	109	11	43	382	15	11	740	304
Adj No. of Lanes	1	2	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	864	387	98	217	185	78	1271	569	25	1166	521
Arrive On Green	0.18	0.24	0.24	0.06	0.12	0.12	0.04	0.36	0.36	0.01	0.33	0.33
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	272	152	54	61	109	11	43	382	15	11	740	304
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	8.1	1.9	1.5	1.8	3.0	0.3	1.3	4.3	0.3	0.3	9.7	8.8
Cycle Q Clear(g_c), s	8.1	1.9	1.5	1.8	3.0	0.3	1.3	4.3	0.3	0.3	9.7	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	324	864	387	98	217	185	78	1271	569	25	1166	521
V/C Ratio(X)	0.84	0.18	0.14	0.62	0.50	0.06	0.55	0.30	0.03	0.44	0.63	0.58
Avail Cap(c_a), veh/h	352	1449	648	207	610	519	161	1271	569	161	1166	521
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	16.4	16.3	25.4	22.8	21.6	25.7	12.7	11.4	26.9	15.6	15.3
Incr Delay (d2), s/veh	15.4	0.1	0.2	6.4	1.8	0.1	6.0	0.6	0.1	11.7	2.6	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.9	0.7	1.1	1.7	0.2	0.8	2.2	0.2	0.2	5.2	4.5
LnGrp Delay(d),s/veh	37.0	16.5	16.4	31.8	24.6	21.7	31.8	13.3	11.5	38.6	18.3	20.0
LnGrp LOS	D	B	B	C	C	C	C	B	B	D	B	C
Approach Vol, veh/h		478			181			440			1055	
Approach Delay, s/veh		28.2			26.8			15.0			19.0	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	24.2	7.5	17.9	6.9	22.6	14.5	10.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.1	6.4	22.5	5.0	18.1	10.9	18.0
Max Q Clear Time (g_c+I1), s	2.3	6.3	3.8	3.9	3.3	11.7	10.1	5.0
Green Ext Time (p_c), s	0.0	6.7	0.0	1.6	0.0	4.2	0.1	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	20.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	740	526	56	350	90	295	216	64	160	384	40
Future Volume (veh/h)	20	740	526	56	350	90	295	216	64	160	384	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	804	572	61	380	98	321	235	70	174	417	43
Adj No. of Lanes	2	3	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	1569	488	183	1189	532	469	912	408	277	715	320
Arrive On Green	0.03	0.31	0.31	0.05	0.34	0.34	0.14	0.26	0.26	0.08	0.20	0.20
Sat Flow, veh/h	3442	5085	1583	3442	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	22	804	572	61	380	98	321	235	70	174	417	43
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	0.4	7.8	18.5	1.0	4.8	2.6	5.3	3.2	2.1	2.9	6.4	1.3
Cycle Q Clear(g_c), s	0.4	7.8	18.5	1.0	4.8	2.6	5.3	3.2	2.1	2.9	6.4	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	1569	488	183	1189	532	469	912	408	277	715	320
V/C Ratio(X)	0.25	0.51	1.17	0.33	0.32	0.18	0.68	0.26	0.17	0.63	0.58	0.13
Avail Cap(c_a), veh/h	287	1569	488	287	1189	532	1033	1770	792	488	1210	541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	17.0	20.7	27.4	14.8	14.1	24.7	17.7	17.3	26.7	21.6	19.6
Incr Delay (d2), s/veh	1.5	0.3	97.1	1.1	0.2	0.2	1.8	0.1	0.2	2.3	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.7	21.2	0.5	2.3	1.2	2.7	1.6	0.9	1.5	3.2	0.6
LnGrp Delay(d),s/veh	30.1	17.3	117.8	28.4	15.0	14.3	26.5	17.8	17.5	29.1	22.4	19.8
LnGrp LOS	C	B	F	C	B	B	C	B	B	C	C	B
Approach Vol, veh/h		1398			539			626			634	
Approach Delay, s/veh		58.6			16.4			22.2			24.1	
Approach LOS		E			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	20.0	7.7	23.0	12.7	16.6	6.0	24.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	30.0	5.0	18.5	18.0	20.5	5.0	18.5
Max Q Clear Time (g_c+I1), s	4.9	5.2	3.0	20.5	7.3	8.4	2.4	6.8
Green Ext Time (p_c), s	0.2	5.0	0.0	0.0	0.8	3.7	0.0	7.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	180	120	50	90	70	70	103	40	90	115	20
Future Volume (veh/h)	30	180	120	50	90	70	70	103	40	90	115	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	196	130	54	98	76	76	112	43	98	125	22
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	318	270	179	347	295	113	1274	570	250	1305	584
Arrive On Green	0.04	0.17	0.17	0.05	0.19	0.19	0.06	0.36	0.36	0.07	0.37	0.37
Sat Flow, veh/h	1774	1863	1583	3442	1863	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	33	196	130	54	98	76	76	112	43	98	125	22
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1721	1863	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.0	5.1	3.9	0.8	2.4	2.1	2.2	1.1	0.9	1.4	1.2	0.5
Cycle Q Clear(g_c), s	1.0	5.1	3.9	0.8	2.4	2.1	2.2	1.1	0.9	1.4	1.2	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	65	318	270	179	347	295	113	1274	570	250	1305	584
V/C Ratio(X)	0.51	0.62	0.48	0.30	0.28	0.26	0.67	0.09	0.08	0.39	0.10	0.04
Avail Cap(c_a), veh/h	170	642	546	330	642	546	187	1274	570	343	1305	584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	20.1	19.6	23.8	18.3	18.2	23.9	11.0	11.0	23.1	10.8	10.5
Incr Delay (d2), s/veh	6.1	2.0	1.3	0.9	0.4	0.5	6.7	0.1	0.3	1.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.8	1.8	0.4	1.2	1.0	1.3	0.6	0.4	0.7	0.6	0.2
LnGrp Delay(d),s/veh	30.8	22.0	20.9	24.8	18.7	18.6	30.6	11.2	11.2	24.1	10.9	10.7
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		359			228			231			245	
Approach Delay, s/veh		22.4			20.1			17.6			16.2	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	23.3	7.2	13.4	7.8	23.8	6.4	14.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.2	18.8	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	3.4	3.1	2.8	7.1	4.2	3.2	3.0	4.4
Green Ext Time (p_c), s	0.0	1.4	0.0	1.8	0.0	1.4	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.4
HCM 2010 LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	0	0	0	0	30
Future Volume (veh/h)	30	0	0	0	0	30
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	0	0	0	0	33
Adj No. of Lanes	2	2	2	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	139	143	12	6	1145	1022
Arrive On Green	0.04	0.00	0.00	0.00	0.00	0.65
Sat Flow, veh/h	3442	3632	-82054	1583	1774	1583
Grp Volume(v), veh/h	33	0	0	0	0	33
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	139	143	12	6	1145	1022
V/C Ratio(X)	0.24	0.00	0.00	0.00	0.00	0.03
Avail Cap(c_a), veh/h	601	3397	2223	995	1145	1022
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	0.0	0.0	1.8
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.0	0.0	0.4
LnGrp Delay(d),s/veh	14.2	0.0	0.0	0.0	0.0	1.9
LnGrp LOS	B					A
Approach Vol, veh/h		33	0		33	
Approach Delay, s/veh		14.2	0.0		1.9	
Approach LOS		B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				5.7		23.0	5.7	0.0
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				27.5		18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s				0.0		2.2	2.3	0.0
Green Ext Time (p_c), s				0.0		0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	320	90	100	100	0	70	0	20	0	0	0
Future Volume (veh/h)	0	320	90	100	100	0	70	0	20	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	348	98	109	109	0	76	0	22	0	0	0
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	8	1345	602	613	1345	602	149	412	351	8	8	7
Arrive On Green	0.00	0.38	0.38	0.38	0.38	0.00	0.08	0.00	0.22	0.00	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	940	3539	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	0	348	98	109	109	0	76	0	22	0	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	940	1770	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	1.5	0.9	2.0	0.4	0.0	0.9	0.0	0.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.5	0.9	3.6	0.4	0.0	0.9	0.0	0.2	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	8	1345	602	613	1345	602	149	412	351	8	8	7
V/C Ratio(X)	0.00	0.26	0.16	0.18	0.08	0.00	0.51	0.00	0.06	0.00	0.00	0.00
Avail Cap(c_a), veh/h	393	4310	1928	1005	2821	1262	432	1567	1332	393	1526	1297
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.8	4.6	6.0	4.5	0.0	9.9	0.0	6.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.1	0.0	0.0	2.7	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.4	0.5	0.2	0.0	0.6	0.0	0.1	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	4.9	4.8	6.2	4.5	0.0	12.6	0.0	7.0	0.0	0.0	0.0
LnGrp LOS		A	A	A	A		B		A			
Approach Vol, veh/h		446			218			98			0	
Approach Delay, s/veh		4.9			5.3			11.3			0.0	
Approach LOS		A			A			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	9.5		13.1	6.4	3.1	0.0	13.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0		27.5	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	0.0	2.2		3.5	2.9	0.0	0.0	5.6
Green Ext Time (p_c), s	0.0	0.0		4.0	0.0	0.0	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	5.8
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	70	10	10	0	20	20	10	0	20	30
Future Volume (veh/h)	20	10	70	10	10	0	20	20	10	0	20	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	11	76	11	11	0	22	22	11	0	22	33
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	183	156	25	160	136	48	1052	894	4	801	681
Arrive On Green	0.03	0.10	0.10	0.01	0.09	0.00	0.03	0.56	0.56	0.00	0.43	0.43
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	22	11	76	11	11	0	22	22	11	0	22	33
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.5	0.2	1.9	0.3	0.2	0.0	0.5	0.2	0.1	0.0	0.3	0.5
Cycle Q Clear(g_c), s	0.5	0.2	1.9	0.3	0.2	0.0	0.5	0.2	0.1	0.0	0.3	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	48	183	156	25	160	136	48	1052	894	4	801	681
V/C Ratio(X)	0.46	0.06	0.49	0.43	0.07	0.00	0.46	0.02	0.01	0.00	0.03	0.05
Avail Cap(c_a), veh/h	212	801	681	212	801	681	212	1052	894	212	801	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	20.1	17.1	17.9	20.5	17.6	0.0	20.1	4.0	4.0	0.0	6.9	6.9
Incr Delay (d2), s/veh	6.7	0.1	2.4	11.2	0.2	0.0	6.7	0.0	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.9	0.2	0.1	0.0	0.3	0.1	0.1	0.0	0.2	0.2
LnGrp Delay(d),s/veh	26.8	17.2	20.2	31.6	17.8	0.0	26.8	4.1	4.0	0.0	6.9	7.1
LnGrp LOS	C	B	C	C	B		C	A	A		A	A
Approach Vol, veh/h		109			22			55			55	
Approach Delay, s/veh		21.2			24.7			13.1			7.0	
Approach LOS		C			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	28.1	5.1	8.6	5.6	22.5	5.6	8.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	0.0	2.2	2.3	3.9	2.5	2.5	2.5	2.2
Green Ext Time (p_c), s	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	16.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	480	210	30	310	20	60	10	20	30	10	30
Future Volume (veh/h)	70	480	210	30	310	20	60	10	20	30	10	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	76	522	228	33	337	22	65	11	22	33	11	33
Adj No. of Lanes	1	3	1	2	2	1	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	1243	387	124	771	345	198	656	558	64	616	524
Arrive On Green	0.06	0.24	0.24	0.04	0.22	0.22	0.06	0.35	0.35	0.04	0.33	0.33
Sat Flow, veh/h	1774	5085	1583	3442	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	76	522	228	33	337	22	65	11	22	33	11	33
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.3	4.7	6.9	0.5	4.5	0.6	1.0	0.2	0.5	1.0	0.2	0.8
Cycle Q Clear(g_c), s	2.3	4.7	6.9	0.5	4.5	0.6	1.0	0.2	0.5	1.0	0.2	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	1243	387	124	771	345	198	656	558	64	616	524
V/C Ratio(X)	0.68	0.42	0.59	0.27	0.44	0.06	0.33	0.02	0.04	0.52	0.02	0.06
Avail Cap(c_a), veh/h	163	1683	524	316	1171	524	316	656	558	163	616	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	17.3	18.1	25.5	18.4	16.9	24.6	11.5	11.6	25.7	12.2	12.4
Incr Delay (d2), s/veh	7.1	0.2	1.4	1.1	0.4	0.1	1.0	0.0	0.1	6.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.2	3.1	0.3	2.2	0.3	0.5	0.1	0.2	0.6	0.1	0.4
LnGrp Delay(d),s/veh	32.1	17.5	19.6	26.6	18.8	16.9	25.6	11.5	11.7	32.0	12.3	12.7
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		826			392			98			77	
Approach Delay, s/veh		19.4			19.3			20.9			20.9	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	23.7	6.5	17.8	7.6	22.5	7.9	16.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	3.0	2.5	2.5	8.9	3.0	2.8	4.3	6.5
Green Ext Time (p_c), s	0.0	0.2	0.0	4.4	0.0	0.2	0.0	5.1

Intersection Summary	
HCM 2010 Ctrl Delay	19.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	202	50	60	197	20	20	10	30	20	10	22
Future Volume (veh/h)	17	202	50	60	197	20	20	10	30	20	10	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	18	220	54	65	214	22	22	11	33	22	11	24
Adj No. of Lanes	2	1	1	1	1	1	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	354	301	106	424	361	91	674	573	47	674	573
Arrive On Green	0.02	0.19	0.19	0.06	0.23	0.23	0.03	0.36	0.36	0.03	0.36	0.36
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	18	220	54	65	214	22	22	11	33	22	11	24
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.3	5.4	1.4	1.8	5.0	0.5	0.3	0.2	0.7	0.6	0.2	0.5
Cycle Q Clear(g_c), s	0.3	5.4	1.4	1.8	5.0	0.5	0.3	0.2	0.7	0.6	0.2	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	76	354	301	106	424	361	91	674	573	47	674	573
V/C Ratio(X)	0.24	0.62	0.18	0.62	0.50	0.06	0.24	0.02	0.06	0.47	0.02	0.04
Avail Cap(c_a), veh/h	346	674	573	178	674	573	346	674	573	178	674	573
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	18.5	16.9	22.8	16.8	15.0	23.7	10.2	10.3	23.9	10.2	10.3
Incr Delay (d2), s/veh	1.6	1.8	0.3	5.7	0.9	0.1	1.4	0.0	0.2	7.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.9	0.6	1.0	2.7	0.2	0.2	0.1	0.3	0.4	0.1	0.2
LnGrp Delay(d),s/veh	25.5	20.3	17.2	28.5	17.7	15.1	25.1	10.2	10.5	31.1	10.2	10.4
LnGrp LOS	C	C	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		292			301			66			57	
Approach Delay, s/veh		20.0			19.8			15.3			18.3	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	22.5	7.5	14.0	5.8	22.5	5.6	15.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.6	2.7	3.8	7.4	2.3	2.5	2.3	7.0
Green Ext Time (p_c), s	0.0	0.2	0.0	2.1	0.0	0.2	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	19.4
HCM 2010 LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	100	100	50	40	40
Future Volume (veh/h)	100	100	100	50	40	40
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	109	109	109	54	43	43
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	196	1765	651	291	165	147
Arrive On Green	0.11	0.50	0.18	0.18	0.09	0.09
Sat Flow, veh/h	1774	3632	3632	1583	1774	1583
Grp Volume(v), veh/h	109	109	109	54	43	43
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1583	1774	1583
Q Serve(g_s), s	1.3	0.4	0.6	0.6	0.5	0.6
Cycle Q Clear(g_c), s	1.3	0.4	0.6	0.6	0.5	0.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	196	1765	651	291	165	147
V/C Ratio(X)	0.56	0.06	0.17	0.19	0.26	0.29
Avail Cap(c_a), veh/h	427	4465	2891	1293	1465	1308
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.3	2.9	7.6	7.6	9.3	9.3
Incr Delay (d2), s/veh	2.5	0.0	0.1	0.3	0.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.2	0.3	0.0	0.3	0.0
LnGrp Delay(d),s/veh	11.7	2.9	7.7	7.9	10.1	10.4
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		218	163		86	
Approach Delay, s/veh		7.3	7.8		10.3	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				15.5		6.5	6.9	8.6
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				27.8		18.2	5.3	18.0
Max Q Clear Time (g_c+I1), s				2.4		2.6	3.3	2.6
Green Ext Time (p_c), s				1.5		0.2	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	63	82	790	75	145	1090
Future Volume (veh/h)	63	82	790	75	145	1090
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	68	89	859	82	158	1185
Adj No. of Lanes	1	1	3	1	2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	213	194	2983	929	1047	2076
Arrive On Green	0.12	0.12	0.59	0.59	0.59	0.59
Sat Flow, veh/h	1774	1615	5253	1583	1151	3632
Grp Volume(v), veh/h	68	89	859	82	158	1185
Grp Sat Flow(s),veh/h/ln	1774	1615	1695	1583	575	1770
Q Serve(g_s), s	1.1	1.6	2.6	0.7	2.4	6.4
Cycle Q Clear(g_c), s	1.1	1.6	2.6	0.7	5.0	6.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	213	194	2983	929	1047	2076
V/C Ratio(X)	0.32	0.46	0.29	0.09	0.15	0.57
Avail Cap(c_a), veh/h	1041	947	2983	929	1047	2076
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.4	12.6	3.2	2.8	4.4	3.9
Incr Delay (d2), s/veh	0.9	1.7	0.2	0.2	0.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	1.3	0.3	0.4	3.3
LnGrp Delay(d),s/veh	13.2	14.3	3.4	3.0	4.7	5.1
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	157		941			1343
Approach Delay, s/veh	13.8		3.4			5.0
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		22.5				22.5		8.2
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		18.0				18.0		18.0
Max Q Clear Time (g_c+I1), s		4.6				8.4		3.6
Green Ext Time (p_c), s		10.5				7.9		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	5.0
HCM 2010 LOS	A

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	68	24	36	600	640	181
Future Volume (veh/h)	68	24	36	600	640	181
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	74	26	39	652	696	197
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	168	150	556	2137	2137	956
Arrive On Green	0.09	0.09	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1774	1583	620	3632	3632	1583
Grp Volume(v), veh/h	74	26	39	652	696	197
Grp Sat Flow(s),veh/h/ln	1774	1583	620	1770	1770	1583
Q Serve(g_s), s	1.2	0.5	1.0	2.7	2.9	1.7
Cycle Q Clear(g_c), s	1.2	0.5	3.9	2.7	2.9	1.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	168	150	556	2137	2137	956
V/C Ratio(X)	0.44	0.17	0.07	0.31	0.33	0.21
Avail Cap(c_a), veh/h	1071	956	556	2137	2137	956
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	12.4	3.9	2.9	2.9	2.7
Incr Delay (d2), s/veh	1.8	0.5	0.2	0.4	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.2	0.2	1.4	1.5	0.8
LnGrp Delay(d),s/veh	14.6	13.0	4.1	3.2	3.3	3.2
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	100			691	893	
Approach Delay, s/veh	14.2			3.3	3.3	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		22.5		7.3		22.5		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		18.0		18.0		18.0		
Max Q Clear Time (g_c+I1), s		5.9		3.2		4.9		
Green Ext Time (p_c), s		7.6		0.2		8.1		

Intersection Summary	
HCM 2010 Ctrl Delay	3.9
HCM 2010 LOS	A

Appendix F

Analysis Worksheets for Mitigated Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	325	4	5	459	1	9	142	31	0	2	12
Future Volume (veh/h)	59	325	4	5	459	1	9	142	31	0	2	12
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	65	357	4	5	499	1	13	203	44	0	3	17
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	706	8	12	617	1	18	285	258	0	181	154
Arrive On Green	0.06	0.38	0.38	0.01	0.33	0.33	0.16	0.16	0.16	0.00	0.10	0.10
Sat Flow, veh/h	1774	1839	21	1774	1858	4	112	1745	1583	0	1863	1583
Grp Volume(v), veh/h	65	0	361	5	0	500	216	0	44	0	3	17
Grp Sat Flow(s),veh/h/ln	1774	0	1859	1774	0	1862	1857	0	1583	0	1863	1583
Q Serve(g_s), s	1.8	0.0	7.7	0.1	0.0	12.6	5.7	0.0	1.2	0.0	0.1	0.5
Cycle Q Clear(g_c), s	1.8	0.0	7.7	0.1	0.0	12.6	5.7	0.0	1.2	0.0	0.1	0.5
Prop In Lane	1.00		0.01	1.00		0.00	0.06		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	104	0	714	12	0	618	303	0	258	0	181	154
V/C Ratio(X)	0.62	0.00	0.51	0.42	0.00	0.81	0.71	0.00	0.17	0.00	0.02	0.11
Avail Cap(c_a), veh/h	172	0	758	172	0	759	649	0	553	0	651	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	0.0	12.1	25.5	0.0	15.7	20.4	0.0	18.6	0.0	21.0	21.2
Incr Delay (d2), s/veh	6.0	0.0	0.6	21.9	0.0	5.4	3.1	0.0	0.3	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	4.0	0.1	0.0	7.3	3.1	0.0	0.6	0.0	0.0	0.2
LnGrp Delay(d),s/veh	29.7	0.0	12.7	47.4	0.0	21.1	23.5	0.0	18.9	0.0	21.1	21.6
LnGrp LOS	C		B	D		C	C		B		C	C
Approach Vol, veh/h		426			505			260			20	
Approach Delay, s/veh		15.3			21.4			22.8			21.5	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	24.3		12.9	7.5	21.6		9.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	21.0		18.0	5.0	21.0		18.0
Max Q Clear Time (g_c+I1), s	2.1	9.7		7.7	3.8	14.6		2.5
Green Ext Time (p_c), s	0.0	3.5		0.9	0.0	2.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	694	403	8	0	320	8	7	33	5	3	8	348
Future Volume (veh/h)	694	403	8	0	320	8	7	33	5	3	8	348
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	708	411	0	0	438	11	7	34	5	0	0	425
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	2
Peak Hour Factor	0.98	0.98	0.98	0.73	0.73	0.73	0.98	0.98	0.98	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	729	1342	1140	2	472	12	12	57	8	0	180	1607
Arrive On Green	0.41	0.72	0.00	0.00	0.26	0.26	0.04	0.04	0.04	0.00	0.00	0.10
Sat Flow, veh/h	1774	1863	1583	1774	1809	45	275	1338	197	0	1863	3167
Grp Volume(v), veh/h	708	411	0	0	0	449	46	0	0	0	0	425
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1855	1810	0	0	0	1863	1583
Q Serve(g_s), s	44.5	9.0	0.0	0.0	0.0	26.9	2.8	0.0	0.0	0.0	0.0	8.7
Cycle Q Clear(g_c), s	44.5	9.0	0.0	0.0	0.0	26.9	2.8	0.0	0.0	0.0	0.0	8.7
Prop In Lane	1.00		1.00	1.00		0.02	0.15		0.11	0.00		1.00
Lane Grp Cap(c), veh/h	729	1342	1140	2	0	484	77	0	0	0	180	1607
V/C Ratio(X)	0.97	0.31	0.00	0.00	0.00	0.93	0.60	0.00	0.00	0.00	0.00	0.26
Avail Cap(c_a), veh/h	881	1427	1213	62	0	562	81	0	0	0	367	1924
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	32.9	5.7	0.0	0.0	0.0	41.0	53.5	0.0	0.0	0.0	0.0	15.9
Incr Delay (d2), s/veh	20.6	0.0	0.0	0.0	0.0	18.9	6.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.8	4.6	0.0	0.0	0.0	16.3	1.6	0.0	0.0	0.0	0.0	3.8
LnGrp Delay(d),s/veh	53.5	5.8	0.0	0.0	0.0	59.9	60.3	0.0	0.0	0.0	0.0	16.0
LnGrp LOS	D	A				E	E					B
Approach Vol, veh/h		1119			449			46			425	
Approach Delay, s/veh		36.0			59.9			60.3			16.0	
Approach LOS		D			E			E			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	52.3	35.7		16.6	0.0	88.0		9.2
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		4.4
Max Green Setting (Gmax), s	56.5	34.5		* 22	4.0	* 87		5.1
Max Q Clear Time (g_c+I1), s	46.5	28.9		10.7	0.0	11.0		4.8
Green Ext Time (p_c), s	0.2	0.9		0.3	0.0	1.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.6
HCM 2010 LOS	D

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	5	187	95	145	3	72	477	66	539	1875	122	3
Future Volume (veh/h)	5	187	95	145	3	72	477	66	539	1875	122	3
Number		7	4	14		3	8	18	5	2	12	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		0.99	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln		1863	1863	1863		1863	1863	1863	1863	1863	1863	
Adj Flow Rate, veh/h		205	104	159		81	536	74	586	2038	133	
Adj No. of Lanes		2	3	1		2	2	1	2	3	1	
Peak Hour Factor		0.91	0.91	0.91		0.89	0.89	0.89	0.92	0.92	0.92	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	
Cap, veh/h		270	1107	640		133	629	282	642	2344	721	
Arrive On Green		0.08	0.22	0.22		0.04	0.18	0.18	0.19	0.46	0.46	
Sat Flow, veh/h		3442	5085	1583		3442	3539	1583	3442	5085	1564	
Grp Volume(v), veh/h		205	104	159		81	536	74	586	2038	133	
Grp Sat Flow(s),veh/h/ln		1721	1695	1583		1721	1770	1583	1721	1695	1564	
Q Serve(g_s), s		6.0	1.7	6.9		2.4	15.1	4.2	17.2	37.2	5.2	
Cycle Q Clear(g_c), s		6.0	1.7	6.9		2.4	15.1	4.2	17.2	37.2	5.2	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h		270	1107	640		133	629	282	642	2344	721	
V/C Ratio(X)		0.76	0.09	0.25		0.61	0.85	0.26	0.91	0.87	0.18	
Avail Cap(c_a), veh/h		651	1643	807		651	1140	510	651	3093	951	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		46.5	32.2	20.3		48.8	41.1	36.5	41.1	25.0	16.4	
Incr Delay (d2), s/veh		1.7	0.0	0.1		1.7	1.3	0.2	16.8	1.8	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		2.9	0.8	3.0		1.2	7.5	1.8	9.6	17.8	2.2	
LnGrp Delay(d),s/veh		48.2	32.2	20.4		50.4	42.3	36.7	57.9	26.8	16.4	
LnGrp LOS		D	C	C		D	D	D	E	C	B	
Approach Vol, veh/h			468				691			2757		
Approach Delay, s/veh			35.2				42.7			32.9		
Approach LOS			D				D			C		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	54.9	9.5	29.2	24.7	39.6	13.6	25.1
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	19.5	* 63	19.5	* 33	19.5	* 63	19.5	33.2
Max Q Clear Time (g_c+I1), s	4.4	39.2	4.4	8.9	19.2	15.0	8.0	17.1
Green Ext Time (p_c), s	0.0	8.4	0.0	1.2	0.0	9.4	0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	34.0
HCM 2010 LOS	C

Notes

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	64	629	66
Future Volume (veh/h)	64	629	66
Number	1	6	16
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863
Adj Flow Rate, veh/h	80	786	82
Adj No. of Lanes	2	3	1
Peak Hour Factor	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2
Cap, veh/h	132	1590	495
Arrive On Green	0.04	0.31	0.31
Sat Flow, veh/h	3442	5085	1583
Grp Volume(v), veh/h	80	786	82
Grp Sat Flow(s),veh/h/ln	1721	1695	1583
Q Serve(g_s), s	2.4	13.0	3.9
Cycle Q Clear(g_c), s	2.4	13.0	3.9
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	132	1590	495
V/C Ratio(X)	0.61	0.49	0.17
Avail Cap(c_a), veh/h	651	3088	962
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	28.8	25.7
Incr Delay (d2), s/veh	1.7	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	6.1	1.7
LnGrp Delay(d),s/veh	50.5	28.9	25.7
LnGrp LOS	D	C	C
Approach Vol, veh/h		948	
Approach Delay, s/veh		30.4	
Approach LOS		C	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	112	13	245	34	25	39	34	272	2440	20	36	3317
Future Volume (veh/h)	112	13	245	34	25	39	34	272	2440	20	36	3317
Number	7	4	14	3	8	18		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	129	15	282	43	32	49		280	2515	21	39	3567
Adj No. of Lanes	1	1	0	1	1	0		2	3	0	1	3
Peak Hour Factor	0.87	0.87	0.87	0.79	0.79	0.79		0.97	0.97	0.97	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	142	16	293	57	97	149		262	3445	29	49	3116
Arrive On Green	0.08	0.19	0.19	0.03	0.15	0.15		0.08	0.66	0.66	0.03	0.61
Sat Flow, veh/h	1774	80	1506	1774	664	1017		3442	5202	43	1774	5085
Grp Volume(v), veh/h	129	0	297	43	0	81		280	1638	898	39	3567
Grp Sat Flow(s),veh/h/ln	1774	0	1586	1774	0	1681		1721	1695	1855	1774	1695
Q Serve(g_s), s	17.9	0.0	46.1	6.0	0.0	10.7		18.9	78.3	78.6	5.4	152.0
Cycle Q Clear(g_c), s	17.9	0.0	46.1	6.0	0.0	10.7		18.9	78.3	78.6	5.4	152.0
Prop In Lane	1.00		0.95	1.00		0.60		1.00		0.02	1.00	
Lane Grp Cap(c), veh/h	142	0	308	57	0	246		262	2245	1229	49	3116
V/C Ratio(X)	0.91	0.00	0.96	0.75	0.00	0.33		1.07	0.73	0.73	0.79	1.14
Avail Cap(c_a), veh/h	187	0	316	62	0	246		262	2245	1229	86	3116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	113.1	0.0	99.1	119.1	0.0	95.0		114.6	27.4	27.4	119.8	48.0
Incr Delay (d2), s/veh	30.2	0.0	40.0	32.5	0.0	0.3		74.7	1.1	2.0	9.8	69.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	0.0	23.6	3.5	0.0	5.0		11.7	37.0	40.8	2.8	91.0
LnGrp Delay(d),s/veh	143.4	0.0	139.0	151.5	0.0	95.3		189.2	28.4	29.4	129.7	117.4
LnGrp LOS	F		F	F		F		F	C	C	F	F
Approach Vol, veh/h		426			124				2816			3691
Approach Delay, s/veh		140.4			114.8				44.7			115.3
Approach LOS		F			F				D			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	156.9	13.5	53.7	11.7	169.2	25.4	41.7
Change Period (Y+Rc), s	* 5.1	* 4.9	5.5	5.5	* 4.8	* 4.9	5.5	5.5
Max Green Setting (Gmax), s	* 19	* 1.5E2	8.7	49.5	* 12	* 1.6E2	26.2	32.0
Max Q Clear Time (g_c+I1), s	20.9	154.0	8.0	48.1	7.4	80.6	19.9	12.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	62.2	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	88.7
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	79
Future Volume (veh/h)	79
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.98
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	85
Adj No. of Lanes	1
Peak Hour Factor	0.93
Percent Heavy Veh, %	2
Cap, veh/h	947
Arrive On Green	0.61
Sat Flow, veh/h	1545
Grp Volume(v), veh/h	85
Grp Sat Flow(s),veh/h/ln	1545
Q Serve(g_s), s	5.6
Cycle Q Clear(g_c), s	5.6
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	947
V/C Ratio(X)	0.09
Avail Cap(c_a), veh/h	947
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	19.7
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	2.4
LnGrp Delay(d),s/veh	19.7
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	551	0	15	315	2	4	6	1	0	158	115
Future Volume (veh/h)	19	551	0	15	315	2	4	6	1	0	158	115
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	20	592	0	19	399	3	6	9	1	0	216	158
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.79	0.79	0.79	0.70	0.70	0.70	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	772	0	41	763	6	15	22	32	0	325	277
Arrive On Green	0.02	0.41	0.00	0.02	0.41	0.41	0.02	0.02	0.02	0.00	0.17	0.17
Sat Flow, veh/h	1774	1863	0	1774	1846	14	730	1096	1583	0	1863	1583
Grp Volume(v), veh/h	20	592	0	19	0	402	15	0	1	0	216	158
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1774	0	1860	1826	0	1583	0	1863	1583
Q Serve(g_s), s	0.5	13.4	0.0	0.5	0.0	7.9	0.4	0.0	0.0	0.0	5.3	4.5
Cycle Q Clear(g_c), s	0.5	13.4	0.0	0.5	0.0	7.9	0.4	0.0	0.0	0.0	5.3	4.5
Prop In Lane	1.00		0.00	1.00		0.01	0.40		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	43	772	0	41	0	769	36	0	32	0	325	277
V/C Ratio(X)	0.46	0.77	0.00	0.46	0.00	0.52	0.41	0.00	0.03	0.00	0.66	0.57
Avail Cap(c_a), veh/h	181	1180	0	181	0	1178	672	0	582	0	685	582
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	12.3	0.0	23.6	0.0	10.7	23.7	0.0	23.5	0.0	18.9	18.5
Incr Delay (d2), s/veh	7.6	1.7	0.0	7.8	0.0	0.6	7.3	0.0	0.4	0.0	2.3	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	7.1	0.0	0.3	0.0	4.1	0.3	0.0	0.0	0.0	2.9	2.1
LnGrp Delay(d),s/veh	31.1	14.0	0.0	31.4	0.0	11.3	31.0	0.0	23.9	0.0	21.2	20.4
LnGrp LOS	C	B		C		B	C		C		C	C
Approach Vol, veh/h		612			421			16			374	
Approach Delay, s/veh		14.5			12.2			30.5			20.8	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	24.8		5.5	5.7	24.7		13.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	31.0		18.0	5.0	31.0		18.0
Max Q Clear Time (g_c+I1), s	2.5	15.4		2.4	2.5	9.9		7.3
Green Ext Time (p_c), s	0.0	4.9		0.0	0.0	5.5		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	352	7	1	443	9	7	15	1	11	35	762
Future Volume (veh/h)	268	352	7	1	443	9	7	15	1	11	35	762
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	288	378	0	1	461	9	8	18	1	0	0	857
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	2
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.85	0.85	0.85	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	323	862	733	2	512	10	20	46	3	0	464	1350
Arrive On Green	0.18	0.46	0.00	0.00	0.28	0.28	0.04	0.04	0.04	0.00	0.00	0.25
Sat Flow, veh/h	1774	1863	1583	1774	1820	36	540	1216	68	0	1863	3099
Grp Volume(v), veh/h	288	378	0	1	0	470	27	0	0	0	0	857
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1856	1824	0	0	0	1863	1549
Q Serve(g_s), s	13.7	11.8	0.0	0.0	0.0	21.0	1.2	0.0	0.0	0.0	0.0	18.7
Cycle Q Clear(g_c), s	13.7	11.8	0.0	0.0	0.0	21.0	1.2	0.0	0.0	0.0	0.0	18.7
Prop In Lane	1.00		1.00	1.00		0.02	0.30		0.04	0.00		1.00
Lane Grp Cap(c), veh/h	323	862	733	2	0	522	69	0	0	0	464	1350
V/C Ratio(X)	0.89	0.44	0.00	0.49	0.00	0.90	0.39	0.00	0.00	0.00	0.00	0.64
Avail Cap(c_a), veh/h	504	1387	1179	401	0	1377	753	0	0	0	743	1814
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	34.4	15.6	0.0	43.0	0.0	29.8	40.5	0.0	0.0	0.0	0.0	19.3
Incr Delay (d2), s/veh	8.2	0.1	0.0	53.7	0.0	2.4	1.3	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	6.0	0.0	0.1	0.0	11.1	0.7	0.0	0.0	0.0	0.0	8.0
LnGrp Delay(d),s/veh	42.6	15.7	0.0	96.7	0.0	32.2	41.8	0.0	0.0	0.0	0.0	19.4
LnGrp LOS	D	B		F		C	D					B
Approach Vol, veh/h		666			471			27			857	
Approach Delay, s/veh		27.4			32.3			41.8			19.4	
Approach LOS		C			C			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.2	30.2		27.1	5.6	45.9		7.7
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		4.4
Max Green Setting (Gmax), s	24.5	64.0		* 34	19.5	* 64		35.6
Max Q Clear Time (g_c+I1), s	15.7	23.0		20.7	2.0	13.8		3.2
Green Ext Time (p_c), s	0.1	1.2		0.7	0.0	1.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.4
HCM 2010 LOS	C

Notes

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	5	58	305	452	137	107	104	180	805	111	3	243
Future Volume (veh/h)	5	58	305	452	137	107	104	180	805	111	3	243
Number		7	4	14	3	8	18	5	2	12		1
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99	1.00		0.99		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863	1863	1863	1863	1863	1863	1863		1863
Adj Flow Rate, veh/h		60	318	471	167	130	127	198	885	122		267
Adj No. of Lanes		2	3	1	2	2	1	2	3	1		2
Peak Hour Factor		0.96	0.96	0.96	0.82	0.82	0.82	0.91	0.91	0.91		0.91
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2
Cap, veh/h		98	1192	480	197	931	411	237	2206	678		315
Arrive On Green		0.03	0.23	0.23	0.06	0.26	0.26	0.07	0.43	0.43		0.09
Sat Flow, veh/h		3442	5085	1583	3442	3539	1563	3442	5085	1564		3442
Grp Volume(v), veh/h		60	318	471	167	130	127	198	885	122		267
Grp Sat Flow(s),veh/h/ln		1721	1695	1583	1721	1770	1563	1721	1695	1564		1721
Q Serve(g_s), s		2.4	7.0	32.3	6.6	3.9	9.0	7.8	16.4	6.6		10.5
Cycle Q Clear(g_c), s		2.4	7.0	32.3	6.6	3.9	9.0	7.8	16.4	6.6		10.5
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00		1.00
Lane Grp Cap(c), veh/h		98	1192	480	197	931	411	237	2206	678		315
V/C Ratio(X)		0.61	0.27	0.98	0.85	0.14	0.31	0.83	0.40	0.18		0.85
Avail Cap(c_a), veh/h		162	1192	480	197	931	411	237	2206	678		440
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh		66.2	43.1	47.6	64.3	38.8	40.7	63.4	26.7	24.0		61.6
Incr Delay (d2), s/veh		2.3	0.0	35.8	26.1	0.0	0.2	20.8	0.0	0.0		7.9
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln		1.2	3.3	22.6	3.9	1.9	3.9	4.4	7.7	2.9		5.4
LnGrp Delay(d),s/veh		68.4	43.1	83.4	90.5	38.8	40.9	84.1	26.8	24.0		69.5
LnGrp LOS		E	D	F	F	D	D	F	C	C		E
Approach Vol, veh/h			849			424			1205			
Approach Delay, s/veh			67.2			59.8			35.9			
Approach LOS			E			E			D			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.1	67.2	13.4	39.1	15.0	70.3	9.4	43.1
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	17.6	* 57	7.9	* 32	9.5	* 65	6.5	33.6
Max Q Clear Time (g_c+I1), s	12.5	18.4	8.6	34.3	9.8	60.2	4.4	11.0
Green Ext Time (p_c), s	0.1	11.1	0.0	0.0	0.0	2.7	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	48.9
HCM 2010 LOS	D

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2023	124
Future Volume (veh/h)	2023	124
Number	6	16
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	2223	136
Adj No. of Lanes	3	1
Peak Hour Factor	0.91	0.91
Percent Heavy Veh, %	2	2
Cap, veh/h	2321	723
Arrive On Green	0.46	0.46
Sat Flow, veh/h	5085	1583
Grp Volume(v), veh/h	2223	136
Grp Sat Flow(s),veh/h/ln	1695	1583
Q Serve(g_s), s	58.2	7.0
Cycle Q Clear(g_c), s	58.2	7.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	2321	723
V/C Ratio(X)	0.96	0.19
Avail Cap(c_a), veh/h	2407	749
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	36.2	22.3
Incr Delay (d2), s/veh	9.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.3	3.1
LnGrp Delay(d),s/veh	46.1	22.3
LnGrp LOS	D	C
Approach Vol, veh/h	2626	
Approach Delay, s/veh	47.3	
Approach LOS	D	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	186	36	179	61	23	57	33	155	2667	23	2	62
Future Volume (veh/h)	186	36	179	61	23	57	33	155	2667	23	2	62
Number	7	4	14	3	8	18		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900		1863	1863	1900		1863
Adj Flow Rate, veh/h	224	43	216	79	30	74		167	2868	25		68
Adj No. of Lanes	1	1	0	1	1	0		2	3	0		1
Peak Hour Factor	0.83	0.83	0.83	0.77	0.77	0.77		0.93	0.93	0.93		0.91
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	246	53	264	103	54	133		165	2876	25		86
Arrive On Green	0.14	0.20	0.20	0.06	0.12	0.12		0.05	0.55	0.55		0.05
Sat Flow, veh/h	1774	267	1344	1774	465	1147		3442	5199	45		1774
Grp Volume(v), veh/h	224	0	259	79	0	104		167	1867	1026		68
Grp Sat Flow(s),veh/h/ln	1774	0	1611	1774	0	1613		1721	1695	1854		1774
Q Serve(g_s), s	17.9	0.0	22.2	6.3	0.0	8.8		6.9	79.0	79.8		5.5
Cycle Q Clear(g_c), s	17.9	0.0	22.2	6.3	0.0	8.8		6.9	79.0	79.8		5.5
Prop In Lane	1.00		0.83	1.00		0.71		1.00		0.02		1.00
Lane Grp Cap(c), veh/h	246	0	317	103	0	187		165	1875	1025		86
V/C Ratio(X)	0.91	0.00	0.82	0.77	0.00	0.56		1.01	1.00	1.00		0.79
Avail Cap(c_a), veh/h	394	0	357	394	0	358		165	1875	1025		396
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	61.2	0.0	55.4	67.0	0.0	60.2		68.7	32.1	32.2		67.9
Incr Delay (d2), s/veh	11.8	0.0	11.0	4.5	0.0	1.0		73.9	19.7	28.2		5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.1	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	9.6	0.0	10.8	3.2	0.0	4.0		5.0	42.0	48.8		2.8
LnGrp Delay(d),s/veh	73.0	0.0	66.4	71.4	0.0	61.2		142.7	51.8	60.4		73.8
LnGrp LOS	E		E	E		E		F	D	F		E
Approach Vol, veh/h		483			183				3060			
Approach Delay, s/veh		69.5			65.6				59.6			
Approach LOS		E			E				E			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	84.5	13.9	33.9	11.8	84.7	25.5	22.2
Change Period (Y+Rc), s	* 5.1	* 4.9	5.5	5.5	* 4.8	* 4.9	5.5	5.5
Max Green Setting (Gmax), s	* 6.9	* 88	32.0	32.0	* 32	* 63	32.0	32.0
Max Q Clear Time (g_c+I1), s	8.9	73.1	8.3	24.2	7.5	81.8	19.9	10.8
Green Ext Time (p_c), s	0.0	6.4	0.0	0.6	0.0	0.0	0.1	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	50.9
HCM 2010 LOS	D

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2424	96
Future Volume (veh/h)	2424	96
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		0.99
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	2664	105
Adj No. of Lanes	3	1
Peak Hour Factor	0.91	0.91
Percent Heavy Veh, %	2	2
Cap, veh/h	2806	867
Arrive On Green	0.55	0.55
Sat Flow, veh/h	5085	1572
Grp Volume(v), veh/h	2664	105
Grp Sat Flow(s),veh/h/ln	1695	1572
Q Serve(g_s), s	71.1	4.6
Cycle Q Clear(g_c), s	71.1	4.6
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	2806	867
V/C Ratio(X)	0.95	0.12
Avail Cap(c_a), veh/h	3110	961
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	30.4	15.5
Incr Delay (d2), s/veh	6.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	34.8	2.0
LnGrp Delay(d),s/veh	37.3	15.6
LnGrp LOS	D	B
Approach Vol, veh/h	2837	
Approach Delay, s/veh	37.3	
Approach LOS	D	

Timer

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	490	613	30	10	30	1248	1058	80	130	50	278	10
Future Volume (veh/h)	490	613	30	10	30	1248	1058	80	130	50	278	10
Number	1	6	16		5	2	12	3	8	18	7	4
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900		1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	533	666	33		33	1357	0	87	141	54	302	11
Adj No. of Lanes	1	2	0		2	3	1	1	1	0	2	2
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	479	1949	96		61	1586	494	110	167	64	309	558
Arrive On Green	0.27	0.57	0.57		0.02	0.31	0.00	0.06	0.13	0.13	0.09	0.16
Sat Flow, veh/h	1774	3432	170		3442	5085	1583	1774	1284	492	3442	3539
Grp Volume(v), veh/h	533	343	356		33	1357	0	87	0	195	302	11
Grp Sat Flow(s),veh/h/ln	1774	1770	1833		1721	1695	1583	1774	0	1776	1721	1770
Q Serve(g_s), s	28.5	11.0	11.0		1.0	26.5	0.0	5.1	0.0	11.3	9.2	0.3
Cycle Q Clear(g_c), s	28.5	11.0	11.0		1.0	26.5	0.0	5.1	0.0	11.3	9.2	0.3
Prop In Lane	1.00		0.09		1.00		1.00	1.00		0.28	1.00	
Lane Grp Cap(c), veh/h	479	1005	1041		61	1586	494	110	0	230	309	558
V/C Ratio(X)	1.11	0.34	0.34		0.54	0.86	0.00	0.79	0.00	0.85	0.98	0.02
Avail Cap(c_a), veh/h	479	1338	1386		173	2715	845	141	0	588	309	1199
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	12.2	12.2		51.5	34.1	0.0	48.9	0.0	44.9	48.0	37.6
Incr Delay (d2), s/veh	76.0	0.1	0.1		2.8	0.5	0.0	15.6	0.0	3.3	44.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.9	5.4	5.6		0.5	12.4	0.0	3.0	0.0	5.8	6.3	0.1
LnGrp Delay(d),s/veh	114.5	12.3	12.3		54.2	34.7	0.0	64.4	0.0	48.2	92.2	37.6
LnGrp LOS	F	B	B		D	C		E		D	F	D
Approach Vol, veh/h		1232				1390			282			411
Approach Delay, s/veh		56.5				35.1			53.2			78.4
Approach LOS		E				D			D			E

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.0	37.8	12.1	21.7	7.0	64.9	15.0	18.8
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	28.5	* 56	8.4	* 36	* 5.3	* 80	9.5	* 35
Max Q Clear Time (g_c+I1), s	30.5	28.5	7.1	7.9	3.0	13.0	11.2	13.3
Green Ext Time (p_c), s	0.0	4.5	0.0	0.4	0.0	4.6	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	50.0
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	90
Future Volume (veh/h)	90
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	98
Adj No. of Lanes	1
Peak Hour Factor	0.92
Percent Heavy Veh, %	2
Cap, veh/h	249
Arrive On Green	0.16
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	98
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	5.9
Cycle Q Clear(g_c), s	5.9
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	249
V/C Ratio(X)	0.39
Avail Cap(c_a), veh/h	537
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	40.0
Incr Delay (d2), s/veh	0.4
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	2.6
LnGrp Delay(d),s/veh	40.3
LnGrp LOS	D
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	871	1236	1316	110	50	618
Future Volume (veh/h)	871	1236	1316	110	50	618
Number	1	6	2	12	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	947	1343	1430	120	0	730
Adj No. of Lanes	2	2	2	1	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	964	2600	1441	645	274	1376
Arrive On Green	0.28	0.73	0.41	0.41	0.00	0.15
Sat Flow, veh/h	3442	3632	3632	1583	1774	3167
Grp Volume(v), veh/h	947	1343	1430	120	0	730
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583
Q Serve(g_s), s	30.1	17.9	44.2	5.3	0.0	17.0
Cycle Q Clear(g_c), s	30.1	17.9	44.2	5.3	0.0	17.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	964	2600	1441	645	274	1376
V/C Ratio(X)	0.98	0.52	0.99	0.19	0.00	0.53
Avail Cap(c_a), veh/h	964	2603	1441	645	274	1376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.3	6.2	32.4	20.9	0.0	22.9
Incr Delay (d2), s/veh	24.7	0.1	21.7	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.5	8.6	25.8	2.3	0.0	8.2
LnGrp Delay(d),s/veh	64.0	6.3	54.1	21.0	0.0	23.1
LnGrp LOS	E	A	D	C		C
Approach Vol, veh/h		2290	1550		730	
Approach Delay, s/veh		30.2	51.6		23.1	
Approach LOS		C	D		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	36.0	51.5				87.5		22.5
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 31	* 45				* 81		17.0
Max Q Clear Time (g_c+I1), s	32.1	46.2				19.9		19.0
Green Ext Time (p_c), s	0.0	0.0				8.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1026	160	50	784	423	20	20	30	1029	140	490
Future Volume (veh/h)	110	1026	160	50	784	423	20	20	30	1029	140	490
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	120	1115	174	54	852	0	22	22	33	1118	152	533
Adj No. of Lanes	1	2	0	2	3	1	1	1	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	1203	187	94	1692	527	27	37	56	1172	1349	603
Arrive On Green	0.08	0.39	0.39	0.03	0.33	0.00	0.01	0.06	0.06	0.34	0.38	0.38
Sat Flow, veh/h	1774	3070	478	3442	5085	1583	1774	674	1011	3442	3539	1583
Grp Volume(v), veh/h	120	641	648	54	852	0	22	0	55	1118	152	533
Grp Sat Flow(s),veh/h/ln	1774	1770	1778	1721	1695	1583	1774	0	1684	1721	1770	1583
Q Serve(g_s), s	7.4	38.5	38.8	1.7	15.0	0.0	1.4	0.0	3.5	35.3	3.1	35.0
Cycle Q Clear(g_c), s	7.4	38.5	38.8	1.7	15.0	0.0	1.4	0.0	3.5	35.3	3.1	35.0
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.60	1.00		1.00
Lane Grp Cap(c), veh/h	146	693	697	94	1692	527	27	0	93	1172	1349	603
V/C Ratio(X)	0.82	0.93	0.93	0.58	0.50	0.00	0.83	0.00	0.59	0.95	0.11	0.88
Avail Cap(c_a), veh/h	212	752	756	158	1772	552	97	0	530	1308	2254	1008
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	32.3	32.4	53.5	29.8	0.0	54.7	0.0	51.3	35.9	22.3	32.1
Incr Delay (d2), s/veh	10.0	15.9	16.6	2.1	0.1	0.0	20.6	0.0	2.2	13.9	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	21.8	22.3	0.9	7.0	0.0	0.8	0.0	1.7	19.0	1.5	15.7
LnGrp Delay(d),s/veh	60.3	48.2	49.0	55.6	29.9	0.0	75.3	0.0	53.5	49.8	22.3	35.0
LnGrp LOS	E	D	D	E	C		E		D	D	C	C
Approach Vol, veh/h		1409			906			77			1803	
Approach Delay, s/veh		49.6			31.4			59.7			43.1	
Approach LOS		D			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	41.9	7.2	47.5	8.1	48.5	43.4	11.3
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	13.3	* 39	6.1	* 71	* 5.1	* 47	42.3	* 35
Max Q Clear Time (g_c+I1), s	9.4	17.0	3.4	37.0	3.7	40.8	37.3	5.5
Green Ext Time (p_c), s	0.0	4.3	0.0	0.6	0.0	2.8	0.6	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	43.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	894	1447	1036	120	50	783
Future Volume (veh/h)	894	1447	1036	120	50	783
Number	1	6	2	12	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	972	1573	1126	130	0	909
Adj No. of Lanes	2	2	2	1	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1034	2313	1042	466	370	1612
Arrive On Green	0.30	0.65	0.29	0.29	0.00	0.21
Sat Flow, veh/h	3442	3632	3632	1583	1774	3167
Grp Volume(v), veh/h	972	1573	1126	130	0	909
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583
Q Serve(g_s), s	24.4	24.6	26.1	5.6	0.0	17.5
Cycle Q Clear(g_c), s	24.4	24.6	26.1	5.6	0.0	17.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1034	2313	1042	466	370	1612
V/C Ratio(X)	0.94	0.68	1.08	0.28	0.00	0.56
Avail Cap(c_a), veh/h	1087	2313	1042	466	370	1612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.2	9.6	31.3	24.0	0.0	15.0
Incr Delay (d2), s/veh	14.3	0.7	52.2	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.7	12.0	20.2	2.5	0.0	7.7
LnGrp Delay(d),s/veh	44.5	10.2	83.5	24.2	0.0	15.3
LnGrp LOS	D	B	F	C		B
Approach Vol, veh/h		2545	1256		909	
Approach Delay, s/veh		23.3	77.4		15.3	
Approach LOS		C	E		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	31.8	32.8				64.6		24.0
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 28	* 26				* 50		18.5
Max Q Clear Time (g_c+I1), s	26.4	28.1				26.6		19.5
Green Ext Time (p_c), s	0.2	0.0				7.4		0.0

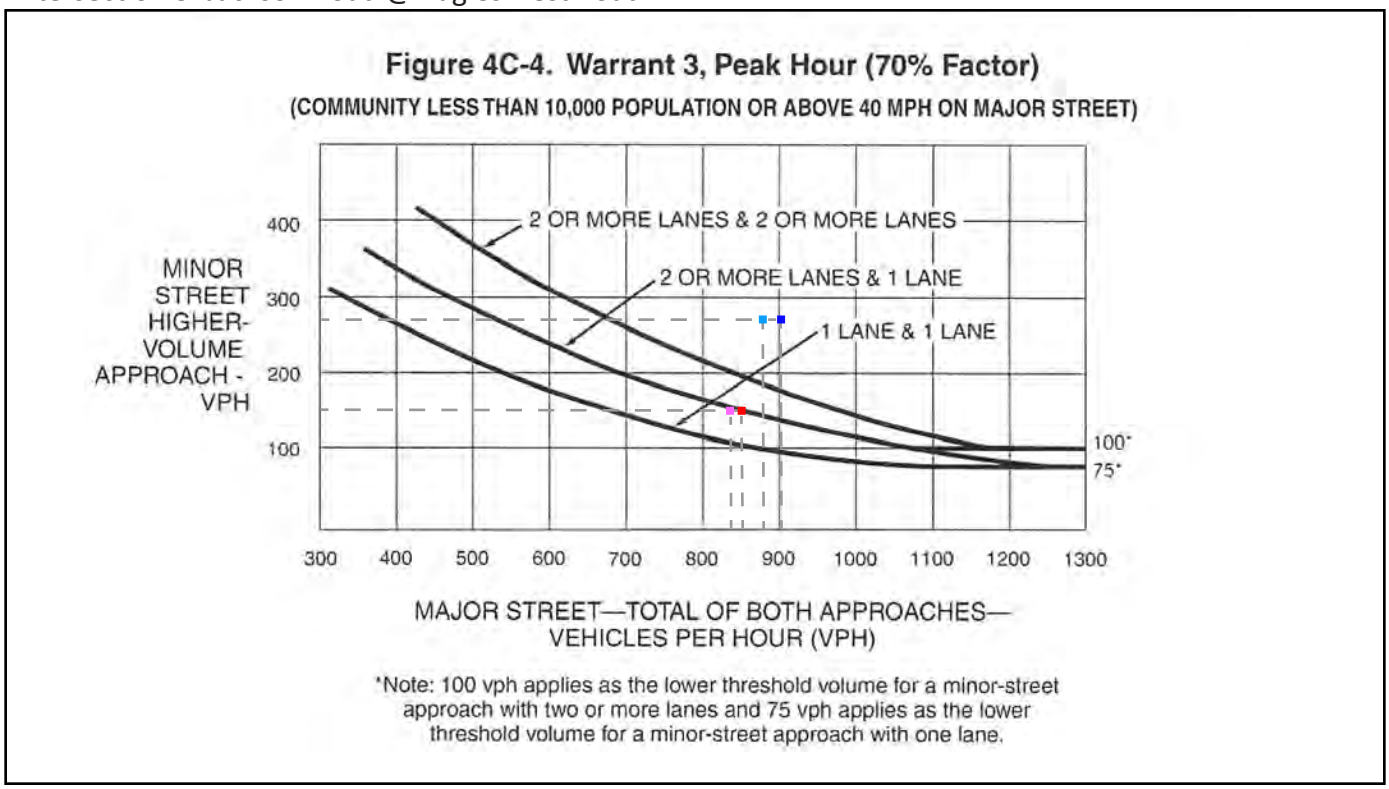
Intersection Summary	
HCM 2010 Ctrl Delay	36.2
HCM 2010 LOS	D

Notes

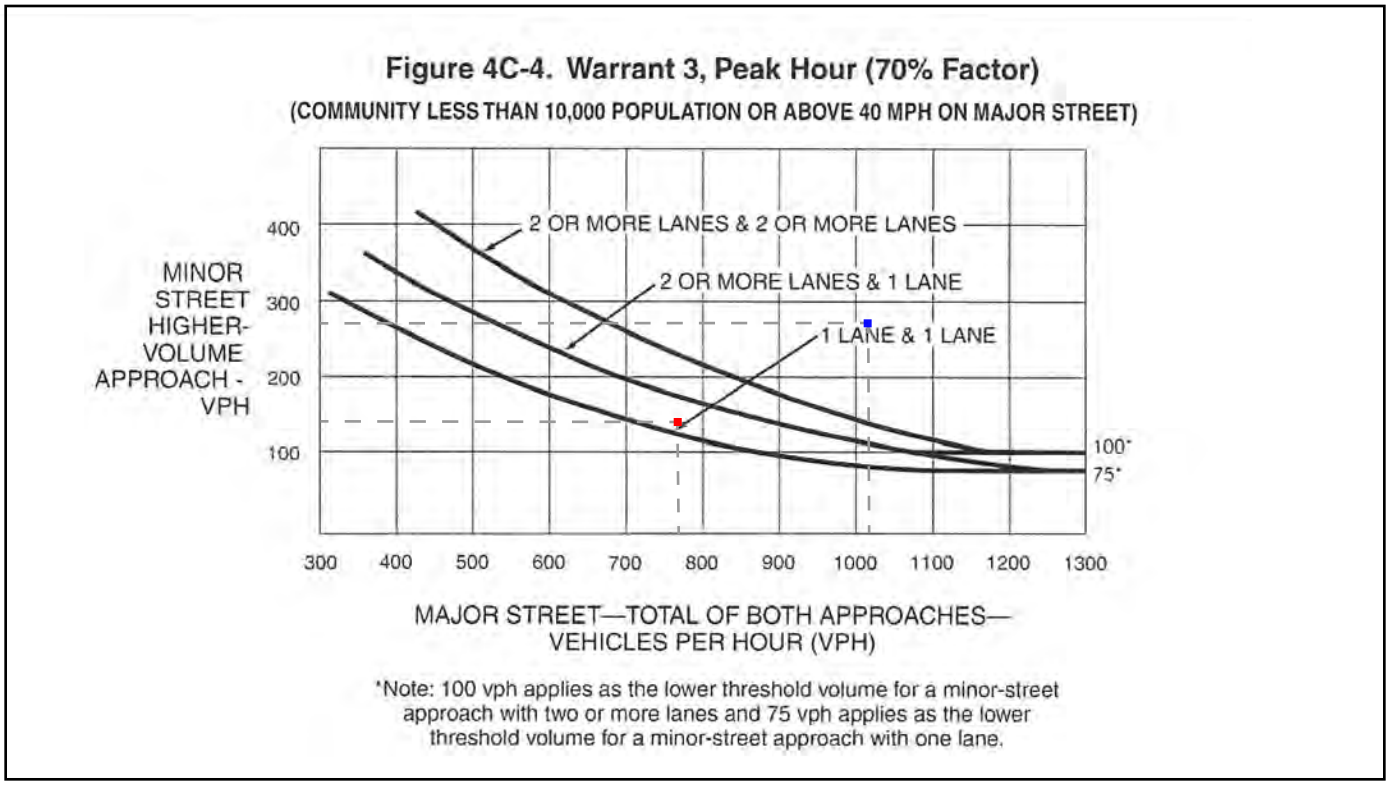
Appendix G

Analysis Worksheets for Signal Warrants

Intersection 3: Jackson Road @ Eagles Nest Road



Intersection 8: Grant Line Road @ Keifer Road



Note: For Intersection 8, Existing volumes equal Existing Plus Project volumes.

LEGEND

- AM Existing
- AM Plus Project
- PM Existing
- PM Plus Project

APPENDIX I.2

Memorandum RE: Jaeger Ranch Traffic Impact Study, Draft Other Considerations

Kimley»Horn

Memorandum

To: Olga Sciorelli, P.E., QSD, QSP
Land Planning Manager
K. Hovnanian® Homes of California, Inc.

From: Chris Gregerson, P.E., T.E.

Re: Jaeger Ranch Traffic Impact Study
DRAFT *Other Considerations*

Date: August 28, 2018

Rancho Cordova Parkway Widening Trigger Analysis

The need to widen Rancho Cordova Parkway from two lanes to four lanes along the project extents was analyzed between Existing and Cumulative plus Proposed Project conditions. This trigger analysis incorporated not only the development assumptions that would increase traffic along this roadway segment, but also the connection of the roadway south to Grant Line Road and north to US 50. The analysis resulted in the need for the roadway to be widened by 2034. This would equate to approximately 570 SFR and 566 AAR dwelling units that can be constructed before the roadway segment is required to be widened.

Peak-Hour Traffic Signal Warrant Evaluation

The need for traffic signalization was assessed based on the peak-hour warrant methodologies noted in Section 4.C of the *California Manual on Uniform Traffic Control Devices (CMUTCD)*, *2014 Edition with April 2017 revisions* (CaMUTCD). The peak-hour traffic signal warrant analysis was performed for the two unsignalized intersections in the Existing (2017) scenario, including the side street stop controlled (SSSC) intersection at Jackson Road and Eagles Nest Road (Intersection #3), and the all-way stop controlled (AWSC) intersection at Grant Line Road and Kiefer Boulevard (Intersection #8). In both cases, the speed limit on the major street is greater than 40 miles per hour, indicating that the 70% reduction factor option is appropriate and thus, a signal is warranted for both intersections. Figure 4C-4 of the CMUTCD is included in Appendix G for reference. For the Rancho Cordova Parkway intersection with Chrysanthy Boulevard (Intersection #6), while a signal is assumed for the Cumulative and Cumulative plus Proposed Project scenarios, it is not warranted using the peak-hour traffic signal warrant. Thus, there is no development trigger that would require a signal be installed at the intersection.

Bicycle and Pedestrian Facilities Evaluation

The project applicant is proposing constructing greater than two miles of bicycle facilities throughout the project including several connections to existing and proposed regional trails. The project is proposing to construct one 10-foot to 12-foot wide Class I bike trail connecting to an existing trail in the northeastern portion of the project and two recreational trails connecting to pedestrian and bicycle facilities on the eastern and western portions of the project. The project application is proposing that these facilities shall be incorporated into the City's bikeway master plan. In addition, the project will include sidewalks, stop signs, standard pedestrian crossing warning signs, lane striping to provide a bicycle lane along applicable roadways, bicycle parking, signs to identify pedestrian and bicycle paths, and pedestrian signal heads. Sidewalks will be constructed as part of the frontage improvements along all new roadway construction for Jaeger Road/Rancho Cordova Parkway and Chrysanthy Boulevard in conformance with City and County design standards. Circulation and access to all proposed public spaces will include sidewalks that meet Americans with Disabilities Act standards.

Site Plan, Access, and On-site Circulation Evaluation

The site plan for the proposed project (Error! Reference source not found.) was qualitatively reviewed for general access and on-site
circulation. According to the site plan, primary access to the site will be provided from Chrysanthy Boulevard at the intersection of Rancho Cordova Parkway/Jaeger Road. The combination of these access points, as well as the on-site circulation system appears to provide adequate access to/from Chrysanthy Boulevard, Rancho Cordova Parkway and the surrounding transportation network. Additional access will be provided in the future, as Chrysanthy Boulevard, Rancho Cordova Parkway and Americanos Boulevard are constructed and extended.

Vehicle Miles Traveled (VMT) Analysis

As a part of the traffic impact study performed for the Jaeger Ranch development, Kimley-Horn prepared a project-related Vehicle Miles Traveled (VMT) analysis using Sacramento Area Council of Government's (SACOG) SACSIM travel demand model. Consistent with the City's expectations and our Scope of Services, this VMT analysis is reported in speed bins as well as for an average trip distance. Please note that this analysis was always intended to be provided as information only, and was not to be included in the formal study report nor as a part of the project's environmental review process. This memorandum transmits the subject VMT data for the proposed project.

The VMT analysis was completed for two plus project analysis scenarios, Existing (2017) and Cumulative (2040) Conditions. Table 1 below summarizes the results of this analysis. This analysis was completed using SACOG's SACSIM TDM and summarizes the number of vehicles traveling to and from the project site. The VMT is divided into 5 mph speed bins which correspond to the average speed on roadways in the surrounding area. The total VMT is a summation of the VMT in each speed bin for the two analysis scenarios, white the average trip length is calculated by dividing the total VMT by the number of trips produced in the model.

Table 1 – VMT Analysis Results for Existing (2017) and Cumulative (2040) Conditions

Speed Bin (mph)	VMT	
	Existing	Cumulative
0 - 5	40	25
6 - 10	660	553
11 - 15	525	595
16 - 20	1,940	1,028
21 - 25	2,399	2,038
26 - 30	7,211	4,071
31 - 35	6,295	15,432
36 - 40	23,250	20,857
41 - 45	20,934	8,065
46 - 50	5,325	6,512
51 - 55	10,296	8,192
56 - 60	7,361	2,848
61 - 65	1,285	329
66+	160	48
Total	**87,680**	**70,593**
Average Trip Length (mi.)	***14.2***	***11.2***

Existing conditions include Chrysanthy Boulevard only built to the project's northwest corner, and all trips accessing the surrounding network via Chrysanthy Boulevard. Rancho Cordova Parkway is not constructed to Douglas Road in Existing Conditions and all other assumptions are consistent with Existing (2017) conditions in the surrounding area. As shown, both the total VMT and average trip length are greater in Existing Conditions than Cumulative Conditions.

APPENDIX I.3

Memorandum RE: Jaeger Ranch Supplemental Traffic Analyses, Draft Traffic Impact Analysis Services

Kimley»Horn

Memorandum

To: Olga Sciorelli, P.E., QSD, QSP
Land Planning Manager
K. Hovnanian® Homes of California, Inc.

From: Chris Gregerson, P.E., T.E., PTP
Kelly Andrews, E.I.T.

Re: **Jaeger Ranch Supplemental Traffic Analyses**
DRAFT *Traffic Impact Analysis Services*

Date: December 3, 2018

Per your request and authorization, we have prepared this traffic evaluation for the above referenced project.

Project Understanding

This memorandum documents the results of a supplemental transportation impact analysis completed for Jaeger Ranch (the "proposed project" or "project"). The vacant project site is located along Rancho Cordova Parkway/Jaeger Road, south of Douglas Road in Rancho Cordova, California. Kimley-Horn previously completed a traffic impact analysis for the Jaeger Ranch[1] project. The significant findings of the previous study are summarized below:

- The proposed project is estimated to generate 10,266 new daily trips, with 721 new trips occurring during the AM peak-hour, and 934 new trips occurring during the PM peak-hour.
- The addition of the proposed project to the Existing (2017) Conditions results in a significant impact at four (4) study intersections and one (1) roadway segment. With the application of mitigation measures recommended in the previous study, the impacts to intersections can be mitigated to be *less than significant*. The proposed project results in one significant and unavoidable impact to the roadway segments for Existing (2017) Conditions, as defined by the applicable jurisdictions.
- The addition of the proposed project to Cumulative (2040) Conditions results in a significant impact at three (3) intersections and one (1) roadway segment. Two of the impacted intersections would be mitigated to less than significant. One location does not have a feasible mitigation. The significant impact to the roadway segments for Cumulative (2040) Conditions does not have a feasible mitigation, as defined by the applicable jurisdictions.

The project applicant now proposes to include 723 single-family detached residential units, 250 multi-family residential units, 743 Active Adult Residential (AAR) units, and approximately 32,000 square-feet of commercial uses.

The purpose of this impact analysis is to identify additional impacts to transportation facilities due to the increased number of units and propose appropriate mitigations (as determined by the City of Rancho Cordova) for those impacts. This study was performed in accordance with the County of Sacramento's traffic study guidelines[2] and standards established by the Circulation Element of the City of Rancho Cordova's General Plan[3].

[1] *Transportation Impact Analysis, Jaeger Ranch,* Kimley-Horn and Associates, Inc., August 28,2018.
[2] *Traffic Impact Analysis Guidelines, July 2004*, County of Sacramento.
[3] *City of Rancho Cordova General Plan: Circulation Element, May 2015,* City of Rancho Cordova

Study Facilities and Analysis Scenarios

This analysis was limited to those intersections that were previously mitigated to less than significantly impacted conditions, and those intersections that fall within 5 seconds of delay of becoming impacted. The following transportation facilities are included in this evaluation:

Existing (2017) Study Intersections:

1. Jackson Rd/SR-16 @ Bradshaw Rd
2. Jackson Rd/SR-16 @ Excelsior Rd
3. Jackson Rd/SR-16 @ Eagles Nest Rd
4. Jackson Rd/SR-16 @ Sunrise Blvd
5. Jackson Rd/SR-16 @ Grant Line Rd
9. Grant Line Rd @ Sunrise Blvd
11. Douglas Rd @ Sunrise Blvd
13. Mather Field Rd @ Folsom Blvd
19. Zinfandel Dr @ US-50 Eastbound Ramps
21. Sunrise Blvd @ White Rock Rd
25. Sunrise Blvd @ Zinfandel Dr

Cumulative (2040) Study Intersections:

1. Jackson Rd/SR-16 @ Bradshaw Rd
4. Jackson Rd/SR-16 @ Sunrise Blvd
5. Jackson Rd/SR-16 @ Grant Line Rd
9. Grant Line Rd @ Sunrise Blvd
10. Douglas Rd @ Zinfandel Dr
11. Douglas Rd @ Sunrise Blvd
13. Mather Field Rd @ Folsom Blvd
17. Zinfandel Dr @ International Dr
19. Zinfandel Dr @ US-50 Eastbound Ramps
21. Sunrise Blvd @ White Rock Rd
25. Sunrise Blvd @ Zinfandel Dr
27. White Rock Rd @ Prairie City Rd

Exhibit 1 depicts the locations of these study intersections. Please note that the intersection ID's are consistent with the original Jaeger Ranch Transportation Impact Study[1].

This traffic impact analysis was conducted for the study facilities for the following scenarios:

A. Existing (2017) plus Proposed Project Conditions
B. Cumulative (2040) plus Proposed Project Conditions

Regulatory Setting and Thresholds of Significance

Sacramento County

The Circulation Element of the latest County of Sacramento General Plan[4] includes the following relevant provisions:

> *CI-9. Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or mitigation measures that would achieve LOS D on rural roadways or LOS E on urban roadways. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.*
>
> *CI-35. The applicant/developer of land development projects shall be responsible to install bicycle and pedestrian facilities in accordance with Sacramento County Improvement Standards and may be responsible to participate in the fair share funding of regional multi-use trails identified in the Sacramento County Bicycle Master Plan.*

Sacramento County's traffic study guidelines[2] provide guidelines for the implementation of the General Plan provisions: "The County defines the minimum acceptable operation level for its roadways and intersections to be LOS D for rural areas and LOS E for urban areas. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural."

All of the Sacramento County study facilities are within the Urban Services Boundary. Therefore, LOS E is the minimum acceptable LOS for all County facilities.

Thresholds of Significance

Roadways/Signalized Intersections: A project is considered to have a significant effect if it would:

- Result in a roadway or a signalized intersection operating at an acceptable LOS to deteriorate to an unacceptable LOS; or
- Increase the V/C ratio by more than 0.05 at a roadway or at a signalized intersection that is operating at an unacceptable LOS without the project.

Unsignalized Intersections: A project is considered to have a significant effect if it would:

- Result in an unsignalized intersection movement/approach operating at an acceptable LOS to deteriorate to an unacceptable LOS, and also cause the intersection to meet a traffic signal warrant; or
- For an unsignalized intersection that meets a signal warrant, increase the delay by more than 5 seconds at a movement/approach that is operating at an unacceptable LOS without the project.

[4] *Sacramento County General Plan of 2005-2030,* Sacramento County Community Planning & Development Department, November 9, 2011.

City of Rancho Cordova

The Circulation Element of the City of Rancho Cordova's General Plan 2030 includes the following relevant provisions:

> *Policy C.1.2 - Seek to maintain operations on all roadways and intersections at Level of Service D or better at all times, including peak travel times, unless maintaining this Level of Service would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. Congestion in excess of Level of Service D may be accepted in these cases, provided that provisions are made to improve traffic flow and/or promote non-vehicular transportation as part of a development project or a City-initiated project. Please see Policy C.1.3 for additional policy guidance related to this issue.*
>
> *Examples of system improvements which may be accepted when Level of Service D cannot be maintained include the following, where the improvement or funding is in excess of standard City requirements:*
> *• Development of on- or off-street bicycle or pedestrian circulation (not including sidewalks that are constructed as part of roadway improvements);*
> *• Providing or funding public transportation facilities or services;*
> *• Other features as determined appropriate by the City.*
>
> *Policy C.1.3 - Recognize that regional traffic beyond the City's control, as well as circulation system decisions made prior to incorporation or by other agencies, will make it infeasible to achieve the City's desired Level of Service on all roadways. Subject development projects which affect these roadways to the provisions of Policy C.1.2 to provide offsetting improvements to the vehicular and/or non-vehicular transportation system.*

LOS D is the minimum acceptable LOS for all facilities within the City of Rancho Cordova.

Existing (2017) Conditions

As documented in the previous Jaeger Ranch Traffic Impact Analysis[1], new weekday AM (7-9 a.m.) and PM (4-6 p.m.) peak-period intersection turning movement traffic counts were collected on September 28, 2017. Existing (2017) peak-hour turn movement volumes are presented in Exhibit 2

Assessment of Proposed Project

Trip Generation

The number of trips anticipated to be generated by the proposed project are approximated using data included in *Trip Generation, 9th Edition*, published by the Institute of Transportation Engineers (ITE).

The land use considered for this analysis included 723 market rate single family detached units (SFR), 250 multi-family multifamily housing units and 743 AAR units for the project site. Active Adult Residential (AAR) refers to detached senior housing units. This land use type is understood to have trip characteristics that generate fewer daily trips when compared to non-age restrictive land use types. In fact, as described in Trip Generation, the daily trip rate for AAR is 61 percent less than the daily trip rate for SFR. In addition, the AM and PM peak-hour trip rates for AAR are 71 percent and 73 percent less than the AM peak-hour and PM peak-hour trip rates for SFR, respectively.

To represent this development, ITE Land Use Codes 210 (Single Family Detached Housing), 220 (Apartment), 251 (Senior Adult Housing - Detached) and 820 (Shopping Center) were applied. Internal capture rates of 2.84 percent and 8.92 percent were applied to the AM and PM peak-hours, respectively. For the commercial uses, a pass-by reduction of 34% was applied for the PM peak-hour, in accordance with the Trip Generation Handbook. The anticipated trip generation characteristics for the proposed project are presented in Table 1.

Table 1 – Proposed Project Trip Generation Characteristics

Land Use (ITE Code)	Size (DU/KSF)	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Single Family Detached Housing (210)	723	6,685	538	134	404	705	444	261
Apartment (220)	250	1,425	123	25	98	133	86	47
Senior Adult Housing - Detached (251)	743	2,540	159	55	104	183	111	71
Shopping Center (820)	32.000	956	22	14	9	81	39	42
Total		**11,606**	**843**	**228**	**615**	**1,102**	**681**	**421**

As shown in Table 1, the proposed project is estimated to generate approximately 11,606 new daily trips, with 843 and 1,102 trips occurring during the A.M. and P.M. peak-hours, respectively. Relative to the previously completed analysis, this represents an increase of 1,340 new daily trips, with 122 and 168 additional trips occurring during the A.M. and P.M. peak-hours, respectively.

Existing (2017) Plus Proposed Project Conditions

As previously discussed, the number of trips anticipated to be generated by the proposed project was derived using the *Trip Generation Manual, 9th Edition,* published by the Institute for Traffic Engineering (ITE). These trips were assigned to the roadway network based on existing traffic volumes, output from the SACSIM travel demand model, and professional judgment. The project trip distribution percentages are provided in Exhibit 3 and the assignment of project trips are depicted in Exhibit 4.

Using these volumes, levels of service were determined at the study facilities. Existing (2017) plus Proposed Project peak-hour turning movement volumes are presented in Exhibit 5. Levels of service (LOS) were then determined at the study facilities. Analysis worksheets for this scenario are provided in Appendix A.

Table 2 presents the intersection operating conditions for this analysis scenario. As indicated in Table 2, the study intersections operate from LOS C to LOS F.

Table 2 – Existing (2017) plus Proposed Project Intersection Levels of Service

ID	Intersection	Control	Peak Hour	Existing		Existing plus Project	
				Delay	LOS	Delay	LOS
1	Jackson Rd/SR-16 @ Bradshaw Rd	Signal	AM	122.2	F	126.1	F
			PM	79.1	E	80.1	F
2	Jackson Rd/SR-16 @ Excelsior Rd	Signal	AM	74.1	E	59.1	E
			PM	51.8	D	43.2	D
3	Jackson Rd/SR-16 @ Eagles Nest Rd	SSSC	AM	17.2 (89.1 NB)	F	18.0 (95.3 NB)	F
			PM	20.1 (253.1 NB)	F	19.1 (*ECL NB)	F
4	Jackson Rd/SR-16 @ Sunrise Rd	Signal	AM	66.0	E	69.3	E
			PM	44.3	D	47.0	D
5	Jackson Rd/SR-16 @ Grant Line Rd	Signal	AM	113.8	F	114.1	F
			PM	136.4	F	136.9	F
9	Grant Line Rd @ Sunrise Blvd	Signal	AM	113.1	F	120.9	F
			PM	52.1	D	54.9	D
11	Douglas Rd @ Sunrise Blvd	Signal	AM	28.4	C	35.0	D
			PM	41.5	D	63.7	E
13	Mather Field Rd @ Folsom Blvd	Signal	AM	27.5	C	27.2	C
			PM	51.7	D	51.1	D
19	Zinfandel Dr @ US-50 Eastbound Ramps	Signal	AM	85.1	F	88.7	F
			PM	23.2	C	25.7	C
21	Sunrise Blvd @ White Rock Rd	Signal	AM	35.7	D	33.2	C
			PM	56.5	E	61.9	E
25	Sunrise Blvd @ Zinfandel Dr	Signal	AM	112.8	F	117.7	F
			PM	58.6	E	70.2	E

Note: Pink shading indicates new impacts not previously identified in the previous Jaeger Ranch Impact Analysis. Orange shading indicates impacts previously identified.

Cumulative (2040) Conditions

Future traffic estimates were prepared using the modified SACSIM travel demand model developed by the City of Rancho Cordova for the 2040 General Plan. The difference between the resulting traffic estimate and the 2012 baseline model results (the growth) was then added to Existing (2017) traffic volumes to establish Cumulative (2040) traffic estimates for this study. The Cumulative (2040) study intersections are depicted in **Exhibit 6**. Peak-hour traffic volumes for Cumulative (2040) Conditions are presented in **Exhibit 7**.

Cumulative (2040) plus Proposed Project Conditions

As previously discussed, the number of trips anticipated to be generated by the proposed project was derived using the *Trip Generation Manual, 9th Edition*, published by the Institute for Traffic Engineering (ITE). The project trips were assigned to the future roadway network based on modified SACSIM travel demand model, as provided by the City of Rancho Cordova. Using these volumes, levels of service were determined at the study facilities.

The Cumulative Scenario Project Trip distribution and trip assignment are shown in **Exhibit 8** and **Exhibit 9**, respectively. Cumulative plus Proposed Project peak-hour turning movement volumes are presented in **Exhibit 10**. Analysis worksheets for this scenario are provided in **Appendix B**

Table 3 presents the peak-hour intersection operating conditions for this analysis scenario. As indicated in Table 3, the study intersections operate from LOS D to LOS F during the AM and PM peak-hours.

Table 3 – Cumulative (2036) plus Proposed Project Intersection Levels of Service

ID	Intersection	Control	Peak Hour	Cumulative		Cumulative plus Proposed Project	
				Delay	LOS	Delay	LOS
1	Jackson Rd/SR-16 @ Bradshaw Rd	Signal	AM	146.9	F	147.6	F
			PM	194.9	F	195.8	F
4	Jackson Rd/SR-16 @ Sunrise Rd	Signal	AM	104.6	F	105.3	F
			PM	53.9	D	54.7	D
5	Jackson Rd/SR-16 @ Grant Line Rd	Signal	AM	114.7	F	118.7	F
			PM	62.7	E	65.9	E
9	Grant Line Rd @ Sunrise Blvd	Signal	AM	150.1	F	151.5	F
			PM	109.2	F	108.7	F
10	Douglas Rd @ Zinfandel Dr	Signal	AM	145.2	F	161.7	F
			PM	35.3	D	43.9	D
11	Douglas Rd @ Sunrise Blvd	Signal	AM	97.1	F	114.5	F
			PM	107.6	F	109.6	F
13	Mather Field Rd @ Folsom Blvd	Signal	AM	46.3	D	46.1	D
			PM	142.2	F	141.2	F
17	Zinfandel Dr @ International Dr	Signal	AM	45.3	D	45.1	D
			PM	68.2	E	72.4	E
19	Zinfandel Dr @ US-50 Eastbound Ramps	Signal	AM	79.4	E	83.7	F
			PM	166.4	F	170.7	F
21	Sunrise Blvd @ White Rock Rd	Signal	AM	65.5	E	66.8	E
			PM	120.1	F	125.9	F
25	Sunrise Blvd @ Zinfandel Dr	Signal	AM	209.8	F	215.0	F
			PM	93.9	F	101.3	F
27	White Rock Rd @ Prairie City Rd	Signal	AM	140.3	F	144.8	F
			PM	157.0	F	171.0	F

Note: Pink shading indicates new impacts not previously identified in the previous Jaeger Ranch Impact Analysis. Orange shading indicates impacts previously identified.

Impacts and Mitigation

Project impacts were determined by comparing conditions with the proposed project to those without the project. Impacts for intersections are created when traffic from the proposed project forces the LOS to fall below the specified threshold.

Existing (2017) plus Proposed Project Impacts

As reflected in Table 2, the addition of the proposed project results in the five (5) significant impacts to study intersections. The following is a discussion of each impact and its associated mitigation. Analysis worksheets for the mitigations for this scenario are provided in Appendix C. Please note that the impact at Sunrise Boulevard and White Rock Road (Intersection #21) is an impact not identified in the previous Jaeger Ranch Traffic Impact Analysis[1].

Intersection Impacts:

I1. Intersection #3, Jackson Road @Eagles Nest Road
As shown in Table 2, this intersection operates at unacceptable LOS F during the AM and PM peak-hours without the project, and the project adds more than 5 seconds of delay to the northbound left turn movement during the AM and PM peak-hours. ***This is a significant impact***.

I2. Intersection #9, Grant Line Road @ Sunrise Boulevard
As shown in Table 2, this intersection operates at unacceptable LOS F during the AM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection. ***This is a significant impact***.

I3. Intersection #11, Douglas Road @ Sunrise Boulevard
As shown in Table 2, this intersection operates at LOS D during the PM peak-hour without the project, and the project results in LOS E. ***This is a significant impact***.

I4. Intersection #21, Sunrise Boulevard @ White Rock Road
As shown in Table 2, this intersection operates at unacceptable LOS E during the PM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection. ***This is a significant impact***.

I5. Intersection #25, Sunrise Boulevard @ Zinfandel Drive
As shown in Table 2, this intersection operates at unacceptable LOS E during the PM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection. ***This is a significant impact***.

Mitigations:

M1. Intersection #3, Jackson Road and Eagles Nest Road
The significant impact at this intersection during the AM and PM peak-hours can be mitigated by converting the intersection from side street stop control to signalized. As shown in Table 4, with this mitigation the intersection operates at LOS C or better during the AM and PM peak-hours. Therefore, ***this impact is less than significant***. However, the identified improvement falls under the jurisdiction of the County; therefore, neither the City nor the project applicant would have control over their timing or implementation. Thus, this impact would remain ***significant and unavoidable***. If the County allows the improvement to move forward, the impact would be classified as significant in the short term but eventually would be reduced to a less-than-significant level in the long term.

M2. Intersection #9, Grant Line Road @ Sunrise Boulevard
The significant impact at this intersection during the AM peak-hour can be mitigated by changing the southbound approach to include a right turn lane and an all-purpose lane. This mitigation includes restriping the southbound approach to move the bicycle lane from its existing location between the two travel lanes to the right shoulder and add hatching for the right turns, consistent with the Optional Through Right and Right-Turn-Only lane configuration included in Figure 9C-4a (CA) of the CaMUTCD[5]. As shown in Table 4, this mitigation measure results in the intersection operating at LOS E or better during the AM and PM peak-hours. Therefore, ***this impact is less than significant***. However, the identified improvement falls under the jurisdiction of the County; therefore, neither the City nor the project applicant would have control over their timing or

[5] California MUTCD 2014 Edition. Chapter 9C-Markings: Part 9 Traffic Control for Bicycle Facilities. November 2014

implementation. Thus, this impact would remain ***significant and unavoidable***. If the County allows the improvement to move forward, the impact would be classified as significant in the short term but eventually would be reduced to a less-than-significant level in the long term.

M3. Intersection #11, Douglas Road @ Sunrise Boulevard

The significant impact at this intersection during the PM peak-hour can be mitigated through signal timing optimization and the addition of a right-turn overlap signal phase for the eastbound right-turn, overlapping with the northbound left-turn movement. As shown in **Table 4**, this mitigation measure results in the intersection operating at LOS D during the AM and PM peak-hours. Therefore, ***this impact is less than significant***.

M4.Intersection #21, Sunrise Boulevard @ White Rock Road

The significant impact at this intersection during the PM peak-hour can be mitigated by optimizing the signal timings. As shown in **Table 4**, this mitigation measure results in the intersection operating at LOS D or better during the AM and PM peak-hours. Therefore, ***this impact is less than significant***

M5. Intersection #25, Sunrise Boulevard @ Zinfandel Drive

The significant impact at this intersection during the PM peak-hour can be mitigated by restriping the eastbound and westbound approaches to include a left turn lane and through-right lane. As shown in **Table 4**, this mitigation measure results in the intersection operating at LOS D or better during the PM peak-hour. Therefore, ***this impact is less than significant***

Table 4 – Existing (2017) plus Proposed Project Mitigated Intersection Level of Service

ID	Intersection	Control	Peak Hour	Existing plus Project		Existing plus Project (Mitigated)	
				Delay	LOS	Delay	LOS
3	Jackson Rd/SR-16 @ Eagles Nest Rd	Signal	AM	**18.0 (95.3 NB)**	**F**	20.0	C
			PM	**19.1 (*ECL NB)**	**F**	15.8	B
9	Grant Line Rd @ Sunrise Blvd	Signal	AM	**120.9**	**F**	61.9	E
			PM	54.9	D	32.1	C
11	Douglas Rd @ Sunrise Blvd	Signal	AM	35.0	D	35.0	D
			PM	**63.7**	**E**	53.2	D
21	Sunrise Blvd @ White Rock Rd	Signal	AM	33.2	C	33.2	C
			PM	**61.9**	**E**	54.3	D
25	Sunrise Blvd @ Zinfandel Dr	Signal	AM	117.7	F	89.0	F
			PM	**70.2**	**E**	54.5	D

Cumulative plus Proposed Project Impacts

As reflected in **Table 3**, the addition of the proposed project results in five (5) significant impacts to study intersections. The following is a discussion of each impact and its associated mitigation. Analysis worksheets for the mitigations for this scenario are provided in **Appendix D**. Please note that the impacts at Sunrise Boulevard and White Rock Road (Intersection #21) and Sunrise Boulevard and Zinfandel Drive (Intersection #25) were not identified in the previous Jaeger Ranch Traffic Impact Analysis[1].

Intersection Impacts:

I1. *Intersection #10, Douglas Road @ Zinfandel Drive*
As shown in Table 3, this intersection operates at unacceptable LOS F during the AM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection during the AM peak-hour. This is a significant impact.

I2. *Intersection #11, Douglas Road @ Sunrise Boulevard*
As shown in Table 3, this intersection operates at unacceptable LOS F during the AM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection during the AM peak-hour. ***This is a significant impact***.

I3. *Intersection #21, Sunrise Boulevard and White Rock Road*
As shown in Table 3, this intersection operates at unacceptable LOS F during the AM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection during the AM peak-hour. ***This is a significant impact***.

I4. *Intersection #25, Sunrise Boulevard and Zinfandel Drive*
As shown in Table 3, this intersection operates at unacceptable LOS F during the AM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection during the AM peak-hour. ***This is a significant impact***.

I5. *Intersection #27, White Rock Road @Prairie City Road*
As shown in Table 3, this intersection operates at unacceptable LOS F during the AM and PM peak-hour without the project, and the project adds more than 5 seconds of delay to the intersection during the PM peak-hour. ***This is a significant impact***.

Mitigations:

M6. *Intersection #10, Douglas Road @ Zinfandel Drive*
The significant impact at this intersection during the AM peak-hour can mitigated by the conversion of the westbound right turn from permitted to a free right turn with a receiving lane. As shown in Table 5, this mitigation measure results in the intersection operating at LOS D during the AM and PM peak-hours. Therefore, this impact is less than significant. However, the identified improvement falls under the jurisdiction of the County; therefore, neither the City nor the project applicant would have control over their timing or implementation. Thus, this impact would remain significant and unavoidable. If the County allows the improvement to move forward, the impact would be classified as significant in the short term but eventually would be reduced to a less-than-significant level in the long term.

M7. *Intersection #11, Douglas Road @ Sunrise Boulevard*
The significant impact at this intersection during the AM peak-hour cannot be feasibly mitigated. The intersection of Douglas Road and Sunrise Boulevard is fully built out according to the City's General Plan. As shown Table 5, signal timing optimization is not enough to mitigate the project impacts to acceptable conditions. Therefore, ***this impact is significant and unavoidable***. However, as described in the Rio Del Oro Specific Plan DEIR/DEIS[6], there is potential to improve conditions through additional connectivity along Sunrise Boulevard and further build out of the City's General Plan network.

[6] Rio del Oro Specific Plan Project DEIR/DEIS. City of Rancho Cordova and USACE. April, 2008

M8.Intersection #21, Sunrise Boulevard @ White Rock Road

The significant impact at this intersection during the PM peak-hour cannot be feasibly mitigated. The intersection of Sunrise Boulevard and White Rock Road is fully built out according to the City's General Plan. As shown in **Table 5,** signal timing optimization is not enough to mitigate the project impacts to acceptable conditions. Therefore, ***this impact is significant and unavoidable***.

M9.Intersection #25, Sunrise Boulevard @ Zinfandel Drive

The significant impact at this intersection during the AM peak-hour cannot be feasibly mitigated. The intersection of Sunrise Boulevard and Zinfandel Drive is fully built out according to the City's General Plan. As shown in **Table 5**, signal timing optimization is not enough to mitigate the project impacts to acceptable conditions. Therefore, ***this impact is significant and unavoidable***.

M10.Intersection #27, White Rock Road @ Prairie City Road

The significant impact at this intersection during the PM peak-hour can be mitigated with the addition of a second southbound right-turn lane and the addition of a right-turn overlap signal phase for the southbound right-turn. As shown in **Table 5**, this mitigation measure results in the intersection operating at LOS D or better during the AM and PM peak-hours. Therefore, ***this impact is less than significant***.

Table 5 – Cumulative (2040) plus Proposed Project Mitigated Intersection Level of Service

ID	Intersection	Control	Peak Hour	Cumulative plus Proposed Project		Cumulative plus Proposed Project (Mitigated)	
				Delay	LOS	Delay	LOS
10	Douglas Rd @ Zinfandel Dr	Signal	AM	**161.7**	**F**	51.7	D
			PM	43.9	D	43.0	D
11	Douglas Rd @ Sunrise Blvd	Signal	AM	**114.5**	**F**	**114.5**	**F**
			PM	**109.6**	**F**	**109.6**	**F**
21	Sunrise Blvd @ White Rock Rd	Signal	AM	**66.8**	**E**	**66.8**	**E**
			PM	**125.9**	**F**	**125.9**	**F**
25	Sunrise Blvd @ Zinfandel Dr	Signal	AM	**215.0**	**F**	**215.0**	**F**
			PM	**101.3**	**F**	**101.3**	**F**
27	White Rock Rd @ Prairie City Rd	Signal	AM	**144.8**	**F**	36.7	D
			PM	**171.0**	**F**	31.8	C

Conclusions

The following are the primary conclusions based on the analyses discussed herein:

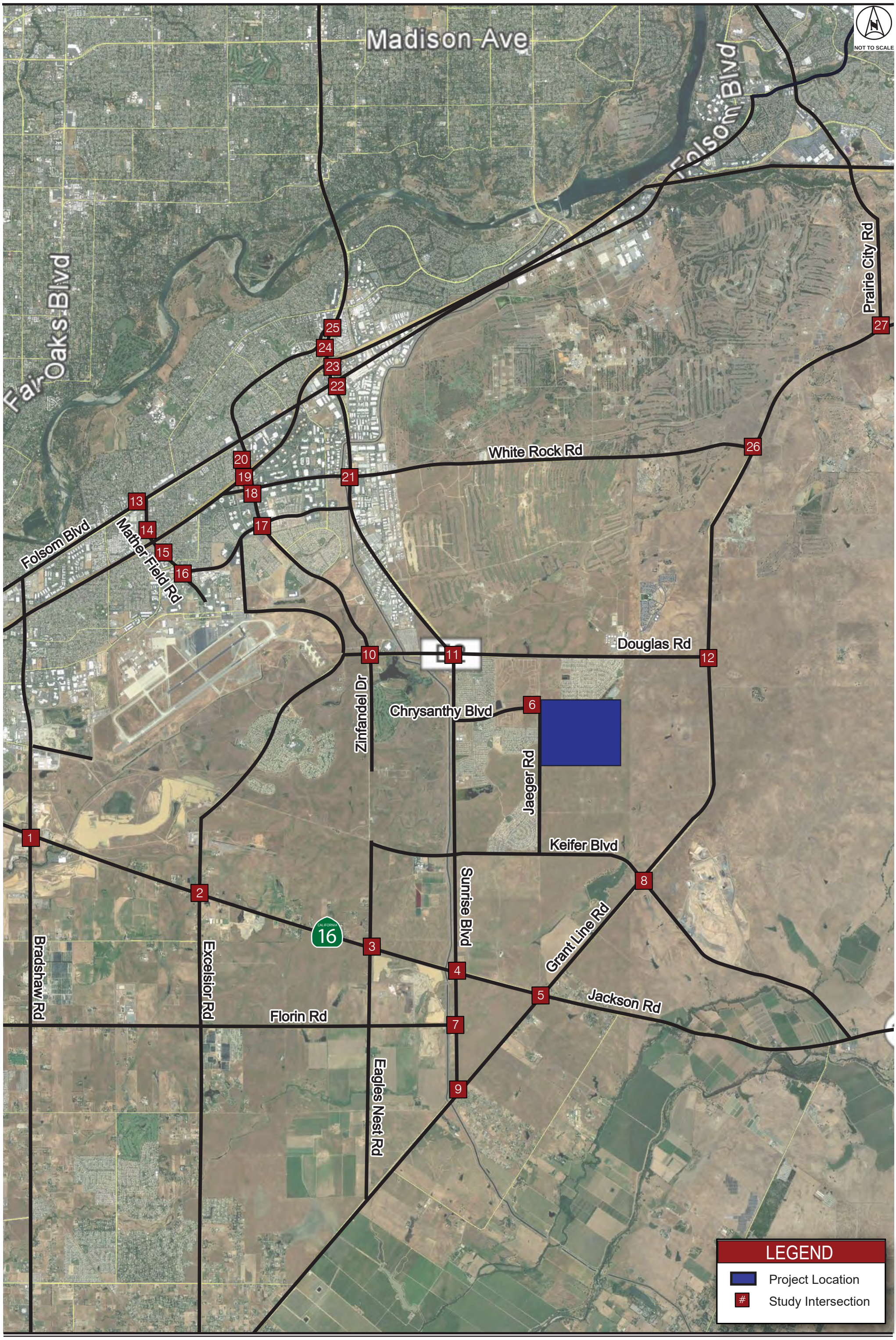
- The proposed project is estimated to generate 11,606 new daily trips, with 843 new trips occurring during the AM peak-hour, and 1,102 new trips occurring during the PM peak-hour.
- The addition of the proposed project to the Existing (2017) Conditions results in a significant impact at five (5) study intersections. Four (4) of these impacts and mitigations were previously identified in the Jaeger Ranch Traffic Impact Analysis[1]. This analysis identified one additional impact to the intersection of Sunrise Boulevard with White Rock Road (Intersection #21). With the application of mitigation measures recommended herein, the impacts to all five (5) intersections can be mitigated to be *less than significant*.

- The addition of the proposed project to Cumulative (2040) Conditions results in a significant impact at five (5) intersections. Three (3) of these impacts and mitigations were previously identified in the Jaeger Ranch Traffic Impact Analysis[1]. Two (2) of the impacts to intersections would be mitigated to *less than significant*. Three (3) locations do not have a feasible mitigation including the two (2) newly identified mitigations.

Attachments:

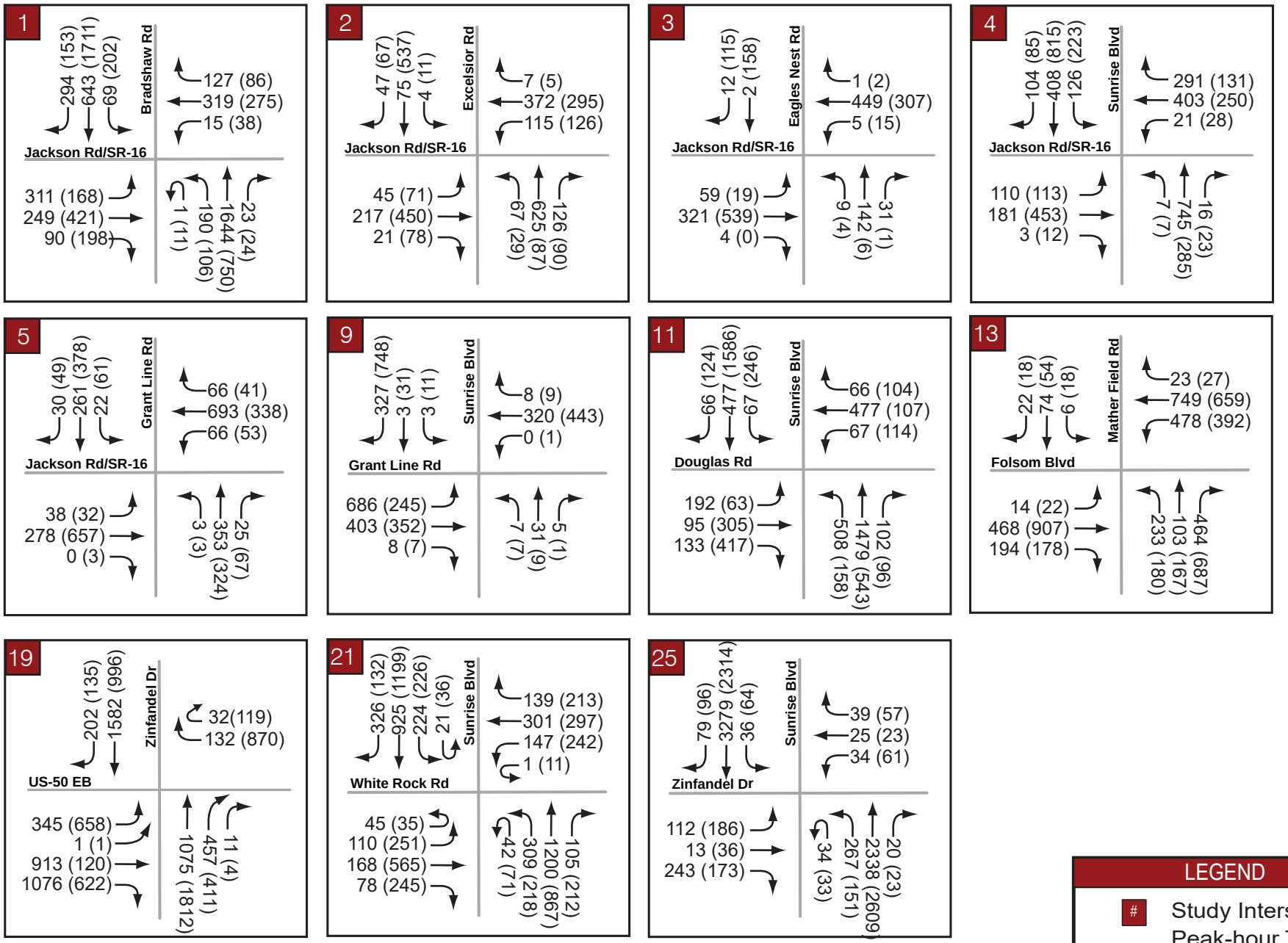
Exhibit 1 – Existing Project Site Vicinity Map
Exhibit 2 – Existing (2017) Peak Hour Traffic Volumes
Exhibit 3 – Existing (2017) Project Trip Distribution
Exhibit 4 – Existing (2017) Proposed Project Trip Assignment
Exhibit 5 – Existing (2017) plus Proposed Project Peak-Hour Volumes
Exhibit 6 – Cumulative Project Site Vicinity Map
Exhibit 7 – Cumulative (2040) Peak-Hour Traffic Volumes
Exhibit 8 – Cumulative (2040) Project Trip Distribution
Exhibit 9 – Cumulative (2040) Proposed Project Trip Assignment
Exhibit 10 – Cumulative (2040) plus Proposed Project Peak-Hour Volumes

Appendix A – Analysis Worksheets for Existing (2017) plus Proposed Project Conditions
Appendix B – Analysis Worksheets for Cumulative (2040) plus Proposed Project Conditions
Appendix C– Analysis Worksheets for Existing (2017) plus Proposed Project Mitigated Conditions
Appendix D– Analysis Worksheets for Cumulative (2040) plus Proposed Project Mitigated Conditions



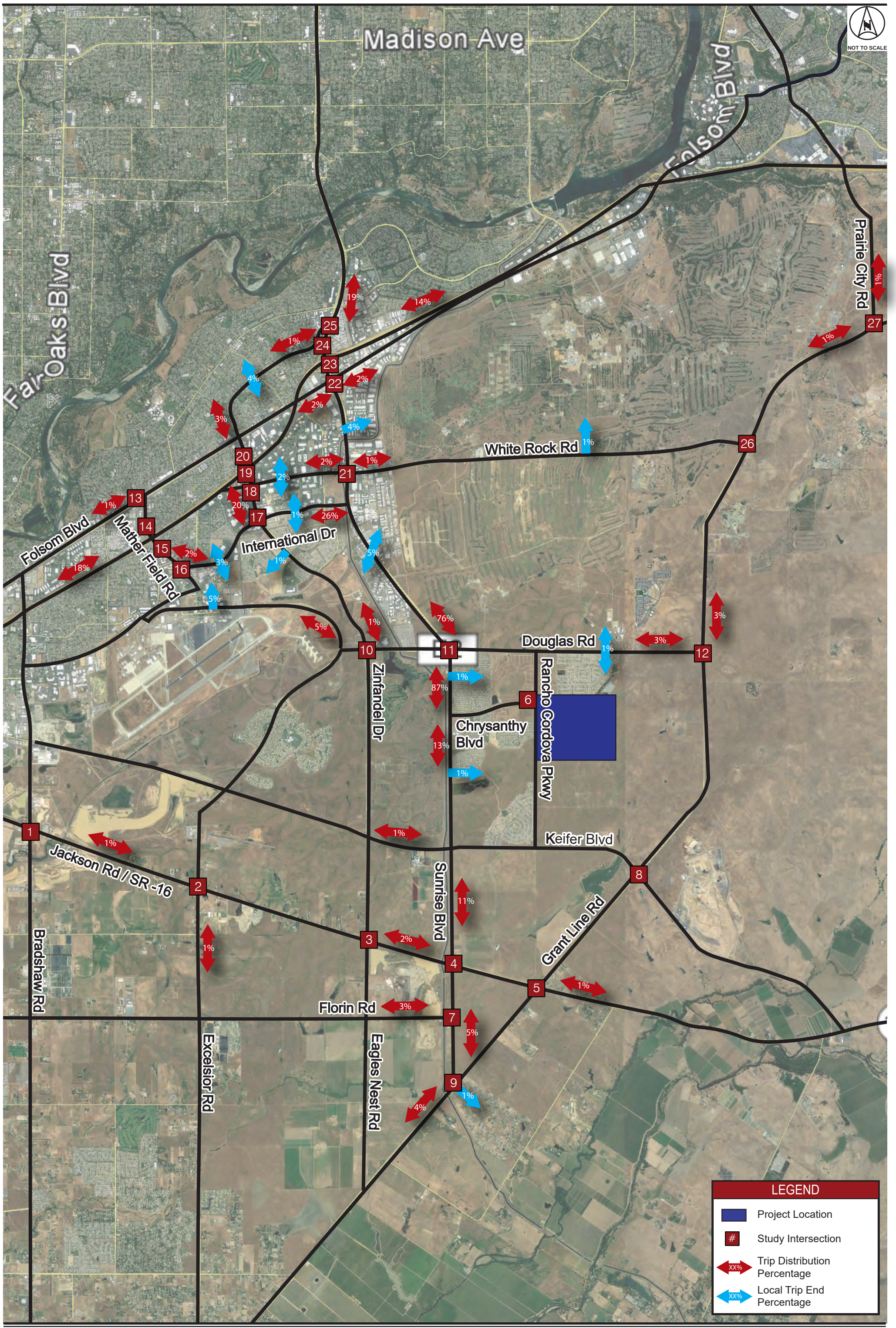
Kimley»Horn

Exhibit 1
Existing (2017) Project Vicinity Map



Kimley»Horn

Exhibit 2
Existing (2017) Peak-Hour Traffic Volumes



Kimley»Horn

Exhibit 3
Existing (2017) Project Trip Distribution

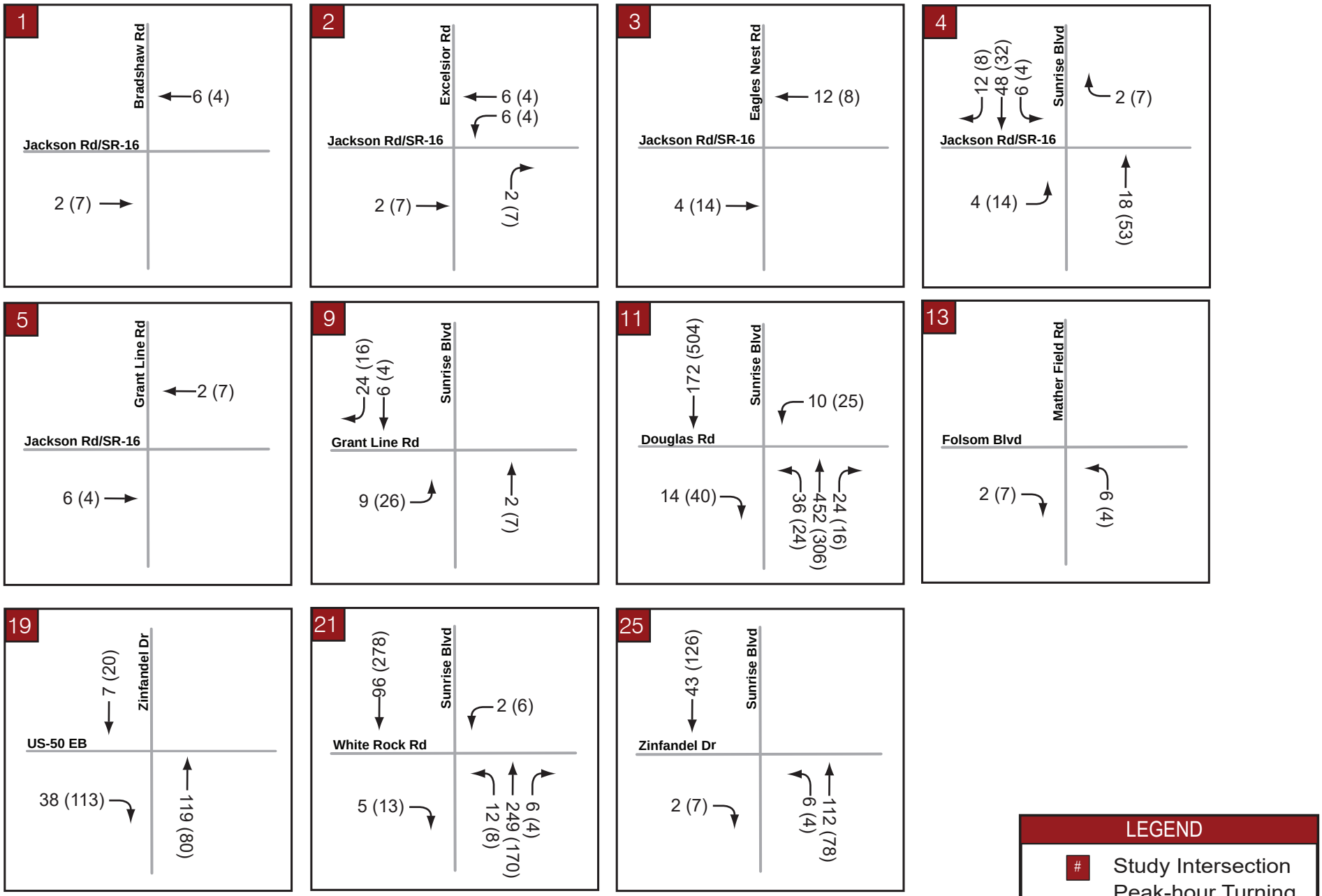
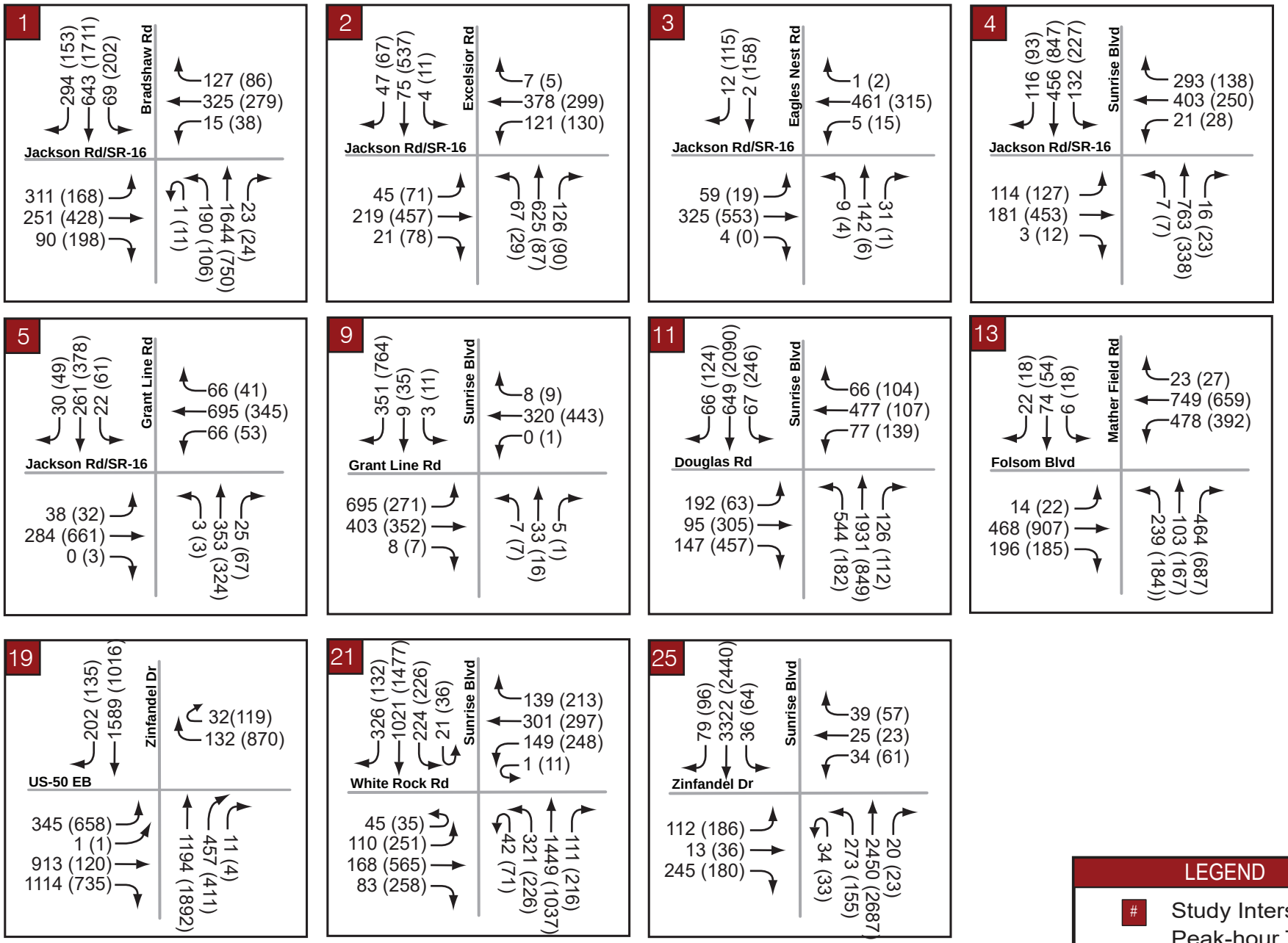


Exhibit 4

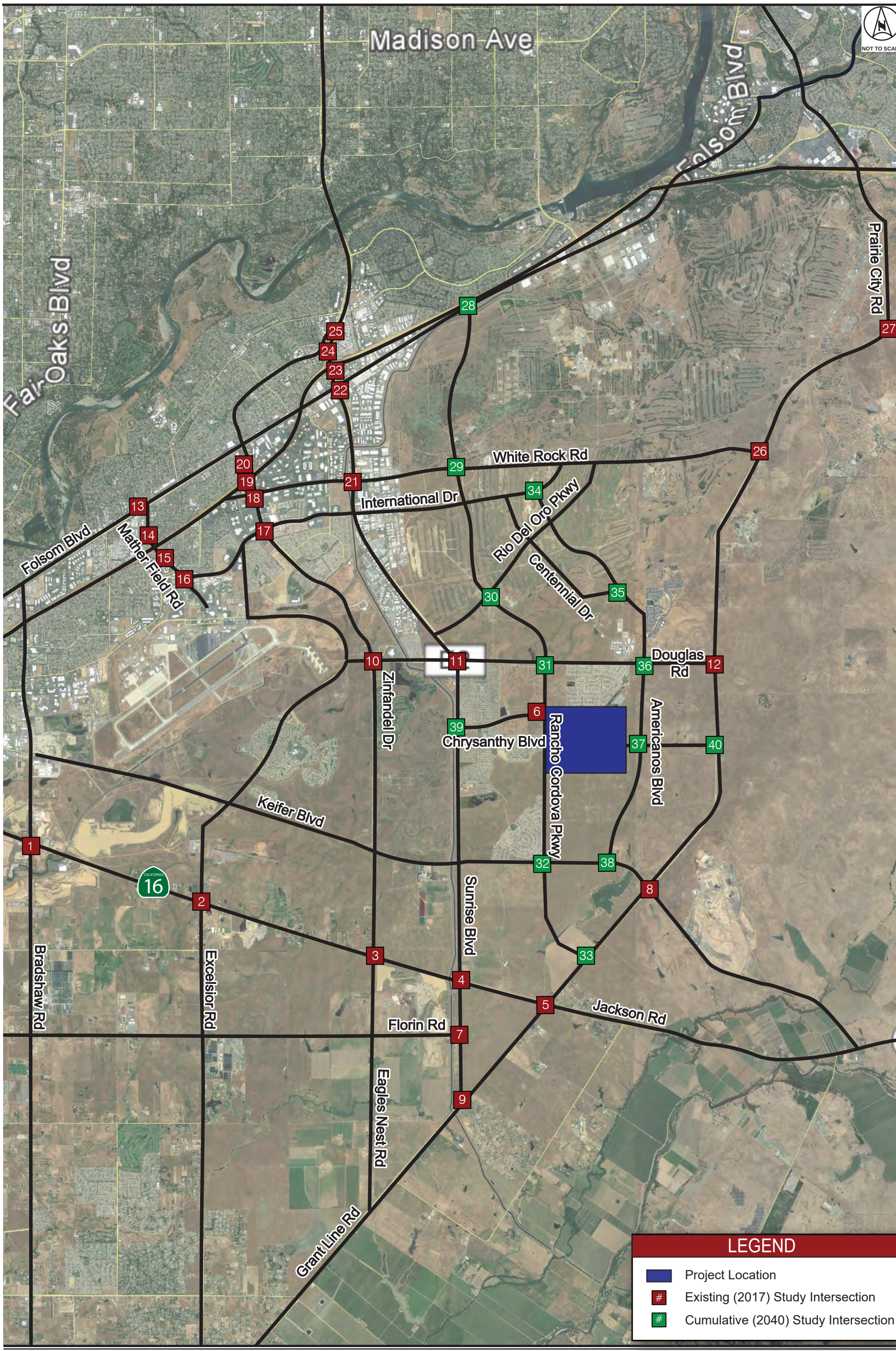
Existing (2017) Proposed Project Trip Assignment



Kimley»Horn

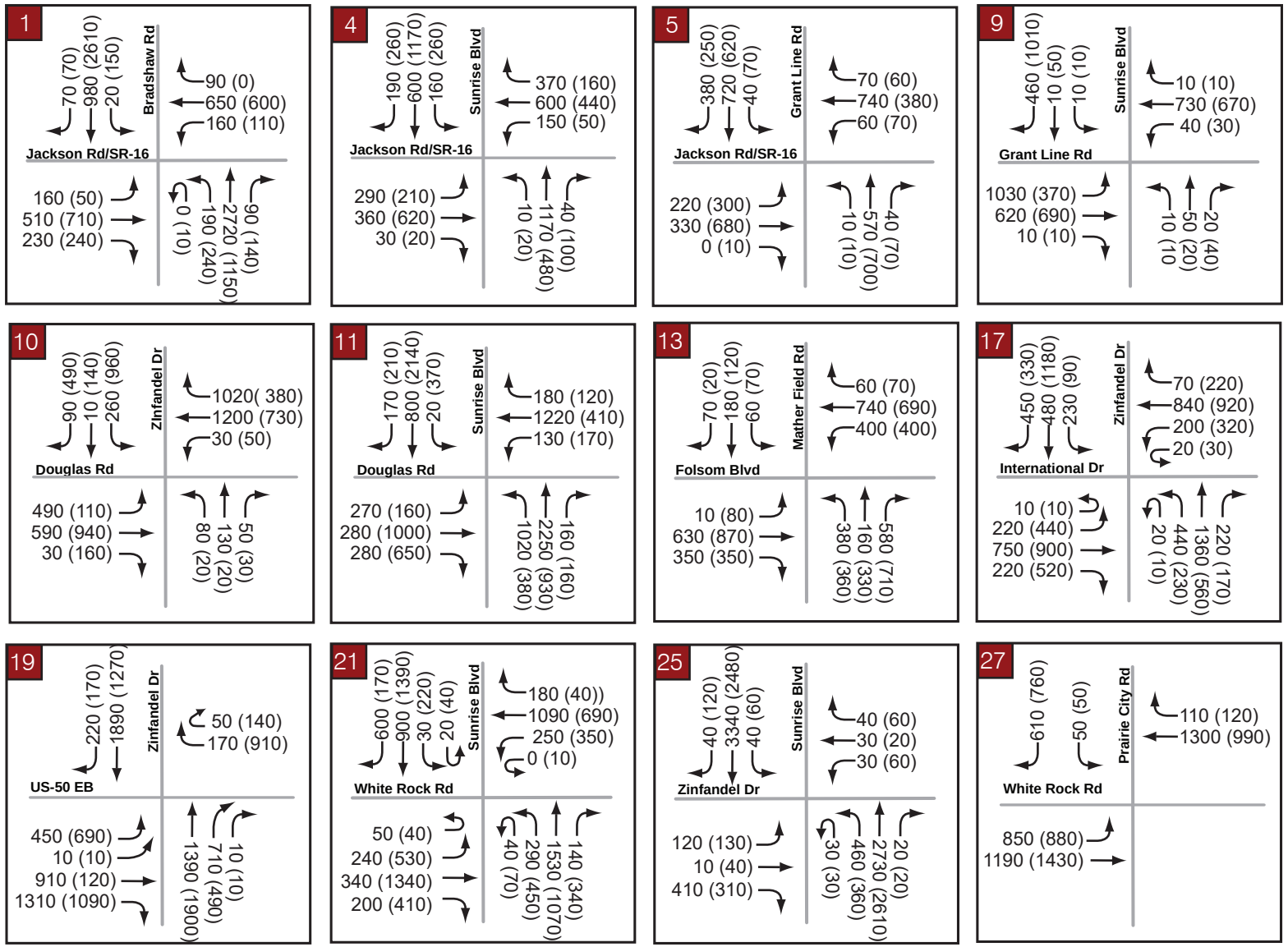
Exhibit 5

Existing (2017) plus Proposed Project Peak-Hour Volumes



Kimley»Horn

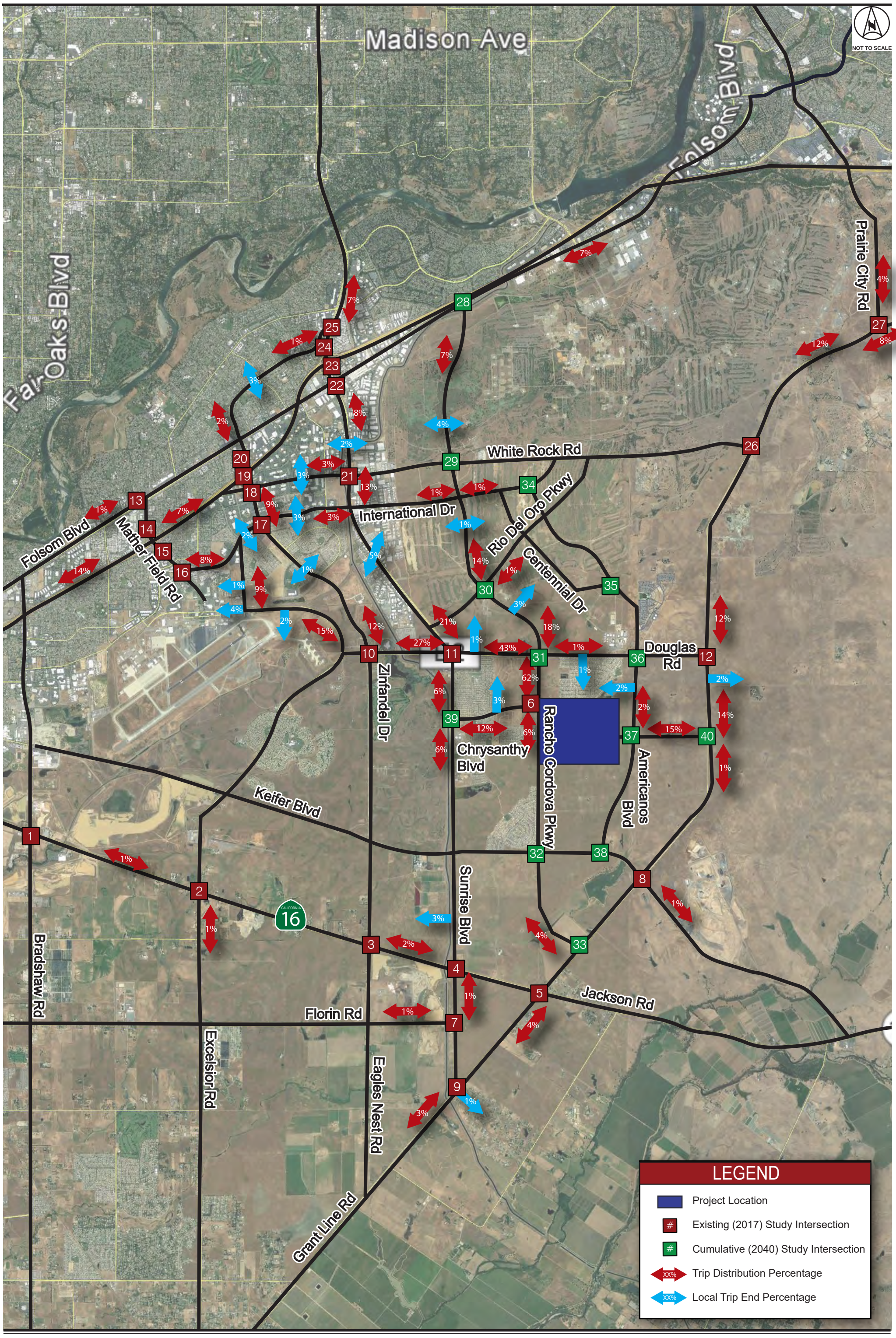
Exhibit 6
Cumulative (2040) Study Intersections



Kimley»Horn

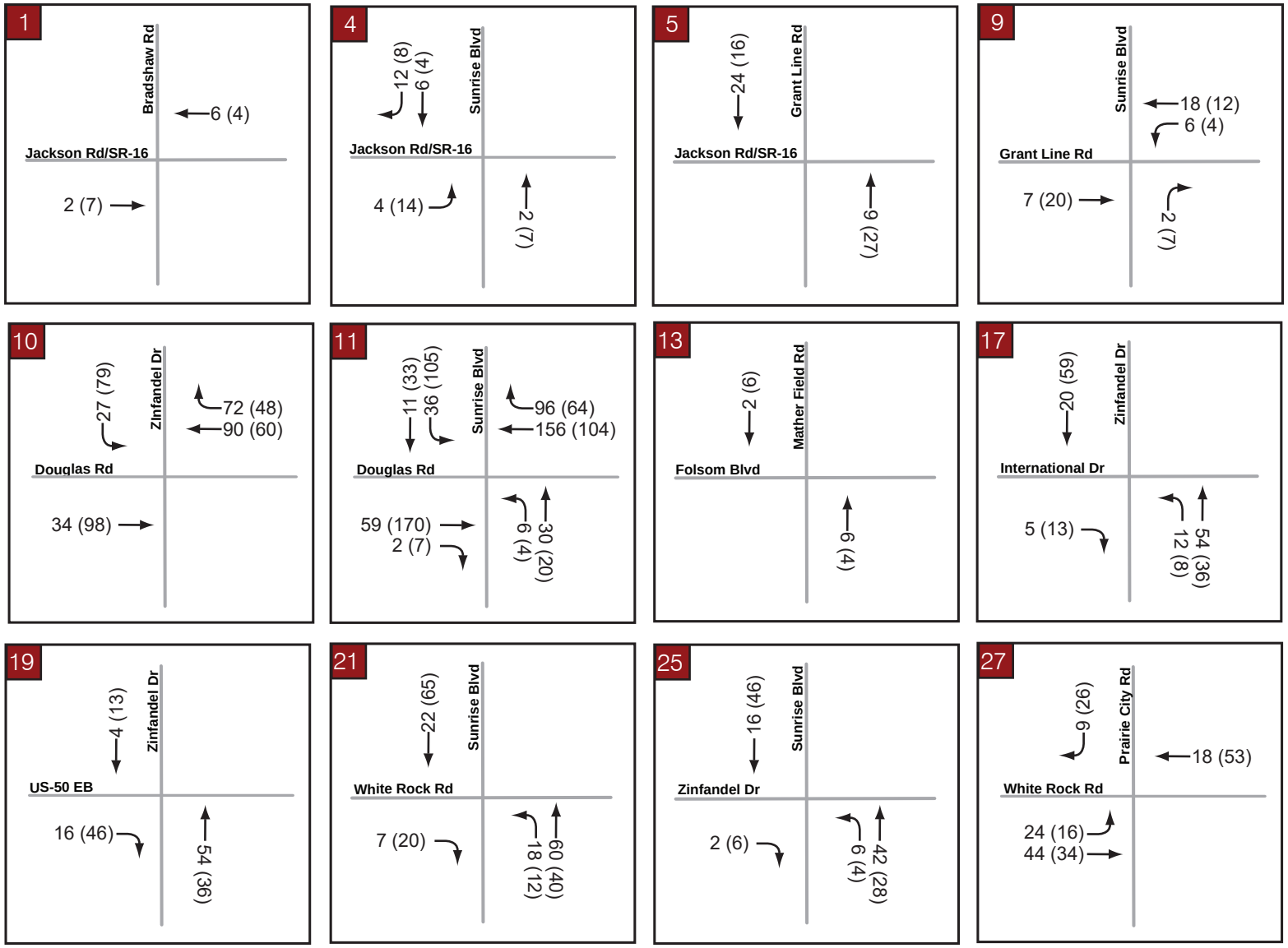
Exhibit 7

Cumulative (2040) Peak-Hour Traffic Volumes



Kimley»Horn

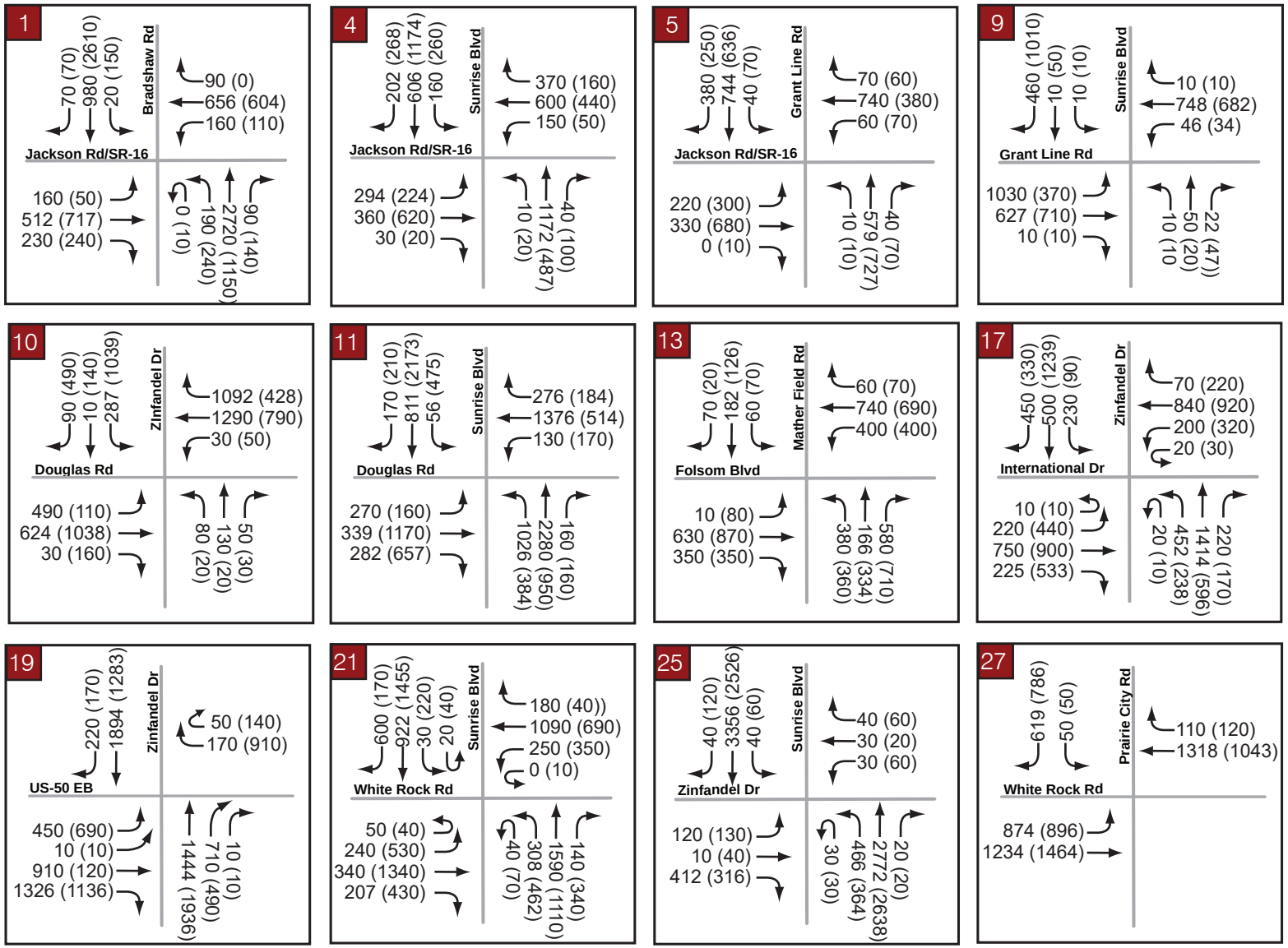
Exhibit 8
Cumulative (2040) Project Trip Distribution



Kimley»Horn

Exhibit 9

Cumulative (2040) Proposed Project Trip Assignment



Kimley»Horn

Exhibit 10

Cumulative (2040) plus Proposed Project Peak-Hour Volumes

Appendix A

Analysis Worksheets for Existing (2017) plus Proposed Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	311	251	90	15	325	127	1	190	1644	23	69	643
Future Volume (veh/h)	311	251	90	15	325	127	1	190	1644	23	69	643
Number	3	8	18	7	4	14		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	362	292	105	16	357	140		216	1868	26	76	707
Adj No. of Lanes	1	1	1	1	1	1		1	2	0	1	2
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91		0.88	0.88	0.88	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	286	660	561	19	380	323		227	1471	20	95	1193
Arrive On Green	0.16	0.35	0.35	0.01	0.20	0.20		0.13	0.41	0.41	0.05	0.34
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583		1774	3573	50	1774	3539
Grp Volume(v), veh/h	362	292	105	16	357	140		216	923	971	76	707
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583		1774	1770	1853	1774	1770
Q Serve(g_s), s	24.5	18.3	7.0	1.4	28.7	11.7		18.4	62.6	62.6	6.4	25.2
Cycle Q Clear(g_c), s	24.5	18.3	7.0	1.4	28.7	11.7		18.4	62.6	62.6	6.4	25.2
Prop In Lane	1.00		1.00	1.00		1.00		1.00		0.03	1.00	
Lane Grp Cap(c), veh/h	286	660	561	19	380	323		227	728	763	95	1193
V/C Ratio(X)	1.27	0.44	0.19	0.83	0.94	0.43		0.95	1.27	1.27	0.80	0.59
Avail Cap(c_a), veh/h	286	660	561	227	399	339		227	728	763	286	1457
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.8	37.6	34.0	75.1	59.6	52.9		65.8	44.7	44.7	71.1	41.8
Incr Delay (d2), s/veh	144.8	0.2	0.1	26.6	28.8	0.3		45.2	130.9	133.1	5.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.5	9.4	3.0	0.8	17.8	5.2		11.9	57.0	60.2	3.3	12.3
LnGrp Delay(d),s/veh	208.5	37.8	34.0	101.7	88.4	53.2		111.0	175.7	177.8	76.8	42.1
LnGrp LOS	F	D	C	F	F	D		F	F	F	E	D
Approach Vol, veh/h		759			513				2110			783
Approach Delay, s/veh		118.7			79.2				170.0			45.5
Approach LOS		F			E				F			D

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	58.7	30.0	38.4	13.7	70.0	7.2	61.3
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	19.5	62.6	24.5	32.6	24.5	62.6	19.5	* 33
Max Q Clear Time (g_c+I1), s	20.4	27.2	26.5	30.7	8.4	64.6	3.4	20.3
Green Ext Time (p_c), s	0.0	3.8	0.0	0.3	0.1	0.0	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	126.1
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	294
Future Volume (veh/h)	294
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	0
Adj No. of Lanes	1
Peak Hour Factor	0.91
Percent Heavy Veh, %	2
Cap, veh/h	534
Arrive On Green	0.00
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	534
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	652
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	219	21	121	378	7	67	625	128	4	75	47
Future Volume (veh/h)	45	219	21	121	378	7	67	625	128	4	75	47
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	58	281	27	136	425	8	73	679	139	5	88	55
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.78	0.78	0.78	0.89	0.89	0.89	0.92	0.92	0.92	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	528	50	174	779	15	92	576	118	69	397	248
Arrive On Green	0.04	0.16	0.16	0.10	0.22	0.22	0.05	0.38	0.38	0.04	0.37	0.37
Sat Flow, veh/h	1774	3266	311	1774	3554	67	1774	1501	307	1774	1073	671
Grp Volume(v), veh/h	58	151	157	136	211	222	73	0	818	5	0	143
Grp Sat Flow(s),veh/h/ln	1774	1770	1808	1774	1770	1851	1774	0	1809	1774	0	1744
Q Serve(g_s), s	1.7	4.2	4.3	4.0	5.7	5.7	2.2	0.0	20.5	0.1	0.0	3.0
Cycle Q Clear(g_c), s	1.7	4.2	4.3	4.0	5.7	5.7	2.2	0.0	20.5	0.1	0.0	3.0
Prop In Lane	1.00		0.17	1.00		0.04	1.00		0.17	1.00		0.38
Lane Grp Cap(c), veh/h	72	286	292	174	388	406	92	0	694	69	0	646
V/C Ratio(X)	0.81	0.53	0.54	0.78	0.54	0.55	0.79	0.00	1.18	0.07	0.00	0.22
Avail Cap(c_a), veh/h	365	1838	1877	365	1838	1922	365	0	694	365	0	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.4	20.5	20.6	23.5	18.5	18.5	25.1	0.0	16.5	24.8	0.0	11.5
Incr Delay (d2), s/veh	7.7	2.2	2.2	2.9	1.7	1.6	5.6	0.0	95.1	0.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.2	2.3	2.1	2.9	3.1	1.2	0.0	28.3	0.1	0.0	1.6
LnGrp Delay(d),s/veh	33.2	22.7	22.7	26.4	20.2	20.1	30.7	0.0	111.6	24.9	0.0	12.3
LnGrp LOS	C	C	C	C	C	C	C		F	C		B
Approach Vol, veh/h		366			569			891			148	
Approach Delay, s/veh		24.4			21.7			105.0			12.8	
Approach LOS		C			C			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	16.2	6.8	24.3	9.2	13.1	6.1	25.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	11.0	55.5	11.0	20.5	11.0	55.5	11.0	20.5
Max Q Clear Time (g_c+I1), s	3.7	7.7	4.2	5.0	6.0	6.3	2.1	22.5
Green Ext Time (p_c), s	0.0	3.5	0.0	1.8	0.0	2.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	59.1
HCM 2010 LOS	E

Notes

Intersection	
Int Delay, s/veh	18

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	325	4	5	461	1	9	142	31	0	2	12
Future Vol, veh/h	59	325	4	5	461	1	9	142	31	0	2	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	350	-	-	350	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	92	92	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	65	357	4	5	501	1	13	203	44	0	3	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	502	0	0	361	0	0	1011	1001	359	1125	1003	502
Stage 1	-	-	-	-	-	-	489	489	-	512	512	-
Stage 2	-	-	-	-	-	-	522	512	-	613	491	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1062	-	-	1198	-	-	218	243	685	182	242	569
Stage 1	-	-	-	-	-	-	561	549	-	545	536	-
Stage 2	-	-	-	-	-	-	538	536	-	480	548	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1062	-	-	1198	-	-	199	227	685	38	226	569
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	227	-	38	226	-
Stage 1	-	-	-	-	-	-	527	516	-	512	534	-
Stage 2	-	-	-	-	-	-	517	534	-	256	515	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.1	80.9	12.9
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	225	685	1062	-	-	1198	-	-	226	569
HCM Lane V/C Ratio	0.959	0.065	0.061	-	-	0.005	-	-	0.013	0.03
HCM Control Delay (s)	95.3	10.6	8.6	-	-	8	-	-	21.1	11.5
HCM Lane LOS	F	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	8.4	0.2	0.2	-	-	0	-	-	0	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	181	3	21	403	293	7	763	16	132	456	116
Future Volume (veh/h)	114	181	3	21	403	293	7	763	16	132	456	116
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	125	199	3	23	433	315	8	857	18	140	485	123
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.89	0.89	0.89	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	553	470	29	429	364	37	802	17	163	954	942
Arrive On Green	0.08	0.30	0.30	0.02	0.23	0.23	0.02	0.44	0.44	0.09	0.51	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1818	38	1774	1863	1583
Grp Volume(v), veh/h	125	199	3	23	433	315	8	0	875	140	485	123
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	0	1856	1774	1863	1583
Q Serve(g_s), s	10.0	12.1	0.2	1.9	33.2	27.6	0.6	0.0	63.6	11.2	24.8	4.9
Cycle Q Clear(g_c), s	10.0	12.1	0.2	1.9	33.2	27.6	0.6	0.0	63.6	11.2	24.8	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	147	553	470	29	429	364	37	0	818	163	954	942
V/C Ratio(X)	0.85	0.36	0.01	0.80	1.01	0.86	0.22	0.00	1.07	0.86	0.51	0.13
Avail Cap(c_a), veh/h	252	553	470	252	429	364	252	0	818	301	954	942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.2	39.9	35.7	70.7	55.5	53.3	69.5	0.0	40.3	64.6	23.2	12.8
Incr Delay (d2), s/veh	5.1	0.1	0.0	17.2	45.9	18.2	1.1	0.0	51.6	5.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	6.3	0.1	1.1	22.5	13.9	0.3	0.0	44.2	5.7	12.7	2.1
LnGrp Delay(d),s/veh	70.4	40.0	35.7	87.9	101.5	71.5	70.5	0.0	91.9	69.5	23.4	12.8
LnGrp LOS	E	D	D	F	F	E	E		F	E	C	B
Approach Vol, veh/h		327			771			883			748	
Approach Delay, s/veh		51.6			88.8			91.7			30.3	
Approach LOS		D			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	40.0	7.5	80.3	6.8	49.6	17.8	70.0
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	20.5	33.2	20.5	* 64	20.5	33.2	24.5	63.6
Max Q Clear Time (g_c+I1), s	12.0	35.2	2.6	26.8	3.9	14.1	13.2	65.6
Green Ext Time (p_c), s	0.0	0.0	0.0	1.7	0.0	0.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	69.3
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	284	0	66	695	66	3	353	25	22	261	30
Future Volume (veh/h)	38	284	0	66	695	66	3	353	25	22	261	30
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	43	323	0	74	781	74	3	380	27	25	293	34
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	674	0	92	641	61	3	392	28	27	311	36
Arrive On Green	0.03	0.36	0.00	0.05	0.38	0.38	0.23	0.23	0.23	0.21	0.21	0.21
Sat Flow, veh/h	1774	1863	0	1774	1676	159	13	1706	121	130	1519	176
Grp Volume(v), veh/h	43	323	0	74	0	855	410	0	0	352	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1774	0	1835	1841	0	0	1825	0	0
Q Serve(g_s), s	4.0	22.1	0.0	6.8	0.0	63.2	36.5	0.0	0.0	31.4	0.0	0.0
Cycle Q Clear(g_c), s	4.0	22.1	0.0	6.8	0.0	63.2	36.5	0.0	0.0	31.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.09	0.01		0.07	0.07		0.10
Lane Grp Cap(c), veh/h	55	674	0	92	0	701	423	0	0	374	0	0
V/C Ratio(X)	0.78	0.48	0.00	0.81	0.00	1.22	0.97	0.00	0.00	0.94	0.00	0.00
Avail Cap(c_a), veh/h	274	716	0	220	0	701	423	0	0	422	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	79.5	40.8	0.0	77.6	0.0	51.1	63.1	0.0	0.0	64.7	0.0	0.0
Incr Delay (d2), s/veh	8.4	0.2	0.0	6.1	0.0	111.3	35.5	0.0	0.0	26.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	11.4	0.0	3.5	0.0	53.6	22.7	0.0	0.0	18.6	0.0	0.0
LnGrp Delay(d),s/veh	87.9	40.9	0.0	83.7	0.0	162.4	98.6	0.0	0.0	91.3	0.0	0.0
LnGrp LOS	F	D		F		F	F			F		
Approach Vol, veh/h		366			929			410			352	
Approach Delay, s/veh		46.5			156.2			98.6			91.3	
Approach LOS		D			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.7	70.0		40.7	13.0	66.6		45.0
Change Period (Y+Rc), s	4.5	6.8		6.8	4.5	* 6.8		7.0
Max Green Setting (Gmax), s	25.5	63.2		38.2	20.5	* 64		38.0
Max Q Clear Time (g_c+I1), s	6.0	65.2		33.4	8.8	24.1		38.5
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	1.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	114.1
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	695	403	8	0	320	8	7	33	5	3	9	351
Future Volume (veh/h)	695	403	8	0	320	8	7	33	5	3	9	351
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	709	411	0	0	438	11	7	34	5	4	11	418
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.73	0.73	0.73	0.98	0.98	0.98	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	451	1069	909	2	476	12	13	62	9	105	288	741
Arrive On Green	0.25	0.57	0.00	0.00	0.26	0.26	0.05	0.05	0.05	0.21	0.21	0.21
Sat Flow, veh/h	1774	1863	1583	1774	1809	45	275	1336	196	490	1348	1583
Grp Volume(v), veh/h	709	411	0	0	0	449	46	0	0	15	0	418
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1855	1808	0	0	1838	0	1583
Q Serve(g_s), s	24.5	11.6	0.0	0.0	0.0	22.7	2.4	0.0	0.0	0.6	0.0	18.4
Cycle Q Clear(g_c), s	24.5	11.6	0.0	0.0	0.0	22.7	2.4	0.0	0.0	0.6	0.0	18.4
Prop In Lane	1.00		1.00	1.00		0.02	0.15		0.11	0.27		1.00
Lane Grp Cap(c), veh/h	451	1069	909	2	0	488	83	0	0	393	0	741
V/C Ratio(X)	1.57	0.38	0.00	0.00	0.00	0.92	0.55	0.00	0.00	0.04	0.00	0.56
Avail Cap(c_a), veh/h	451	1241	1055	359	0	1231	668	0	0	656	0	968
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.9	11.2	0.0	0.0	0.0	34.6	45.0	0.0	0.0	30.0	0.0	18.5
Incr Delay (d2), s/veh	268.1	0.1	0.0	0.0	0.0	3.2	2.1	0.0	0.0	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	45.5	6.0	0.0	0.0	0.0	12.0	1.2	0.0	0.0	0.3	0.0	8.1
LnGrp Delay(d),s/veh	304.0	11.3	0.0	0.0	0.0	37.7	47.1	0.0	0.0	30.1	0.0	18.8
LnGrp LOS	F	B				D	D			C		B
Approach Vol, veh/h		1120			449			46			433	
Approach Delay, s/veh		196.6			37.7			47.1			19.2	
Approach LOS		F			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	30.0	31.3		26.2	0.0	61.3		8.8
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		4.4
Max Green Setting (Gmax), s	24.5	64.0		* 34	19.5	* 64		35.6
Max Q Clear Time (g_c+I1), s	26.5	24.7		20.4	0.0	13.6		4.4
Green Ext Time (p_c), s	0.0	0.6		0.2	0.0	0.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	120.9
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	192	95	147	77	477	66	544	1931	126	67	649	66
Future Volume (veh/h)	192	95	147	77	477	66	544	1931	126	67	649	66
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	211	104	162	87	536	74	591	2099	137	84	811	82
Adj No. of Lanes	2	3	1	2	2	1	2	3	1	2	3	1
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	277	1095	341	141	623	279	647	2325	715	137	1571	489
Arrive On Green	0.08	0.22	0.22	0.04	0.18	0.18	0.19	0.46	0.46	0.04	0.31	0.31
Sat Flow, veh/h	3442	5085	1583	3442	3539	1583	3442	5085	1564	3442	5085	1583
Grp Volume(v), veh/h	211	104	162	87	536	74	591	2099	137	84	811	82
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1770	1583	1721	1695	1564	1721	1695	1583
Q Serve(g_s), s	6.1	1.7	9.1	2.5	15.0	4.1	17.2	39.0	5.3	2.5	13.4	3.9
Cycle Q Clear(g_c), s	6.1	1.7	9.1	2.5	15.0	4.1	17.2	39.0	5.3	2.5	13.4	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	277	1095	341	141	623	279	647	2325	715	137	1571	489
V/C Ratio(X)	0.76	0.09	0.48	0.62	0.86	0.27	0.91	0.90	0.19	0.61	0.52	0.17
Avail Cap(c_a), veh/h	657	1657	516	657	1150	514	657	3119	959	657	3115	970
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	32.1	35.1	48.2	40.9	36.4	40.7	25.6	16.5	48.3	29.0	25.7
Incr Delay (d2), s/veh	1.6	0.0	0.4	1.6	1.4	0.2	16.7	2.7	0.0	1.6	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.8	4.1	1.2	7.5	1.8	9.7	18.7	2.3	1.2	6.2	1.7
LnGrp Delay(d),s/veh	47.7	32.1	35.4	49.8	42.3	36.6	57.3	28.3	16.5	49.9	29.1	25.8
LnGrp LOS	D	C	D	D	D	D	E	C	B	D	C	C
Approach Vol, veh/h		477			697			2827			977	
Approach Delay, s/veh		40.1			42.6			33.8			30.6	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	54.1	9.7	28.8	24.7	39.0	13.7	24.8
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	19.5	* 63	19.5	* 33	19.5	* 63	19.5	33.2
Max Q Clear Time (g_c+I1), s	4.5	41.0	4.5	11.1	19.2	15.4	8.1	17.0
Green Ext Time (p_c), s	0.0	5.7	0.0	0.2	0.0	1.7	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	35.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	468	196	478	749	23	239	103	464	6	74	22
Future Volume (veh/h)	14	468	196	478	749	23	239	103	464	6	74	22
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	17	571	0	493	772	24	251	408	398	8	92	28
Adj No. of Lanes	1	2	1	2	2	0	1	1	1	0	2	0
Peak Hour Factor	0.82	0.82	0.82	0.97	0.97	0.97	0.77	0.77	0.77	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	21	792	354	568	1316	41	448	470	654	22	257	79
Arrive On Green	0.01	0.22	0.00	0.17	0.38	0.38	0.25	0.25	0.25	0.10	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	3442	3501	109	1774	1863	1557	218	2524	776
Grp Volume(v), veh/h	17	571	0	493	390	406	251	408	398	68	0	60
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1841	1774	1863	1557	1852	0	1667
Q Serve(g_s), s	0.8	12.0	0.0	11.2	14.1	14.2	9.9	16.8	16.0	2.7	0.0	2.7
Cycle Q Clear(g_c), s	0.8	12.0	0.0	11.2	14.1	14.2	9.9	16.8	16.0	2.7	0.0	2.7
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.12		0.47
Lane Grp Cap(c), veh/h	21	792	354	568	665	692	448	470	654	188	0	169
V/C Ratio(X)	0.81	0.72	0.00	0.87	0.59	0.59	0.56	0.87	0.61	0.36	0.00	0.35
Avail Cap(c_a), veh/h	436	2884	1290	850	1444	1502	770	809	938	797	0	718
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.5	28.8	0.0	32.6	20.0	20.0	26.1	28.7	18.3	33.6	0.0	33.5
Incr Delay (d2), s/veh	23.3	0.5	0.0	4.4	0.3	0.3	0.4	2.1	0.3	0.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.9	0.0	5.6	6.9	7.2	4.9	8.9	6.9	1.4	0.0	1.3
LnGrp Delay(d),s/veh	62.9	29.3	0.0	37.0	20.3	20.3	26.5	30.8	18.6	34.0	0.0	34.0
LnGrp LOS	E	C		D	C	C	C	C	B	C		C
Approach Vol, veh/h		588			1289			1057			128	
Approach Delay, s/veh		30.2			26.7			25.2			34.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	34.8		13.6	18.4	22.6		25.4
Change Period (Y+Rc), s	* 5.3	* 4.7		5.5	* 5.2	* 4.7		5.2
Max Green Setting (Gmax), s	* 6	* 65		34.5	* 20	* 65		34.8
Max Q Clear Time (g_c+I1), s	2.8	16.2		4.7	13.2	14.0		18.8
Green Ext Time (p_c), s	0.0	1.1		0.1	0.0	1.1		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	27.2
HCM 2010 LOS	C

Notes

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	345	1	913	1114	132	32	1194	457	11	1589	202
Future Volume (vph)	345	1	913	1114	132	32	1194	457	11	1589	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8	6.8	4.6		4.6			4.6	4.0
Lane Util. Factor		0.91	0.86	0.91	0.88		0.86			0.95	1.00
Frpb, ped/bikes		1.00	0.99	0.98	1.00		0.99			1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.95	0.85	0.85		0.96			1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1610	3021	1417	2787		6098			3539	1545
Flt Permitted		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		1610	3021	1417	2787		6098			3539	1545
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.93	0.93	0.93	0.85	0.85
Adj. Flow (vph)	388	1	1026	1252	148	36	1284	491	12	1869	238
RTOR Reduction (vph)	0	0	5	9	16	0	0	0	0	0	0
Lane Group Flow (vph)	0	389	1559	705	168	0	1787	0	0	1869	238
Confl. Peds. (#/hr)	6	6		6	3	3		3	3		6
Confl. Bikes (#/hr)								2	2		3
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		2!		6!			2	
Permitted Phases				4	2						Free
Actuated Green, G (s)		48.2	48.2	48.2	65.4		65.4			65.4	125.0
Effective Green, g (s)		48.2	48.2	48.2	65.4		65.4			65.4	125.0
Actuated g/C Ratio		0.39	0.39	0.39	0.52		0.52			0.52	1.00
Clearance Time (s)		6.8	6.8	6.8	4.6		4.6			4.6	
Vehicle Extension (s)		1.0	1.0	1.0	1.0		1.0			1.0	
Lane Grp Cap (vph)		620	1164	546	1458		3190			1851	1545
v/s Ratio Prot		0.24	c0.52		0.06		0.29			c0.53	
v/s Ratio Perm				0.50							0.15
v/c Ratio		0.63	1.34	1.29	0.12		0.56			1.01	0.15
Uniform Delay, d1		31.1	38.4	38.4	15.1		20.1			29.8	0.0
Progression Factor		1.00	1.00	1.00	1.00		1.00			1.21	1.00
Incremental Delay, d2		1.4	158.6	144.6	0.2		0.7			21.1	0.2
Delay (s)		32.6	197.0	183.0	15.3		20.8			57.2	0.2
Level of Service		C	F	F	B		C			E	A
Approach Delay (s)			169.3				20.8			50.8	
Approach LOS			F				C			D	

Intersection Summary			
HCM 2000 Control Delay	88.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	11.4
Intersection Capacity Utilization	100.0%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations																
Traffic Volume (veh/h)	45	110	168	83	1	149	301	139	42	321	1449	111	21	224	1021	326
Future Volume (veh/h)	45	110	168	83	1	149	301	139	42	321	1449	111	21	224	1021	326
Number		3	8	18		7	4	14		1	6	16		5	2	12
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.99		1.00		0.99		1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		118	181	89		159	320	148		349	1575	121		243	1110	354
Adj No. of Lanes		2	2	1		2	3	1		2	3	1		2	3	1
Peak Hour Factor		0.93	0.93	0.93		0.94	0.94	0.94		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2		2	2	2
Cap, veh/h		167	488	214		211	765	237		400	2223	683		295	2068	634
Arrive On Green		0.05	0.15	0.15		0.07	0.17	0.17		0.13	0.49	0.49		0.10	0.45	0.45
Sat Flow, veh/h		3097	3185	1396		3097	4577	1417		3097	4577	1406		3097	4577	1403
Grp Volume(v), veh/h		118	181	89		159	320	148		349	1575	121		243	1110	354
Grp Sat Flow(s),veh/h/ln		1549	1593	1396		1549	1526	1417		1549	1526	1406		1549	1526	1403
Q Serve(g_s), s		4.3	5.9	6.6		5.8	7.2	11.2		12.7	31.1	5.6		8.9	20.2	21.3
Cycle Q Clear(g_c), s		4.3	5.9	6.6		5.8	7.2	11.2		12.7	31.1	5.6		8.9	20.2	21.3
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		167	488	214		211	765	237		400	2223	683		295	2068	634
V/C Ratio(X)		0.71	0.37	0.42		0.75	0.42	0.62		0.87	0.71	0.18		0.82	0.54	0.56
Avail Cap(c_a), veh/h		524	1770	776		524	1351	418		524	2559	786		524	2551	782
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		53.6	43.8	44.1		52.7	43.0	44.6		49.2	23.2	16.7		51.2	22.8	23.1
Incr Delay (d2), s/veh		2.0	1.0	2.6		2.1	1.3	8.9		10.1	1.1	0.3		2.2	0.4	1.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.9	2.7	2.7		2.6	3.1	5.0		6.0	13.2	2.2		3.9	8.6	8.5
LnGrp Delay(d),s/veh		55.6	44.7	46.7		54.8	44.2	53.5		59.3	24.3	16.9		53.4	23.3	24.7
LnGrp LOS		E	D	D		D	D	D		E	C	B		D	C	C
Approach Vol, veh/h			388				627				2045				1707	
Approach Delay, s/veh			48.5				49.1				29.9				27.9	
Approach LOS			D				D				C				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.4	57.8	11.7	25.2	16.5	61.7	13.3	23.6
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	64.0
Max Q Clear Time (g_c+I1), s	14.7	23.3	6.3	13.2	10.9	33.1	7.8	8.6
Green Ext Time (p_c), s	0.1	21.9	0.1	5.5	0.1	22.8	0.1	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	33.2
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	112	13	245	34	25	39	34	273	2450	20	36	3322	79
Future Volume (veh/h)	112	13	245	34	25	39	34	273	2450	20	36	3322	79
Number	7	4	14	3	8	18		1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	129	118	213	43	32	49		281	2526	21	39	3572	85
Adj No. of Lanes	0	1	1	1	1	0		2	3	0	1	3	1
Peak Hour Factor	0.87	0.87	0.87	0.79	0.79	0.79		0.97	0.97	0.97	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2	2
Cap, veh/h	151	138	251	119	44	68		334	3033	25	50	2603	790
Arrive On Green	0.16	0.16	0.16	0.07	0.07	0.07		0.10	0.58	0.58	0.03	0.51	0.51
Sat Flow, veh/h	948	867	1571	1774	663	1015		3442	5202	43	1774	5085	1543
Grp Volume(v), veh/h	247	0	213	43	0	81		281	1645	902	39	3572	85
Grp Sat Flow(s),veh/h/ln	1815	0	1571	1774	0	1678		1721	1695	1855	1774	1695	1543
Q Serve(g_s), s	16.9	0.0	16.8	3.0	0.0	6.0		10.2	50.1	50.3	2.8	65.2	3.6
Cycle Q Clear(g_c), s	16.9	0.0	16.8	3.0	0.0	6.0		10.2	50.1	50.3	2.8	65.2	3.6
Prop In Lane	0.52		1.00	1.00		0.60		1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	289	0	251	119	0	112		334	1977	1082	50	2603	790
V/C Ratio(X)	0.85	0.00	0.85	0.36	0.00	0.72		0.84	0.83	0.83	0.78	1.37	0.11
Avail Cap(c_a), veh/h	492	0	426	480	0	455		538	1977	1082	281	2603	790
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	0.0	52.1	56.8	0.0	58.3		56.6	21.5	21.6	61.5	31.1	16.1
Incr Delay (d2), s/veh	2.9	0.0	3.1	0.7	0.0	3.2		3.3	3.0	5.4	9.4	170.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	7.5	1.5	0.0	2.9		5.0	24.1	27.2	1.5	71.4	1.5
LnGrp Delay(d),s/veh	55.0	0.0	55.2	57.5	0.0	61.5		59.9	24.5	27.0	70.9	201.1	16.1
LnGrp LOS	E		E	E		E		E	C	C	E	F	B
Approach Vol, veh/h		460			124				2828			3696	
Approach Delay, s/veh		55.1			60.1				28.8			195.5	
Approach LOS		E			E				C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.5	70.1		25.8	8.4	79.2		14.0
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 20	* 65		34.5	* 20	* 65		34.5
Max Q Clear Time (g_c+I1), s	12.2	67.2		18.9	4.8	52.3		8.0
Green Ext Time (p_c), s	0.1	0.0		0.6	0.0	6.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	117.7
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	168	428	198	38	279	86	11	106	750	24	202	1711
Future Volume (veh/h)	168	428	198	38	279	86	11	106	750	24	202	1711
Number	3	8	18	7	4	14		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	179	455	211	41	303	93		115	815	26	213	1801
Adj No. of Lanes	1	1	1	1	1	1		1	2	0	1	2
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92		0.92	0.92	0.92	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	203	491	417	53	333	283		138	1365	44	237	1577
Arrive On Green	0.11	0.26	0.26	0.03	0.18	0.18		0.08	0.39	0.39	0.13	0.45
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583		1774	3501	112	1774	3539
Grp Volume(v), veh/h	179	455	211	41	303	93		115	412	429	213	1801
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583		1774	1770	1843	1774	1770
Q Serve(g_s), s	14.0	33.5	15.9	3.2	22.4	7.2		9.0	26.0	26.0	16.6	62.6
Cycle Q Clear(g_c), s	14.0	33.5	15.9	3.2	22.4	7.2		9.0	26.0	26.0	16.6	62.6
Prop In Lane	1.00		1.00	1.00		1.00		1.00		0.06	1.00	
Lane Grp Cap(c), veh/h	203	491	417	53	333	283		138	690	718	237	1577
V/C Ratio(X)	0.88	0.93	0.51	0.78	0.91	0.33		0.83	0.60	0.60	0.90	1.14
Avail Cap(c_a), veh/h	309	491	417	246	432	367		246	788	821	309	1577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	50.5	44.0	67.7	56.6	50.4		63.9	34.1	34.1	60.0	39.0
Incr Delay (d2), s/veh	12.1	23.6	0.4	8.7	17.3	0.2		4.9	0.5	0.5	20.2	72.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	20.4	7.0	1.7	13.1	3.2		4.6	12.8	13.3	9.5	46.2
LnGrp Delay(d),s/veh	73.4	74.0	44.4	76.4	73.9	50.6		68.8	34.6	34.6	80.2	111.2
LnGrp LOS	E	E	D	E	E	D		E	C	C	F	F
Approach Vol, veh/h		845			437				956			2014
Approach Delay, s/veh		66.5			69.2				38.7			107.9
Approach LOS		E			E				D			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.4	70.0	21.6	32.5	24.2	62.2	9.7	44.4
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	19.5	62.6	24.5	32.6	24.5	62.6	19.5	* 33
Max Q Clear Time (g_c+I1), s	11.0	64.6	16.0	24.4	18.6	28.0	5.2	35.5
Green Ext Time (p_c), s	0.1	0.0	0.1	0.7	0.1	1.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	80.1
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	153
Future Volume (veh/h)	153
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	0
Adj No. of Lanes	1
Peak Hour Factor	0.95
Percent Heavy Veh, %	2
Cap, veh/h	705
Arrive On Green	0.00
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	705
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	705
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	457	78	130	299	5	29	87	97	11	537	67
Future Volume (veh/h)	71	457	78	130	299	5	29	87	97	11	537	67
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	72	462	79	148	340	6	34	101	113	12	610	76
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.88	0.88	0.88	0.86	0.86	0.86	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	745	127	187	1068	19	40	261	292	71	556	69
Arrive On Green	0.05	0.25	0.25	0.11	0.30	0.30	0.02	0.32	0.32	0.04	0.34	0.34
Sat Flow, veh/h	1774	3027	515	1774	3559	63	1774	804	900	1774	1625	202
Grp Volume(v), veh/h	72	269	272	148	169	177	34	0	214	12	0	686
Grp Sat Flow(s),veh/h/ln	1774	1770	1772	1774	1770	1852	1774	0	1704	1774	0	1827
Q Serve(g_s), s	2.4	8.1	8.2	4.9	4.4	4.4	1.1	0.0	5.8	0.4	0.0	20.5
Cycle Q Clear(g_c), s	2.4	8.1	8.2	4.9	4.4	4.4	1.1	0.0	5.8	0.4	0.0	20.5
Prop In Lane	1.00		0.29	1.00		0.03	1.00		0.53	1.00		0.11
Lane Grp Cap(c), veh/h	91	435	436	187	531	556	40	0	553	71	0	625
V/C Ratio(X)	0.79	0.62	0.62	0.79	0.32	0.32	0.84	0.00	0.39	0.17	0.00	1.10
Avail Cap(c_a), veh/h	326	1639	1641	326	1639	1715	326	0	583	326	0	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.1	20.1	20.1	26.2	16.2	16.2	29.2	0.0	15.6	27.8	0.0	19.7
Incr Delay (d2), s/veh	5.5	2.0	2.1	2.8	0.5	0.5	15.7	0.0	2.0	0.4	0.0	65.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.2	4.3	2.5	2.2	2.3	0.7	0.0	3.0	0.2	0.0	21.6
LnGrp Delay(d),s/veh	33.6	22.1	22.2	29.0	16.7	16.7	44.9	0.0	17.7	28.2	0.0	85.4
LnGrp LOS	C	C	C	C	B	B	D		B	C		F
Approach Vol, veh/h		613			494			248			698	
Approach Delay, s/veh		23.5			20.4			21.4			84.4	
Approach LOS		C			C			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	22.5	5.4	25.0	10.3	19.2	6.4	24.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	11.0	55.5	11.0	20.5	11.0	55.5	11.0	20.5
Max Q Clear Time (g_c+I1), s	4.4	6.4	3.1	22.5	6.9	10.2	2.4	7.8
Green Ext Time (p_c), s	0.0	2.7	0.0	0.0	0.0	4.6	0.0	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	43.2
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	19.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	553	0	15	315	2	4	6	1	0	158	115
Future Vol, veh/h	19	553	0	15	315	2	4	6	1	0	158	115
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	350	-	-	350	-	-	-	-	25	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	79	79	79	70	70	70	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	595	0	19	399	3	6	9	1	0	216	158

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	402	0	0	595	0	0	1261	1075	595	1079	1074	401
Stage 1	-	-	-	-	-	-	635	635	-	439	439	-
Stage 2	-	-	-	-	-	-	626	440	-	640	635	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1157	-	-	981	-	-	147	220	504	196	220	649
Stage 1	-	-	-	-	-	-	467	472	-	597	578	-
Stage 2	-	-	-	-	-	-	472	578	-	464	472	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1157	-	-	981	-	-	-	212	504	184	~ 212	649
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	212	-	184	~ 212	-
Stage 1	-	-	-	-	-	-	459	464	-	587	567	-
Stage 2	-	-	-	-	-	-	217	567	-	446	464	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4		71.8
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	504	1157	-	-	981	-	-	212	649
HCM Lane V/C Ratio	-	0.003	0.018	-	-	0.019	-	-	1.021	0.243
HCM Control Delay (s)	-	12.2	8.2	-	-	8.7	-	-	115.1	12.3
HCM Lane LOS	-	B	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	-	0	0.1	-	-	0.1	-	-	9.3	0.9

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	453	12	28	250	138	7	338	23	227	847	93
Future Volume (veh/h)	127	453	12	28	250	138	7	338	23	227	847	93
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	135	482	13	30	269	148	7	348	24	232	864	95
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	511	434	37	380	323	46	630	43	259	905	914
Arrive On Green	0.09	0.27	0.27	0.02	0.20	0.20	0.03	0.37	0.37	0.15	0.49	0.49
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1723	119	1774	1863	1583
Grp Volume(v), veh/h	135	482	13	30	269	148	7	0	372	232	864	95
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	0	1842	1774	1863	1583
Q Serve(g_s), s	8.6	29.2	0.7	1.9	15.5	9.5	0.4	0.0	18.5	14.8	51.2	3.1
Cycle Q Clear(g_c), s	8.6	29.2	0.7	1.9	15.5	9.5	0.4	0.0	18.5	14.8	51.2	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	162	511	434	37	380	323	46	0	674	259	905	914
V/C Ratio(X)	0.83	0.94	0.03	0.80	0.71	0.46	0.15	0.00	0.55	0.89	0.95	0.10
Avail Cap(c_a), veh/h	316	537	456	316	537	456	316	0	1017	377	1035	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	40.9	30.6	56.1	42.6	40.3	54.8	0.0	29.0	48.3	28.4	10.9
Incr Delay (d2), s/veh	4.2	24.5	0.0	13.4	0.9	0.4	0.6	0.0	0.3	13.3	16.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	18.5	0.3	1.1	8.1	4.2	0.2	0.0	9.5	8.2	30.2	1.4
LnGrp Delay(d),s/veh	55.7	65.4	30.6	69.5	43.6	40.6	55.4	0.0	29.3	61.6	44.6	11.0
LnGrp LOS	E	E	C	E	D	D	E		C	E	D	B
Approach Vol, veh/h		630			447			379			1191	
Approach Delay, s/veh		62.6			44.3			29.8			45.2	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	30.3	7.5	62.4	6.9	38.4	21.3	48.5
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	20.5	33.2	20.5	* 64	20.5	33.2	24.5	63.6
Max Q Clear Time (g_c+I1), s	10.6	17.5	2.4	53.2	3.9	31.2	16.8	20.5
Green Ext Time (p_c), s	0.0	0.9	0.0	2.8	0.0	0.4	0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	47.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	32	661	3	1	53	345	41	3	324	67	61	378	49
Future Volume (veh/h)	32	661	3	1	53	345	41	3	324	67	61	378	49
Number	1	6	16		5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900		1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	36	743	3		62	401	48	3	352	73	69	430	56
Adj No. of Lanes	1	1	0		1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.89	0.89	0.89		0.86	0.86	0.86	0.92	0.92	0.92	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	46	684	3		78	629	75	3	328	68	50	312	41
Arrive On Green	0.03	0.37	0.37		0.04	0.39	0.39	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1774	1854	7		1774	1629	195	13	1487	308	226	1409	184
Grp Volume(v), veh/h	36	0	746		62	0	449	428	0	0	555	0	0
Grp Sat Flow(s),veh/h/ln	1774	0	1861		1774	0	1823	1808	0	0	1819	0	0
Q Serve(g_s), s	3.5	0.0	63.6		6.0	0.0	34.6	38.0	0.0	0.0	38.2	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	63.6		6.0	0.0	34.6	38.0	0.0	0.0	38.2	0.0	0.0
Prop In Lane	1.00		0.00		1.00		0.11	0.01		0.17	0.12		0.10
Lane Grp Cap(c), veh/h	46	0	686		78	0	705	398	0	0	403	0	0
V/C Ratio(X)	0.78	0.00	1.09		0.80	0.00	0.64	1.07	0.00	0.00	1.38	0.00	0.00
Avail Cap(c_a), veh/h	262	0	686		211	0	705	398	0	0	403	0	0
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	83.5	0.0	54.4		81.7	0.0	43.1	67.2	0.0	0.0	67.1	0.0	0.0
Incr Delay (d2), s/veh	9.8	0.0	60.3		6.7	0.0	1.5	66.5	0.0	0.0	184.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	44.1		3.1	0.0	17.8	26.3	0.0	0.0	39.8	0.0	0.0
LnGrp Delay(d),s/veh	93.3	0.0	114.8		88.4	0.0	44.5	133.7	0.0	0.0	252.0	0.0	0.0
LnGrp LOS	F		F		F		D	F			F		
Approach Vol, veh/h		782				511			428			555	
Approach Delay, s/veh		113.8				49.9			133.7			252.0	
Approach LOS		F				D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	73.5		45.0	12.1	70.4		45.0
Change Period (Y+Rc), s	4.5	6.8		6.8	4.5	* 6.8		7.0
Max Green Setting (Gmax), s	25.5	63.2		38.2	20.5	* 64		38.0
Max Q Clear Time (g_c+I1), s	5.5	36.6		40.2	8.0	65.6		40.0
Green Ext Time (p_c), s	0.0	1.4		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	136.9
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	271	352	7	1	443	9	7	16	1	11	35	764
Future Volume (veh/h)	271	352	7	1	443	9	7	16	1	11	35	764
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	291	378	0	1	461	9	8	19	1	12	38	822
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.85	0.85	0.85	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	840	714	2	494	10	18	42	2	140	443	776
Arrive On Green	0.18	0.45	0.00	0.00	0.27	0.27	0.03	0.03	0.03	0.32	0.32	0.32
Sat Flow, veh/h	1774	1863	1583	1774	1820	36	521	1239	65	442	1399	1550
Grp Volume(v), veh/h	291	378	0	1	0	470	28	0	0	50	0	822
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1856	1825	0	0	1841	0	1550
Q Serve(g_s), s	17.5	15.2	0.0	0.1	0.0	26.8	1.6	0.0	0.0	2.1	0.0	34.4
Cycle Q Clear(g_c), s	17.5	15.2	0.0	0.1	0.0	26.8	1.6	0.0	0.0	2.1	0.0	34.4
Prop In Lane	1.00		1.00	1.00		0.02	0.29		0.04	0.24		1.00
Lane Grp Cap(c), veh/h	319	840	714	2	0	504	61	0	0	583	0	776
V/C Ratio(X)	0.91	0.45	0.00	0.61	0.00	0.93	0.46	0.00	0.00	0.09	0.00	1.06
Avail Cap(c_a), veh/h	400	1101	936	319	0	1094	598	0	0	583	0	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	20.6	0.0	54.2	0.0	38.6	51.5	0.0	0.0	26.1	0.0	27.5
Incr Delay (d2), s/veh	19.5	0.1	0.0	91.3	0.0	3.5	1.9	0.0	0.0	0.0	0.0	49.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	7.8	0.0	0.1	0.0	14.2	0.9	0.0	0.0	1.1	0.0	33.6
LnGrp Delay(d),s/veh	63.2	20.7	0.0	145.5	0.0	42.1	53.4	0.0	0.0	26.1	0.0	76.8
LnGrp LOS	E	C		F		D	D			C		F
Approach Vol, veh/h		669			471			28			872	
Approach Delay, s/veh		39.2			42.3			53.4			73.9	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.0	35.5		40.0	5.6	54.9		8.1
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		4.4
Max Green Setting (Gmax), s	24.5	64.0		* 34	19.5	* 64		35.6
Max Q Clear Time (g_c+I1), s	19.5	28.8		36.4	2.1	17.2		3.6
Green Ext Time (p_c), s	0.1	0.7		0.0	0.0	0.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	54.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	305	457	139	107	104	182	849	112	246	2090	124
Future Volume (veh/h)	63	305	457	139	107	104	182	849	112	246	2090	124
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	66	318	476	170	130	127	200	933	123	270	2297	136
Adj No. of Lanes	2	3	1	2	2	1	2	3	1	2	3	1
Peak Hour Factor	0.96	0.96	0.96	0.82	0.82	0.82	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	1209	376	218	957	422	248	2170	667	318	2273	708
Arrive On Green	0.03	0.24	0.24	0.06	0.27	0.27	0.07	0.43	0.43	0.09	0.45	0.45
Sat Flow, veh/h	3442	5085	1583	3442	3539	1563	3442	5085	1564	3442	5085	1583
Grp Volume(v), veh/h	66	318	476	170	130	127	200	933	123	270	2297	136
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1770	1563	1721	1695	1564	1721	1695	1583
Q Serve(g_s), s	2.7	7.1	33.3	6.8	3.9	9.0	8.0	18.0	6.9	10.8	62.6	7.3
Cycle Q Clear(g_c), s	2.7	7.1	33.3	6.8	3.9	9.0	8.0	18.0	6.9	10.8	62.6	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	106	1209	376	218	957	422	248	2170	667	318	2273	708
V/C Ratio(X)	0.62	0.26	1.26	0.78	0.14	0.30	0.81	0.43	0.18	0.85	1.01	0.19
Avail Cap(c_a), veh/h	479	1209	376	479	957	422	479	2276	700	479	2273	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.1	43.4	53.4	64.6	38.7	40.6	64.0	28.2	25.0	62.6	38.7	23.4
Incr Delay (d2), s/veh	2.2	0.0	138.7	2.3	0.0	0.1	2.4	0.1	0.0	5.8	21.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.3	29.0	3.3	1.9	3.9	3.9	8.5	3.0	5.4	33.8	3.2
LnGrp Delay(d),s/veh	69.3	43.5	192.1	66.9	38.7	40.7	66.4	28.2	25.0	68.4	60.3	23.5
LnGrp LOS	E	D	F	E	D	D	E	C	C	E	F	C
Approach Vol, veh/h		860			427			1256			2703	
Approach Delay, s/veh		127.7			50.6			34.0			59.2	
Approach LOS		F			D			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.4	67.2	14.4	40.1	15.6	70.0	9.8	44.7
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	19.5	* 63	19.5	* 33	19.5	* 63	19.5	33.2
Max Q Clear Time (g_c+I1), s	12.8	20.0	8.8	35.3	10.0	64.6	4.7	11.0
Green Ext Time (p_c), s	0.1	2.0	0.1	0.0	0.1	0.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	63.7
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	907	185	392	659	27	184	167	687	18	54	18
Future Volume (veh/h)	22	907	185	392	659	27	184	167	687	18	54	18
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.96	1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	27	1093	0	431	724	30	205	477	494	24	72	24
Adj No. of Lanes	1	2	1	2	2	0	1	1	1	0	2	0
Peak Hour Factor	0.83	0.83	0.83	0.91	0.91	0.91	0.87	0.87	0.87	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	1171	524	476	1555	64	462	485	615	80	241	81
Arrive On Green	0.02	0.33	0.00	0.14	0.45	0.45	0.26	0.26	0.26	0.12	0.12	0.12
Sat Flow, veh/h	1774	3539	1583	3442	3459	143	1774	1863	1518	690	2085	701
Grp Volume(v), veh/h	27	1093	0	431	370	384	205	477	494	64	0	56
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1833	1774	1863	1518	1828	0	1648
Q Serve(g_s), s	2.0	39.9	0.0	16.5	19.4	19.5	12.9	34.0	34.8	4.3	0.0	4.2
Cycle Q Clear(g_c), s	2.0	39.9	0.0	16.5	19.4	19.5	12.9	34.0	34.8	4.3	0.0	4.2
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	0.38		0.43
Lane Grp Cap(c), veh/h	34	1171	524	476	796	824	462	485	615	212	0	191
V/C Ratio(X)	0.80	0.93	0.00	0.90	0.47	0.47	0.44	0.98	0.80	0.30	0.00	0.30
Avail Cap(c_a), veh/h	262	1731	774	510	867	898	462	485	615	472	0	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	65.2	43.2	0.0	56.7	25.6	25.6	41.3	49.1	35.7	54.1	0.0	54.1
Incr Delay (d2), s/veh	14.5	5.8	0.0	18.0	0.2	0.2	0.2	36.1	7.1	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	20.4	0.0	9.0	9.5	9.8	6.4	22.4	17.4	2.2	0.0	1.9
LnGrp Delay(d),s/veh	79.7	49.0	0.0	74.7	25.7	25.7	41.5	85.2	42.8	54.4	0.0	54.4
LnGrp LOS	E	D		E	C	C	D	F	D	D		D
Approach Vol, veh/h		1120			1185			1176			120	
Approach Delay, s/veh		49.8			43.5			59.8			54.4	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	64.7		20.9	23.7	48.9		40.0
Change Period (Y+Rc), s	* 5.3	* 4.7		5.5	* 5.2	* 4.7		5.2
Max Green Setting (Gmax), s	* 26	* 65		34.5	* 20	* 65		34.8
Max Q Clear Time (g_c+I1), s	4.0	21.5		6.3	18.5	41.9		36.8
Green Ext Time (p_c), s	0.0	1.1		0.1	0.0	2.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.1
HCM 2010 LOS	D

Notes

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	658	1	120	735	870	119	1892	411	4	1016	135
Future Volume (vph)	658	1	120	735	870	119	1892	411	4	1016	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8	6.8	6.8	4.6		4.6			4.6	4.0
Lane Util. Factor	0.95	0.95	0.95	0.95	0.88		0.86			0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	0.98	1.00		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.89	0.85	0.85		0.97			1.00	0.85
Flt Protected	0.95	0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1681	1681	1552	1471	2787		6204			3539	1540
Flt Permitted	0.95	0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)	1681	1681	1552	1471	2787		6204			3539	1540
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.86	0.86	0.88	0.88	0.88	0.92	0.92
Adj. Flow (vph)	693	1	126	774	1012	138	2150	467	5	1104	147
RTOR Reduction (vph)	0	0	42	42	13	0	0	0	0	0	0
Lane Group Flow (vph)	346	348	417	399	1137	0	2622	0	0	1104	147
Confl. Peds. (#/hr)	11	11		11	3	3		3	3		11
Confl. Bikes (#/hr)								8	8		5
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		2!		6!			2	
Permitted Phases				4	2						Free
Actuated Green, G (s)	39.3	39.3	39.3	39.3	74.3		74.3			74.3	125.0
Effective Green, g (s)	39.3	39.3	39.3	39.3	74.3		74.3			74.3	125.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.59		0.59			0.59	1.00
Clearance Time (s)	6.8	6.8	6.8	6.8	4.6		4.6			4.6	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0			1.0	
Lane Grp Cap (vph)	528	528	487	462	1656		3687			2103	1540
v/s Ratio Prot	0.21	0.21	0.27		0.41		c0.42			0.31	
v/s Ratio Perm				c0.27							0.10
v/c Ratio	0.66	0.66	0.86	0.86	0.69		0.71			0.52	0.10
Uniform Delay, d1	37.0	37.1	40.2	40.3	17.4		17.8			14.9	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00			1.22	1.00
Incremental Delay, d2	2.2	2.3	13.4	14.9	2.3		1.2			0.9	0.1
Delay (s)	39.2	39.3	53.6	55.2	19.7		19.0			19.1	0.1
Level of Service	D	D	D	E	B		B			B	A
Approach Delay (s)			47.8				19.0			16.9	
Approach LOS			D				B			B	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	11.4
Intersection Capacity Utilization	100.9%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations																
Traffic Volume (veh/h)	35	251	565	258	11	248	297	213	71	226	1037	216	36	226	1477	132
Future Volume (veh/h)	35	251	565	258	11	248	297	213	71	226	1037	216	36	226	1477	132
Number		3	8	18		7	4	14		1	6	16		5	2	12
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99		1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		295	665	304		306	367	263		248	1140	237		260	1698	152
Adj No. of Lanes		2	2	1		2	3	1		2	3	1		2	3	1
Peak Hour Factor		0.85	0.85	0.85		0.81	0.81	0.81		0.91	0.91	0.91		0.87	0.87	0.87
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2		2	2	2
Cap, veh/h		329	882	392		340	1283	399		283	1744	540		295	1762	546
Arrive On Green		0.11	0.28	0.28		0.11	0.28	0.28		0.09	0.38	0.38		0.10	0.38	0.38
Sat Flow, veh/h		3097	3185	1416		3097	4577	1422		3097	4577	1418		3097	4577	1418
Grp Volume(v), veh/h		295	665	304		306	367	263		248	1140	237		260	1698	152
Grp Sat Flow(s),veh/h/ln		1549	1593	1416		1549	1526	1422		1549	1526	1418		1549	1526	1418
Q Serve(g_s), s		15.7	31.8	32.9		16.3	10.5	27.2		13.2	34.2	20.7		13.8	60.4	12.3
Cycle Q Clear(g_c), s		15.7	31.8	32.9		16.3	10.5	27.2		13.2	34.2	20.7		13.8	60.4	12.3
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		329	882	392		340	1283	399		283	1744	540		295	1762	546
V/C Ratio(X)		0.90	0.75	0.78		0.90	0.29	0.66		0.87	0.65	0.44		0.88	0.96	0.28
Avail Cap(c_a), veh/h		363	1224	544		363	1283	399		363	1770	548		363	1764	547
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		73.5	55.0	55.5		73.2	46.9	52.9		74.7	42.5	38.3		74.4	50.1	35.3
Incr Delay (d2), s/veh		21.2	3.0	7.5		22.5	0.4	6.9		14.7	1.2	1.1		16.5	14.0	0.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		7.7	14.4	13.7		8.0	4.5	11.4		6.2	14.5	8.3		6.6	27.8	4.9
LnGrp Delay(d),s/veh		94.7	58.0	62.9		95.8	47.3	59.8		89.4	43.6	39.4		90.9	64.1	35.9
LnGrp LOS		F	E	E		F	D	E		F	D	D		F	E	D
Approach Vol, veh/h			1264				936				1625				2110	
Approach Delay, s/veh			67.8				66.7				50.0				65.4	
Approach LOS			E				E				D				E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.7	69.9	23.2	52.7	21.4	69.3	23.8	52.1
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	64.0
Max Q Clear Time (g_c+I1), s	15.2	62.4	17.7	29.2	15.8	36.2	18.3	34.9
Green Ext Time (p_c), s	0.1	1.7	0.0	2.5	0.1	16.8	0.0	11.2

Intersection Summary	
HCM 2010 Ctrl Delay	61.9
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	186	36	180	61	23	57	33	155	2687	23	2	62	2440	96
Future Volume (veh/h)	186	36	180	61	23	57	33	155	2687	23	2	62	2440	96
Number	7	4	14	3	8	18		1	6	16		5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96		1.00		0.98		1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900		1863	1863	1863
Adj Flow Rate, veh/h	224	43	217	79	30	74		167	2889	25		68	2681	105
Adj No. of Lanes	0	1	1	1	1	0		2	3	0		1	3	1
Peak Hour Factor	0.83	0.83	0.83	0.77	0.77	0.77		0.93	0.93	0.93		0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	260	50	272	181	47	117		219	2688	23		87	2542	785
Arrive On Green	0.17	0.17	0.17	0.10	0.10	0.10		0.06	0.52	0.52		0.05	0.50	0.50
Sat Flow, veh/h	1500	288	1567	1774	464	1145		3442	5199	45		1774	5085	1571
Grp Volume(v), veh/h	267	0	217	79	0	104		167	1881	1033		68	2681	105
Grp Sat Flow(s),veh/h/ln	1788	0	1567	1774	0	1609		1721	1695	1854		1774	1695	1571
Q Serve(g_s), s	18.9	0.0	17.3	5.5	0.0	8.1		6.2	67.4	67.4		4.9	65.2	4.7
Cycle Q Clear(g_c), s	18.9	0.0	17.3	5.5	0.0	8.1		6.2	67.4	67.4		4.9	65.2	4.7
Prop In Lane	0.84		1.00	1.00		0.71		1.00		0.02		1.00		1.00
Lane Grp Cap(c), veh/h	310	0	272	181	0	164		219	1753	958		87	2542	785
V/C Ratio(X)	0.86	0.00	0.80	0.44	0.00	0.63		0.76	1.07	1.08		0.79	1.05	0.13
Avail Cap(c_a), veh/h	473	0	415	469	0	426		525	1753	958		275	2542	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	0.0	51.7	55.0	0.0	56.2		60.1	31.5	31.5		61.3	32.6	17.5
Incr Delay (d2), s/veh	6.5	0.0	3.1	0.6	0.0	1.5		2.1	44.1	52.5		5.7	34.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	7.8	2.7	0.0	3.7		3.0	42.1	48.3		2.6	38.4	2.0
LnGrp Delay(d),s/veh	58.8	0.0	54.8	55.7	0.0	57.7		62.2	75.6	84.0		67.1	66.9	17.5
LnGrp LOS	E		D	E		E		E	F	F		E	F	B
Approach Vol, veh/h		484			183				3081				2854	
Approach Delay, s/veh		57.0			56.8				77.7				65.1	
Approach LOS		E			E				E				E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.4	70.1		28.1	11.2	72.3		18.8
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 26	* 65		34.5	* 20	* 65		34.5
Max Q Clear Time (g_c+I1), s	19.3	67.2		20.9	6.9	69.4		10.1
Green Ext Time (p_c), s	0.1	0.0		0.6	0.0	0.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	70.2
HCM 2010 LOS	E

Notes

Appendix B

Analysis Worksheets for Cumulative (2040) plus Proposed Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	512	230	160	656	90	190	2720	90	20	980	70
Future Volume (veh/h)	160	512	230	160	656	90	190	2720	90	20	980	70
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	174	557	250	174	713	98	207	2957	98	22	1065	0
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	530	450	126	530	450	229	2296	75	27	1731	539
Arrive On Green	0.07	0.28	0.28	0.07	0.28	0.28	0.13	0.45	0.45	0.02	0.34	0.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	5054	165	1774	5085	1583
Grp Volume(v), veh/h	174	557	250	174	713	98	207	1972	1083	22	1065	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1695	1829	1774	1695	1583
Q Serve(g_s), s	10.5	42.0	19.8	10.5	42.0	7.0	17.0	67.1	67.1	1.8	25.8	0.0
Cycle Q Clear(g_c), s	10.5	42.0	19.8	10.5	42.0	7.0	17.0	67.1	67.1	1.8	25.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	126	530	450	126	530	450	229	1540	831	27	1731	539
V/C Ratio(X)	1.38	1.05	0.56	1.38	1.35	0.22	0.90	1.28	1.30	0.81	0.62	0.00
Avail Cap(c_a), veh/h	126	530	450	126	530	450	287	1540	831	60	1731	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	68.6	52.8	44.9	68.6	52.8	40.3	63.4	40.3	40.3	72.5	40.6	0.0
Incr Delay (d2), s/veh	212.4	53.3	0.9	212.4	167.9	0.1	23.1	131.1	145.2	18.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	29.3	8.8	12.6	46.2	3.1	9.8	59.3	67.2	1.0	12.1	0.0
LnGrp Delay(d),s/veh	281.0	106.1	45.8	281.0	220.7	40.4	86.5	171.4	185.5	90.6	41.2	0.0
LnGrp LOS	F	F	D	F	F	D	F	F	F	F	D	
Approach Vol, veh/h		981			985			3262			1087	
Approach Delay, s/veh		121.8			213.4			170.7			42.2	
Approach LOS		F			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.6	57.7	16.0	49.4	7.8	74.5	16.0	49.4
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	23.9	48.2	10.5	41.6	5.0	67.1	10.5	* 42
Max Q Clear Time (g_c+I1), s	19.0	27.8	12.5	44.0	3.8	69.1	12.5	44.0
Green Ext Time (p_c), s	0.1	5.6	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	147.6
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	360	30	150	600	370	10	1172	40	160	606	202
Future Volume (veh/h)	294	360	30	150	600	370	10	1172	40	160	606	202
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	320	391	33	163	652	402	11	1274	43	174	659	220
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	606	515	186	557	473	38	1068	478	197	1386	827
Arrive On Green	0.13	0.33	0.33	0.10	0.30	0.30	0.02	0.30	0.30	0.11	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	320	391	33	163	652	402	11	1274	43	174	659	220
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	18.5	25.3	2.0	12.8	42.2	33.7	0.9	42.6	2.8	13.6	19.7	10.9
Cycle Q Clear(g_c), s	18.5	25.3	2.0	12.8	42.2	33.7	0.9	42.6	2.8	13.6	19.7	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	232	606	515	186	557	473	38	1068	478	197	1386	827
V/C Ratio(X)	1.38	0.65	0.06	0.88	1.17	0.85	0.29	1.19	0.09	0.88	0.48	0.27
Avail Cap(c_a), veh/h	232	606	515	225	557	473	239	1068	478	308	1386	827
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	40.7	32.8	62.3	49.5	46.5	68.0	49.3	35.4	61.8	32.1	18.7
Incr Delay (d2), s/veh	194.2	1.9	0.0	23.9	94.9	13.0	1.6	96.3	0.0	11.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.6	13.3	0.9	7.5	36.3	16.4	0.4	35.0	1.2	7.3	9.6	4.7
LnGrp Delay(d),s/veh	255.5	42.5	32.8	86.2	144.4	59.5	69.6	145.6	35.4	73.2	32.2	18.7
LnGrp LOS	F	D	C	F	F	E	E	F	D	E	C	B
Approach Vol, veh/h		744			1217			1328			1053	
Approach Delay, s/veh		133.7			108.6			141.4			36.2	
Approach LOS		F			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	49.0	7.5	61.7	19.3	52.7	20.2	49.0
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	18.5	42.2	19.0	* 49	17.9	42.8	24.5	42.6
Max Q Clear Time (g_c+I1), s	20.5	44.2	2.9	21.7	14.8	27.3	15.6	44.6
Green Ext Time (p_c), s	0.0	0.0	0.0	2.8	0.0	1.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	105.3
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	330	0	60	740	70	10	579	40	40	744	380
Future Volume (veh/h)	220	330	0	60	740	70	10	579	40	40	744	380
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	239	359	0	65	804	76	11	629	43	43	809	413
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	948	0	82	730	69	13	867	59	55	641	325
Arrive On Green	0.12	0.51	0.00	0.05	0.44	0.44	0.01	0.26	0.26	0.03	0.28	0.28
Sat Flow, veh/h	1774	1863	0	1774	1676	158	1774	3362	230	1774	2274	1154
Grp Volume(v), veh/h	239	359	0	65	0	880	11	331	341	43	629	593
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1774	0	1835	1774	1770	1822	1774	1770	1659
Q Serve(g_s), s	17.5	17.2	0.0	5.3	0.0	63.7	0.9	25.0	25.0	3.5	41.2	41.2
Cycle Q Clear(g_c), s	17.5	17.2	0.0	5.3	0.0	63.7	0.9	25.0	25.0	3.5	41.2	41.2
Prop In Lane	1.00		0.00	1.00		0.09	1.00		0.13	1.00		0.70
Lane Grp Cap(c), veh/h	212	948	0	82	0	799	13	456	470	55	498	467
V/C Ratio(X)	1.13	0.38	0.00	0.79	0.00	1.10	0.84	0.72	0.73	0.78	1.26	1.27
Avail Cap(c_a), veh/h	212	948	0	147	0	799	61	478	492	79	498	467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.4	21.9	0.0	69.0	0.0	41.3	72.5	49.5	49.6	70.4	52.5	52.5
Incr Delay (d2), s/veh	99.8	0.1	0.0	6.2	0.0	63.3	37.6	4.4	4.3	16.1	132.9	137.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.4	8.8	0.0	2.7	0.0	46.2	0.6	12.8	13.2	2.0	38.5	36.7
LnGrp Delay(d),s/veh	164.2	22.0	0.0	75.2	0.0	104.6	110.1	53.9	53.8	86.4	185.4	190.1
LnGrp LOS	F	C		E		F	F	D	D	F	F	F
Approach Vol, veh/h		598			945			683			1265	
Approach Delay, s/veh		78.8			102.5			54.8			184.3	
Approach LOS		E			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	70.5	5.6	48.2	11.3	81.2	9.1	44.7
Change Period (Y+Rc), s	4.5	6.8	4.5	* 7	4.5	* 6.8	4.5	7.0
Max Green Setting (Gmax), s	17.5	63.7	5.0	* 41	12.1	* 70	6.5	39.5
Max Q Clear Time (g_c+I1), s	19.5	65.7	2.9	43.2	7.3	19.2	5.5	27.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.1	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	118.7
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1030	627	10	46	748	10	10	50	22	10	10	460
Future Volume (veh/h)	1030	627	10	46	748	10	10	50	22	10	10	460
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	1120	682	0	50	813	11	11	54	24	11	11	500
Adj No. of Lanes	1	2	1	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	682	2011	900	64	786	11	14	69	31	149	149	869
Arrive On Green	0.38	0.57	0.00	0.04	0.22	0.22	0.07	0.07	0.07	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1583	1774	3575	48	217	1068	474	909	909	1583
Grp Volume(v), veh/h	1120	682	0	50	402	422	89	0	0	22	0	500
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1854	1759	0	0	1817	0	1583
Q Serve(g_s), s	52.5	14.1	0.0	3.8	30.0	30.0	6.8	0.0	0.0	1.4	0.0	22.4
Cycle Q Clear(g_c), s	52.5	14.1	0.0	3.8	30.0	30.0	6.8	0.0	0.0	1.4	0.0	22.4
Prop In Lane	1.00		1.00	1.00		0.03	0.12		0.27	0.50		1.00
Lane Grp Cap(c), veh/h	682	2011	900	64	389	408	114	0	0	298	0	869
V/C Ratio(X)	1.64	0.34	0.00	0.78	1.03	1.03	0.78	0.00	0.00	0.07	0.00	0.58
Avail Cap(c_a), veh/h	682	2011	900	120	389	408	289	0	0	298	0	869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.0	15.8	0.0	65.2	53.2	53.2	62.8	0.0	0.0	48.3	0.0	20.3
Incr Delay (d2), s/veh	295.1	0.0	0.0	7.3	54.8	53.8	4.2	0.0	0.0	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	81.5	6.8	0.0	2.0	20.5	21.4	3.4	0.0	0.0	0.7	0.0	12.5
LnGrp Delay(d),s/veh	337.1	15.8	0.0	72.5	108.0	107.0	67.1	0.0	0.0	48.3	0.0	20.9
LnGrp LOS	F	B		E	F	F	E			D		C
Approach Vol, veh/h		1802			874			89			522	
Approach Delay, s/veh		215.5			105.5			67.1			22.1	
Approach LOS		F			F			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	58.0	36.0		14.5	10.4	83.6		28.0
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		5.6
Max Green Setting (Gmax), s	52.5	30.0		* 22	9.2	* 74		22.4
Max Q Clear Time (g_c+I1), s	54.5	32.0		8.8	5.8	16.1		24.4
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	1.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	151.5
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	490	624	30	30	1290	1092	80	130	50	287	10	90
Future Volume (veh/h)	490	624	30	30	1290	1092	80	130	50	287	10	90
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	533	678	33	33	1402	1187	87	141	54	312	11	98
Adj No. of Lanes	1	2	0	2	3	1	1	1	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	383	2162	105	60	2174	668	108	161	62	248	482	216
Arrive On Green	0.22	0.63	0.63	0.02	0.43	0.43	0.06	0.13	0.13	0.07	0.14	0.14
Sat Flow, veh/h	1774	3436	167	3442	5085	1563	1774	1284	492	3442	3539	1583
Grp Volume(v), veh/h	533	349	362	33	1402	1187	87	0	195	312	11	98
Grp Sat Flow(s),veh/h/ln	1774	1770	1833	1721	1695	1563	1774	0	1776	1721	1770	1583
Q Serve(g_s), s	28.5	12.0	12.0	1.3	28.7	56.4	6.4	0.0	14.2	9.5	0.4	7.5
Cycle Q Clear(g_c), s	28.5	12.0	12.0	1.3	28.7	56.4	6.4	0.0	14.2	9.5	0.4	7.5
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	383	1114	1154	60	2174	668	108	0	222	248	482	216
V/C Ratio(X)	1.39	0.31	0.31	0.55	0.64	1.78	0.80	0.00	0.88	1.26	0.02	0.45
Avail Cap(c_a), veh/h	383	1114	1154	138	2174	668	113	0	471	248	960	430
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	11.3	11.3	64.3	29.8	37.8	61.2	0.0	56.7	61.2	49.4	52.5
Incr Delay (d2), s/veh	191.2	0.1	0.1	3.0	0.5	355.6	29.6	0.0	4.3	144.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	34.3	5.8	6.1	0.6	13.5	90.2	4.0	0.0	7.3	9.5	0.2	3.3
LnGrp Delay(d),s/veh	242.9	11.4	11.4	67.3	30.4	393.3	90.7	0.0	61.0	206.1	49.4	53.0
LnGrp LOS	F	B	B	E	C	F	F		E	F	D	D
Approach Vol, veh/h		1244			2622			282			421	
Approach Delay, s/veh		110.6			195.1			70.2			166.4	
Approach LOS		F			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.0	61.3	13.5	23.1	7.4	87.9	15.0	21.6
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	28.5	* 56	8.4	* 36	* 5.3	* 80	9.5	* 35
Max Q Clear Time (g_c+I1), s	30.5	58.4	8.4	9.5	3.3	14.0	11.5	16.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	1.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	161.7
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	339	282	130	1376	276	1026	2280	160	56	811	170
Future Volume (veh/h)	270	339	282	130	1376	276	1026	2280	160	56	811	170
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	293	368	307	141	1496	300	1115	2478	174	61	882	185
Adj No. of Lanes	2	3	1	2	3	1	2	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	1613	502	187	1553	484	729	2161	664	99	1230	383
Arrive On Green	0.07	0.32	0.32	0.05	0.31	0.31	0.21	0.42	0.42	0.03	0.24	0.24
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	1564	3442	5085	1583
Grp Volume(v), veh/h	293	368	307	141	1496	300	1115	2478	174	61	882	185
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1564	1721	1695	1583
Q Serve(g_s), s	9.5	7.7	23.7	5.8	41.7	23.4	30.5	61.2	10.4	2.5	22.9	14.4
Cycle Q Clear(g_c), s	9.5	7.7	23.7	5.8	41.7	23.4	30.5	61.2	10.4	2.5	22.9	14.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	227	1613	502	187	1553	484	729	2161	664	99	1230	383
V/C Ratio(X)	1.29	0.23	0.61	0.75	0.96	0.62	1.53	1.15	0.26	0.62	0.72	0.48
Avail Cap(c_a), veh/h	227	1613	502	272	1561	486	729	2161	664	119	1257	391
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.3	36.2	41.7	67.2	49.2	42.9	56.8	41.4	26.8	69.2	50.1	46.9
Incr Delay (d2), s/veh	159.6	0.0	1.6	3.2	14.8	1.8	245.3	72.0	0.1	2.9	1.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	3.6	10.6	2.9	21.7	10.5	39.3	43.0	4.5	1.2	10.9	6.4
LnGrp Delay(d),s/veh	226.9	36.2	43.3	70.4	64.0	44.6	302.1	113.4	26.9	72.0	51.7	47.2
LnGrp LOS	F	D	D	E	E	D	F	F	C	E	D	D
Approach Vol, veh/h		968			1937			3767			1128	
Approach Delay, s/veh		96.2			61.5			165.2			52.1	
Approach LOS		F			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	68.6	13.3	52.5	36.0	42.2	15.0	50.8
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	5.0	* 61	11.4	* 42	30.5	* 36	9.5	44.2
Max Q Clear Time (g_c+I1), s	4.5	63.2	7.8	25.7	32.5	24.9	11.5	43.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.8	0.0	1.6	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	114.5
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	630	350	400	740	60	380	166	580	60	182	70
Future Volume (veh/h)	10	630	350	400	740	60	380	166	580	60	182	70
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		0.99	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	11	685	0	435	804	65	335	462	444	65	198	76
Adj No. of Lanes	1	2	1	2	2	0	1	1	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	14	794	355	492	1185	96	519	545	457	94	294	117
Arrive On Green	0.01	0.22	0.00	0.14	0.36	0.36	0.29	0.29	0.29	0.14	0.14	0.14
Sat Flow, veh/h	1774	3539	1583	3442	3305	267	1774	1863	1561	654	2040	810
Grp Volume(v), veh/h	11	685	0	435	430	439	335	462	444	182	0	157
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1803	1774	1863	1561	1830	0	1674
Q Serve(g_s), s	0.7	19.6	0.0	13.0	21.7	21.7	17.3	24.6	29.6	9.9	0.0	9.3
Cycle Q Clear(g_c), s	0.7	19.6	0.0	13.0	21.7	21.7	17.3	24.6	29.6	9.9	0.0	9.3
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	0.36		0.48
Lane Grp Cap(c), veh/h	14	794	355	492	634	646	519	545	457	264	0	242
V/C Ratio(X)	0.79	0.86	0.00	0.88	0.68	0.68	0.65	0.85	0.97	0.69	0.00	0.65
Avail Cap(c_a), veh/h	72	911	408	507	644	656	519	545	457	452	0	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.1	39.3	0.0	44.2	28.6	28.6	32.5	35.0	36.8	42.8	0.0	42.5
Incr Delay (d2), s/veh	29.8	7.0	0.0	15.8	2.3	2.3	2.2	11.3	34.7	1.2	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	10.4	0.0	7.3	11.0	11.2	8.8	14.3	17.2	5.1	0.0	4.4
LnGrp Delay(d),s/veh	81.9	46.2	0.0	60.0	30.9	30.9	34.6	46.4	71.5	44.0	0.0	43.6
LnGrp LOS	F	D		E	C	C	C	D	E	D		D
Approach Vol, veh/h		696			1304			1241			339	
Approach Delay, s/veh		46.8			40.6			52.2			43.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	42.4		36.0	20.3	28.3		20.7
Change Period (Y+Rc), s	* 5.3	* 4.7		* 5.2	* 5.2	* 4.7		5.5
Max Green Setting (Gmax), s	* 4.3	* 38		* 31	* 16	* 27		26.0
Max Q Clear Time (g_c+I1), s	2.7	23.7		31.6	15.0	21.6		11.9
Green Ext Time (p_c), s	0.0	1.2		0.0	0.0	0.8		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	46.1
HCM 2010 LOS	D

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations															
Traffic Volume (veh/h)	10	220	750	225	20	200	840	70	20	452	1414	220	230	500	450
Future Volume (veh/h)	10	220	750	225	20	200	840	70	20	452	1414	220	230	500	450
Number		3	8	18		7	4	14		1	6	16	5	2	12
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98		1.00		1.00	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h		239	815	245		217	913	76		491	1537	239	250	543	489
Adj No. of Lanes		2	3	0		2	3	1		2	3	1	2	3	0
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2	2	2	2
Cap, veh/h		276	942	281		282	1246	381		554	1808	562	316	971	447
Arrive On Green		0.08	0.24	0.24		0.08	0.24	0.24		0.16	0.36	0.36	0.09	0.29	0.29
Sat Flow, veh/h		3442	3873	1155		3442	5085	1557		3442	5085	1579	3442	3390	1561
Grp Volume(v), veh/h		239	713	347		217	913	76		491	1537	239	250	543	489
Grp Sat Flow(s),veh/h/ln		1721	1695	1638		1721	1695	1557		1721	1695	1579	1721	1695	1561
Q Serve(g_s), s		6.8	19.8	20.1		6.1	16.3	3.8		13.7	27.5	11.3	7.0	13.4	28.2
Cycle Q Clear(g_c), s		6.8	19.8	20.1		6.1	16.3	3.8		13.7	27.5	11.3	7.0	13.4	28.2
Prop In Lane		1.00		0.71		1.00		1.00		1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		276	825	398		282	1246	381		554	1808	562	316	971	447
V/C Ratio(X)		0.87	0.86	0.87		0.77	0.73	0.20		0.89	0.85	0.43	0.79	0.56	1.09
Avail Cap(c_a), veh/h		276	985	476		290	1498	459		612	1808	562	377	971	447
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		44.8	35.7	35.8		44.3	34.2	29.5		40.4	29.3	24.1	43.8	29.9	35.1
Incr Delay (d2), s/veh		22.9	6.2	12.7		10.4	1.1	0.1		12.9	3.9	0.2	7.6	0.4	70.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.1	10.0	10.5		3.3	7.7	1.6		7.5	13.5	5.0	3.7	6.3	20.8
LnGrp Delay(d),s/veh		67.7	41.9	48.5		54.7	35.3	29.6		53.3	33.2	24.3	51.4	30.3	105.4
LnGrp LOS		E	D	D		D	D	C		D	C	C	D	C	F
Approach Vol, veh/h			1299				1206				2267			1282	
Approach Delay, s/veh			48.4				38.4				36.6			63.1	
Approach LOS			D				D				D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.3	33.8	13.4	29.9	14.5	40.6	13.6	29.8
Change Period (Y+Rc), s	5.5	* 5.6	5.5	5.8	5.5	* 5.6	5.5	5.8
Max Green Setting (Gmax), s	17.5	* 28	7.9	29.0	10.8	* 35	8.3	28.6
Max Q Clear Time (g_c+I1), s	15.7	30.2	8.8	18.3	9.0	29.5	8.1	22.1
Green Ext Time (p_c), s	0.1	0.0	0.0	1.9	0.0	2.4	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	45.1
HCM 2010 LOS	D

Notes

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	450	10	910	1326	170	50	1444	710	10	1894	220
Future Volume (vph)	450	10	910	1326	170	50	1444	710	10	1894	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8	6.8	4.5		4.6			4.6	4.0
Lane Util. Factor		0.91	0.86	0.91	0.88		0.86			0.91	1.00
Frpb, ped/bikes		1.00	0.99	0.98	1.00		0.99			1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.94	0.85	0.85		0.95			1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1610	2989	1418	2787		6041			5085	1545
Flt Permitted		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		1610	2989	1418	2787		6041			5085	1545
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	489	11	989	1441	185	54	1570	772	11	2059	239
RTOR Reduction (vph)	0	0	1	30	72	0	1	0	0	0	0
Lane Group Flow (vph)	0	499	1666	734	167	0	2352	0	0	2059	239
Confl. Peds. (#/hr)	6	6		6	3	3		3	3		6
Confl. Bikes (#/hr)								2	2		3
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		5		6			2	
Permitted Phases				4							Free
Actuated Green, G (s)		55.2	55.2	55.2	6.5		42.4			53.4	120.0
Effective Green, g (s)		55.2	55.2	55.2	6.5		42.4			53.4	120.0
Actuated g/C Ratio		0.46	0.46	0.46	0.05		0.35			0.44	1.00
Clearance Time (s)		6.8	6.8	6.8	4.5		4.6			4.6	
Vehicle Extension (s)		1.0	1.0	1.0	3.0		1.0			1.0	
Lane Grp Cap (vph)		740	1374	652	150		2134			2262	1545
v/s Ratio Prot		0.31	c0.56		0.06		c0.39			c0.40	
v/s Ratio Perm				0.52							0.15
v/c Ratio		0.67	1.21	1.13	1.11		1.39dr			0.91	0.15
Uniform Delay, d1		25.4	32.4	32.4	56.8		38.8			31.1	0.0
Progression Factor		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		1.9	102.6	75.4	107.4		53.8			5.9	0.2
Delay (s)		27.3	135.0	107.8	164.1		92.6			37.0	0.2
Level of Service		C	F	F	F		F			D	A
Approach Delay (s)			109.5				92.6			33.1	
Approach LOS			F				F			C	

Intersection Summary			
HCM 2000 Control Delay	83.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	101.5%	ICU Level of Service	G
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Volume (veh/h)	50	240	340	207	250	1090	180	40	308	1590	140	20	30	922	600
Future Volume (veh/h)	50	240	340	207	250	1090	180	40	308	1590	140	20	30	922	600
Number		3	8	18	7	4	14		1	6	16		5	2	12
Initial Q (Qb), veh		0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		1.00		1.00		0.99		1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676	1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		261	370	225	272	1185	196		335	1728	152		33	1002	652
Adj No. of Lanes		2	2	1	2	3	1		2	3	1		2	3	1
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h		283	831	365	283	1194	370		310	1974	606		56	1600	490
Arrive On Green		0.09	0.26	0.26	0.09	0.26	0.26		0.10	0.43	0.43		0.02	0.35	0.35
Sat Flow, veh/h		3097	3185	1401	3097	4577	1420		3097	4577	1405		3097	4577	1402
Grp Volume(v), veh/h		261	370	225	272	1185	196		335	1728	152		33	1002	652
Grp Sat Flow(s),veh/h/ln		1549	1593	1401	1549	1526	1420		1549	1526	1405		1549	1526	1402
Q Serve(g_s), s		9.6	11.2	16.3	10.1	29.7	13.6		11.5	39.7	7.9		1.2	21.0	40.2
Cycle Q Clear(g_c), s		9.6	11.2	16.3	10.1	29.7	13.6		11.5	39.7	7.9		1.2	21.0	40.2
Prop In Lane		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		283	831	365	283	1194	370		310	1974	606		56	1600	490
V/C Ratio(X)		0.92	0.45	0.62	0.96	0.99	0.53		1.08	0.88	0.25		0.58	0.63	1.33
Avail Cap(c_a), veh/h		283	831	365	283	1194	370		310	1974	606		108	1600	490
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		51.8	35.5	37.4	52.1	42.4	36.4		51.8	29.9	20.8		56.0	31.1	37.4
Incr Delay (d2), s/veh		33.3	0.8	4.4	42.7	24.3	4.1		74.6	5.1	0.4		3.5	1.1	162.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.4	5.0	6.8	6.0	15.2	5.8		8.1	17.6	3.1		0.6	9.0	37.6
LnGrp Delay(d),s/veh		85.2	36.3	41.8	94.8	66.7	40.5		126.3	34.9	21.3		59.5	32.2	199.5
LnGrp LOS		F	D	D	F	E	D		F	C	C		E	C	F
Approach Vol, veh/h			856			1653				2215				1687	
Approach Delay, s/veh			52.7			68.2				47.8				97.4	
Approach LOS			D			E				D				F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	46.0	16.0	36.0	7.6	55.4	16.0	36.0
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	11.5	* 40	10.5	30.0	4.0	* 48	10.5	30.0
Max Q Clear Time (g_c+I1), s	13.5	42.2	11.6	31.7	3.2	41.7	12.1	18.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	5.8	0.0	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	66.8
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	120	10	412	30	30	40	30	466	2772	20	40	3356	40
Future Volume (veh/h)	120	10	412	30	30	40	30	466	2772	20	40	3356	40
Number	7	4	14	3	8	18		1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	130	241	294	33	33	43		507	3013	22	43	3648	43
Adj No. of Lanes	0	1	1	1	1	0		2	3	0	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2	2
Cap, veh/h	144	267	354	114	47	62		299	2596	19	55	2238	679
Arrive On Green	0.22	0.22	0.22	0.06	0.06	0.06		0.09	0.50	0.50	0.03	0.44	0.44
Sat Flow, veh/h	641	1189	1575	1774	733	956		3442	5208	38	1774	5085	1542
Grp Volume(v), veh/h	371	0	294	33	0	76		507	1959	1076	43	3648	43
Grp Sat Flow(s),veh/h/ln	1831	0	1575	1774	0	1689		1721	1695	1856	1774	1695	1542
Q Serve(g_s), s	22.5	0.0	20.3	2.0	0.0	5.0		9.9	56.9	56.9	2.7	50.2	1.8
Cycle Q Clear(g_c), s	22.5	0.0	20.3	2.0	0.0	5.0		9.9	56.9	56.9	2.7	50.2	1.8
Prop In Lane	0.35		1.00	1.00		0.57		1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	411	0	354	114	0	109		299	1690	925	55	2238	679
V/C Ratio(X)	0.90	0.00	0.83	0.29	0.00	0.70		1.70	1.16	1.16	0.78	1.63	0.06
Avail Cap(c_a), veh/h	514	0	442	498	0	474		299	1690	925	73	2238	679
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	0.0	42.2	50.9	0.0	52.3		52.1	28.6	28.6	54.9	31.9	18.4
Incr Delay (d2), s/veh	14.8	0.0	8.6	0.5	0.0	3.0		327.9	78.6	85.4	23.2	285.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	0.0	9.7	1.0	0.0	2.4		18.3	45.0	51.0	1.7	82.6	0.8
LnGrp Delay(d),s/veh	57.8	0.0	50.8	51.4	0.0	55.3		380.0	107.2	114.0	78.1	317.6	18.4
LnGrp LOS	E		D	D		E		F	F	F	E	F	B
Approach Vol, veh/h		665			109				3542			3734	
Approach Delay, s/veh		54.7			54.1				148.3			311.4	
Approach LOS		D			D				F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	55.1		31.1	8.3	61.8		12.9
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 9.9	* 50		32.0	* 4.7	* 56		32.0
Max Q Clear Time (g_c+I1), s	11.9	52.2		24.5	4.7	58.9		7.0
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	215.0
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	874	1234	0	1318	110	50	619
Future Volume (veh/h)	874	1234	0	1318	110	50	619
Number	1	6		2	12	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h	950	1341		1433	120	54	673
Adj No. of Lanes	2	2		2	1	1	1
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	964	2488		1313	587	310	277
Arrive On Green	0.28	0.70		0.37	0.37	0.17	0.17
Sat Flow, veh/h	3442	3632		3632	1583	1774	1583
Grp Volume(v), veh/h	950	1341		1433	120	54	673
Grp Sat Flow(s),veh/h/ln	1721	1770		1770	1583	1774	1583
Q Serve(g_s), s	27.5	18.1		37.1	5.2	2.6	17.5
Cycle Q Clear(g_c), s	27.5	18.1		37.1	5.2	2.6	17.5
Prop In Lane	1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h	964	2488		1313	587	310	277
V/C Ratio(X)	0.99	0.54		1.09	0.20	0.17	2.43
Avail Cap(c_a), veh/h	964	2488		1313	587	310	277
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	7.1		31.5	21.4	35.1	41.3
Incr Delay (d2), s/veh	25.4	0.1		53.7	0.1	0.1	653.9
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.5	8.8		27.8	2.3	1.3	58.0
LnGrp Delay(d),s/veh	61.2	7.2		85.1	21.5	35.2	695.1
LnGrp LOS	E	A		F	C	D	F
Approach Vol, veh/h		2291		1553		727	
Approach Delay, s/veh		29.6		80.2		646.1	
Approach LOS		C		F		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	33.2	43.8				77.0		23.0
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 28	* 37				* 61		17.5
Max Q Clear Time (g_c+I1), s	29.5	39.1				20.1		19.5
Green Ext Time (p_c), s	0.0	0.0				3.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	144.8
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	50	717	240	110	604	0	10	240	1150	140	10	150
Future Volume (veh/h)	50	717	240	110	604	0	10	240	1150	140	10	150
Number	3	8	18	7	4	14		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1900		1863
Adj Flow Rate, veh/h	54	779	261	120	657	0		261	1250	152		163
Adj No. of Lanes	1	1	1	1	1	1		1	3	0		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92		0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	69	570	484	100	603	512		183	1658	202		185
Arrive On Green	0.04	0.31	0.31	0.06	0.32	0.00		0.10	0.36	0.36		0.10
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583		1774	4583	557		1774
Grp Volume(v), veh/h	54	779	261	120	657	0		261	925	477		163
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583		1774	1695	1750		1774
Q Serve(g_s), s	4.5	46.0	20.6	8.5	48.6	0.0		15.5	36.0	36.0		13.6
Cycle Q Clear(g_c), s	4.5	46.0	20.6	8.5	48.6	0.0		15.5	36.0	36.0		13.6
Prop In Lane	1.00		1.00	1.00		1.00		1.00		0.32		1.00
Lane Grp Cap(c), veh/h	69	570	484	100	603	512		183	1226	633		185
V/C Ratio(X)	0.78	1.37	0.54	1.20	1.09	0.00		1.43	0.75	0.75		0.88
Avail Cap(c_a), veh/h	71	570	484	100	603	512		183	1226	633		250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	71.6	52.2	43.4	70.9	50.9	0.0		67.4	42.1	42.1		66.4
Incr Delay (d2), s/veh	38.0	176.3	0.7	152.1	63.7	0.0		221.0	2.4	4.6		19.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	3.0	51.5	9.1	8.4	35.6	0.0		18.8	17.2	18.2		7.7
LnGrp Delay(d),s/veh	109.7	228.5	44.0	223.1	114.6	0.0		288.5	44.5	46.7		85.4
LnGrp LOS	F	F	D	F	F			F	D	D		F
Approach Vol, veh/h		1094			777				1663			
Approach Delay, s/veh		178.6			131.3				83.4			
Approach LOS		F			F				F			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	62.0	11.4	56.0	21.2	61.8	14.0	53.4
Change Period (Y+Rc), s	5.5	7.4	5.5	7.4	5.5	7.4	5.5	* 7.4
Max Green Setting (Gmax), s	15.5	54.6	6.0	48.1	21.2	48.9	8.5	* 46
Max Q Clear Time (g_c+I1), s	17.5	56.6	6.5	50.6	15.6	38.0	10.5	48.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	2.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	195.8
HCM 2010 LOS	F

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2610	70
Future Volume (veh/h)	2610	70
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	2837	0
Adj No. of Lanes	3	1
Peak Hour Factor	0.92	0.92
Percent Heavy Veh, %	2	2
Cap, veh/h	1846	575
Arrive On Green	0.36	0.00
Sat Flow, veh/h	5085	1583
Grp Volume(v), veh/h	2837	0
Grp Sat Flow(s),veh/h/ln	1695	1583
Q Serve(g_s), s	54.6	0.0
Cycle Q Clear(g_c), s	54.6	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	1846	575
V/C Ratio(X)	1.54	0.00
Avail Cap(c_a), veh/h	1846	575
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	47.9	0.0
Incr Delay (d2), s/veh	244.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	67.2	0.0
LnGrp Delay(d),s/veh	292.2	0.0
LnGrp LOS	F	
Approach Vol, veh/h	3000	
Approach Delay, s/veh	281.0	
Approach LOS	F	
Timer		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	620	20	50	440	160	20	487	100	260	1174	268
Future Volume (veh/h)	224	620	20	50	440	160	20	487	100	260	1174	268
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	243	674	22	54	478	174	22	529	109	283	1276	291
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	264	713	606	69	508	432	49	832	372	307	1346	838
Arrive On Green	0.15	0.38	0.38	0.04	0.27	0.27	0.03	0.24	0.24	0.17	0.38	0.38
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	243	674	22	54	478	174	22	529	109	283	1276	291
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	17.6	45.6	1.1	3.9	32.7	11.7	1.6	17.5	7.4	20.5	45.5	13.8
Cycle Q Clear(g_c), s	17.6	45.6	1.1	3.9	32.7	11.7	1.6	17.5	7.4	20.5	45.5	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	264	713	606	69	508	432	49	832	372	307	1346	838
V/C Ratio(X)	0.92	0.95	0.04	0.78	0.94	0.40	0.45	0.64	0.29	0.92	0.95	0.35
Avail Cap(c_a), veh/h	264	756	643	72	555	472	259	926	414	483	1385	856
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	38.9	25.2	62.0	46.3	38.7	62.4	44.8	40.9	53.0	39.1	17.7
Incr Delay (d2), s/veh	34.2	19.6	0.0	36.1	22.7	0.2	2.4	0.8	0.2	12.2	13.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	27.3	0.5	2.6	20.1	5.1	0.8	8.7	3.2	11.1	24.6	6.0
LnGrp Delay(d),s/veh	88.9	58.5	25.2	98.1	69.0	38.9	64.8	45.6	41.1	65.3	52.4	17.8
LnGrp LOS	F	E	C	F	E	D	E	D	D	E	D	B
Approach Vol, veh/h		939			706			660			1850	
Approach Delay, s/veh		65.6			63.8			45.5			48.9	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.9	42.3	8.1	56.0	9.6	56.6	27.0	37.0
Change Period (Y+Rc), s	4.5	6.8	4.5	* 6.4	4.5	6.8	4.5	6.4
Max Green Setting (Gmax), s	19.4	38.8	19.0	* 51	5.3	52.9	35.5	34.1
Max Q Clear Time (g_c+I1), s	19.6	34.7	3.6	47.5	5.9	47.6	22.5	19.5
Green Ext Time (p_c), s	0.0	0.8	0.0	2.0	0.0	1.3	0.1	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	54.7
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	680	10	70	380	60	10	727	70	70	636	250
Future Volume (veh/h)	300	680	10	70	380	60	10	727	70	70	636	250
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	326	739	11	76	413	65	11	790	76	76	691	272
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	342	766	11	97	441	69	14	798	77	90	714	281
Arrive On Green	0.19	0.42	0.42	0.05	0.28	0.28	0.01	0.24	0.24	0.05	0.29	0.29
Sat Flow, veh/h	1774	1831	27	1774	1572	247	1774	3263	314	1774	2483	977
Grp Volume(v), veh/h	326	0	750	76	0	478	11	428	438	76	493	470
Grp Sat Flow(s),veh/h/ln	1774	0	1858	1774	0	1819	1774	1770	1807	1774	1770	1690
Q Serve(g_s), s	17.9	0.0	38.8	4.2	0.0	25.3	0.6	23.8	23.8	4.2	27.1	27.1
Cycle Q Clear(g_c), s	17.9	0.0	38.8	4.2	0.0	25.3	0.6	23.8	23.8	4.2	27.1	27.1
Prop In Lane	1.00		0.01	1.00		0.14	1.00		0.17	1.00		0.58
Lane Grp Cap(c), veh/h	342	0	777	97	0	510	14	433	442	90	509	486
V/C Ratio(X)	0.95	0.00	0.96	0.78	0.00	0.94	0.78	0.99	0.99	0.84	0.97	0.97
Avail Cap(c_a), veh/h	342	0	777	207	0	537	90	433	442	90	509	486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	0.0	27.9	46.0	0.0	34.6	48.8	37.1	37.1	46.4	34.7	34.7
Incr Delay (d2), s/veh	36.0	0.0	23.8	5.0	0.0	23.1	28.7	40.3	40.0	46.4	31.6	32.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	0.0	24.9	2.2	0.0	15.9	0.4	16.4	16.7	3.2	17.6	16.9
LnGrp Delay(d),s/veh	75.3	0.0	51.7	51.0	0.0	57.7	77.4	77.4	77.0	92.8	66.3	67.1
LnGrp LOS	E		D	D		E	E	E	E	F	E	E
Approach Vol, veh/h		1076			554			877			1039	
Approach Delay, s/veh		58.9			56.8			77.2			68.6	
Approach LOS		E			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.5	34.4	5.3	35.3	9.9	48.0	9.5	31.1
Change Period (Y+Rc), s	4.5	6.8	4.5	* 7	4.5	* 6.8	4.5	7.0
Max Green Setting (Gmax), s	19.0	29.1	5.0	* 24	11.5	* 37	5.0	24.1
Max Q Clear Time (g_c+I1), s	19.9	27.3	2.6	29.1	6.2	40.8	6.2	25.8
Green Ext Time (p_c), s	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	65.9
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	370	710	10	34	682	10	10	20	47	10	50	1010
Future Volume (veh/h)	370	710	10	34	682	10	10	20	47	10	50	1010
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	402	772	0	37	741	11	11	22	51	11	54	1098
Adj No. of Lanes	1	2	1	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	431	1585	709	46	824	12	15	31	71	71	347	743
Arrive On Green	0.24	0.45	0.00	0.03	0.23	0.23	0.07	0.07	0.07	0.23	0.23	0.23
Sat Flow, veh/h	1774	3539	1583	1774	3570	53	217	434	1006	313	1535	1583
Grp Volume(v), veh/h	402	772	0	37	367	385	84	0	0	65	0	1098
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1853	1656	0	0	1847	0	1583
Q Serve(g_s), s	22.0	15.3	0.0	2.1	20.0	20.0	4.9	0.0	0.0	2.8	0.0	22.4
Cycle Q Clear(g_c), s	22.0	15.3	0.0	2.1	20.0	20.0	4.9	0.0	0.0	2.8	0.0	22.4
Prop In Lane	1.00		1.00	1.00		0.03	0.13		0.61	0.17		1.00
Lane Grp Cap(c), veh/h	431	1585	709	46	408	428	117	0	0	418	0	743
V/C Ratio(X)	0.93	0.49	0.00	0.80	0.90	0.90	0.72	0.00	0.00	0.16	0.00	1.48
Avail Cap(c_a), veh/h	922	2705	1210	125	554	580	375	0	0	418	0	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.7	19.3	0.0	48.0	37.0	37.0	45.1	0.0	0.0	30.7	0.0	26.3
Incr Delay (d2), s/veh	4.0	0.1	0.0	10.9	11.9	11.4	3.0	0.0	0.0	0.1	0.0	222.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	7.4	0.0	1.1	11.0	11.5	2.3	0.0	0.0	1.4	0.0	66.0
LnGrp Delay(d),s/veh	40.7	19.4	0.0	58.9	48.8	48.4	48.1	0.0	0.0	30.8	0.0	248.4
LnGrp LOS	D	B		E	D	D	D			C		F
Approach Vol, veh/h		1174			789			84			1163	
Approach Delay, s/veh		26.7			49.1			48.1			236.3	
Approach LOS		C			D			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	39.6	28.9		12.6	8.1	50.4		28.0
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		5.6
Max Green Setting (Gmax), s	51.5	31.0		* 22	7.0	* 76		22.4
Max Q Clear Time (g_c+I1), s	24.0	22.0		6.9	4.1	17.3		24.4
Green Ext Time (p_c), s	0.1	0.9		0.1	0.0	1.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	108.7
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1038	160	50	790	428	20	20	30	1039	140	490
Future Volume (veh/h)	110	1038	160	50	790	428	20	20	30	1039	140	490
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	120	1128	174	54	859	465	22	22	33	1129	152	533
Adj No. of Lanes	1	2	0	2	3	1	1	1	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	1195	184	94	1675	515	27	34	52	1185	1346	602
Arrive On Green	0.08	0.39	0.39	0.03	0.33	0.33	0.01	0.05	0.05	0.34	0.38	0.38
Sat Flow, veh/h	1774	3076	473	3442	5085	1562	1774	674	1011	3442	3539	1583
Grp Volume(v), veh/h	120	648	654	54	859	465	22	0	55	1129	152	533
Grp Sat Flow(s),veh/h/ln	1774	1770	1779	1721	1695	1562	1774	0	1684	1721	1770	1583
Q Serve(g_s), s	7.3	38.5	38.8	1.7	14.9	31.0	1.3	0.0	3.5	34.9	3.0	34.3
Cycle Q Clear(g_c), s	7.3	38.5	38.8	1.7	14.9	31.0	1.3	0.0	3.5	34.9	3.0	34.3
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.60	1.00		1.00
Lane Grp Cap(c), veh/h	147	688	691	94	1675	515	27	0	86	1185	1346	602
V/C Ratio(X)	0.82	0.94	0.95	0.58	0.51	0.90	0.83	0.00	0.64	0.95	0.11	0.89
Avail Cap(c_a), veh/h	216	767	771	161	1809	556	99	0	540	1335	2300	1029
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.2	32.2	32.3	52.4	29.5	34.9	53.6	0.0	50.8	34.9	21.9	31.6
Incr Delay (d2), s/veh	8.9	17.9	18.7	2.1	0.1	16.6	20.8	0.0	2.9	13.5	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	22.1	22.5	0.8	6.9	15.7	0.8	0.0	1.7	18.8	1.5	15.3
LnGrp Delay(d),s/veh	58.2	50.1	50.9	54.5	29.6	51.5	74.4	0.0	53.7	48.4	21.9	34.1
LnGrp LOS	E	D	D	D	C	D	E		D	D	C	C
Approach Vol, veh/h		1422			1378			77			1814	
Approach Delay, s/veh		51.1			38.0			59.6			42.0	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	40.8	7.1	46.6	8.1	47.3	43.0	10.7
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	13.3	* 39	6.1	* 71	* 5.1	* 47	42.3	* 35
Max Q Clear Time (g_c+I1), s	9.3	33.0	3.3	36.3	3.7	40.8	36.9	5.5
Green Ext Time (p_c), s	0.0	1.4	0.0	0.5	0.0	1.6	0.6	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	43.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1170	657	170	514	184	384	950	160	475	2173	210
Future Volume (veh/h)	160	1170	657	170	514	184	384	950	160	475	2173	210
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	174	1272	714	185	559	200	417	1033	174	516	2362	228
Adj No. of Lanes	2	3	1	2	3	1	2	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	1447	451	154	1351	421	344	1702	523	558	2019	629
Arrive On Green	0.06	0.28	0.28	0.04	0.27	0.27	0.10	0.33	0.33	0.16	0.40	0.40
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	1563	3442	5085	1583
Grp Volume(v), veh/h	174	1272	714	185	559	200	417	1033	174	516	2362	228
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1563	1721	1695	1583
Q Serve(g_s), s	7.2	34.6	41.3	6.5	13.2	15.4	14.5	24.6	12.1	21.4	57.6	14.7
Cycle Q Clear(g_c), s	7.2	34.6	41.3	6.5	13.2	15.4	14.5	24.6	12.1	21.4	57.6	14.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	220	1447	451	154	1351	421	344	1702	523	558	2019	629
V/C Ratio(X)	0.79	0.88	1.58	1.20	0.41	0.48	1.21	0.61	0.33	0.92	1.17	0.36
Avail Cap(c_a), veh/h	296	1447	451	154	1351	421	344	1702	523	600	2019	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.0	49.5	51.9	69.3	44.0	44.8	65.3	40.3	36.1	59.9	43.8	30.8
Incr Delay (d2), s/veh	7.0	6.3	273.4	136.2	0.1	0.3	119.5	0.5	0.1	18.8	82.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	17.1	52.2	6.0	6.2	6.8	12.6	11.5	5.2	11.6	42.3	6.5
LnGrp Delay(d),s/veh	74.0	55.8	325.3	205.5	44.0	45.1	184.8	40.8	36.3	78.7	126.0	31.0
LnGrp LOS	E	E	F	F	D	D	F	D	D	E	F	C
Approach Vol, veh/h		2160			944			1624			3106	
Approach Delay, s/veh		146.3			75.9			77.3			111.1	
Approach LOS		F			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	56.0	12.0	48.1	20.0	65.0	14.8	45.3
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	25.3	* 47	6.5	* 41	14.5	* 58	12.5	35.2
Max Q Clear Time (g_c+I1), s	23.4	26.6	8.5	43.3	16.5	59.6	9.2	17.4
Green Ext Time (p_c), s	0.1	2.2	0.0	0.0	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	109.6
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	870	350	400	690	70	360	334	710	70	126	20
Future Volume (veh/h)	80	870	350	400	690	70	360	334	710	70	126	20
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	87	946	0	435	750	76	382	563	572	76	137	22
Adj No. of Lanes	1	2	1	2	2	0	1	1	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	1059	474	180	929	94	476	500	418	144	274	45
Arrive On Green	0.06	0.30	0.00	0.05	0.29	0.29	0.27	0.27	0.27	0.13	0.13	0.13
Sat Flow, veh/h	1774	3539	1583	3442	3230	327	1774	1863	1559	1113	2123	351
Grp Volume(v), veh/h	87	946	0	435	411	415	382	563	572	123	0	112
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1787	1774	1863	1559	1807	0	1779
Q Serve(g_s), s	4.0	21.0	0.0	4.3	17.7	17.7	16.5	22.0	22.0	5.2	0.0	4.8
Cycle Q Clear(g_c), s	4.0	21.0	0.0	4.3	17.7	17.7	16.5	22.0	22.0	5.2	0.0	4.8
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	0.62		0.20
Lane Grp Cap(c), veh/h	111	1059	474	180	509	514	476	500	418	233	0	229
V/C Ratio(X)	0.78	0.89	0.00	2.41	0.81	0.81	0.80	1.13	1.37	0.53	0.00	0.49
Avail Cap(c_a), veh/h	145	1170	523	180	533	538	476	500	418	573	0	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.9	27.5	0.0	38.9	27.1	27.1	28.0	30.0	30.0	33.4	0.0	33.2
Incr Delay (d2), s/veh	13.5	7.9	0.0	651.3	7.8	7.8	8.9	79.8	180.3	0.7	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	11.4	0.0	18.4	9.7	9.8	9.2	22.3	30.3	2.7	0.0	2.4
LnGrp Delay(d),s/veh	51.4	35.4	0.0	690.1	34.9	34.9	36.9	109.8	210.3	34.1	0.0	33.8
LnGrp LOS	D	D		F	C	C	D	F	F	C		C
Approach Vol, veh/h		1033			1261			1517			235	
Approach Delay, s/veh		36.8			261.0			129.3			33.9	
Approach LOS		D			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	28.3		27.2	9.5	29.2		16.1
Change Period (Y+Rc), s	* 5.3	* 4.7		* 5.2	* 5.2	* 4.7		5.5
Max Green Setting (Gmax), s	* 6.7	* 25		* 22	* 4.3	* 27		26.0
Max Q Clear Time (g_c+I1), s	6.3	19.7		24.0	6.3	23.0		7.2
Green Ext Time (p_c), s	0.0	0.8		0.0	0.0	1.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	141.2
HCM 2010 LOS	F

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations															
Traffic Volume (veh/h)	10	440	900	533	30	320	920	220	10	238	596	170	90	1239	330
Future Volume (veh/h)	10	440	900	533	30	320	920	220	10	238	596	170	90	1239	330
Number		3	8	18		7	4	14		1	6	16	5	2	12
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99		1.00		0.98		1.00		1.00	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1863		1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h		478	978	579		348	1000	239		259	648	185	98	1347	359
Adj No. of Lanes		2	3	0		2	3	1		2	3	1	2	3	0
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2	2	2	2
Cap, veh/h		524	1023	471		392	1341	411		307	1944	604	143	1335	355
Arrive On Green		0.15	0.30	0.30		0.11	0.26	0.26		0.09	0.38	0.38	0.04	0.33	0.33
Sat Flow, veh/h		3442	3390	1560		3442	5085	1558		3442	5085	1580	3442	3989	1060
Grp Volume(v), veh/h		478	978	579		348	1000	239		259	648	185	98	1144	562
Grp Sat Flow(s),veh/h/ln		1721	1695	1560		1721	1695	1558		1721	1695	1580	1721	1695	1659
Q Serve(g_s), s		19.1	39.6	42.2		13.9	25.2	18.7		10.4	12.6	11.5	3.9	46.8	46.8
Cycle Q Clear(g_c), s		19.1	39.6	42.2		13.9	25.2	18.7		10.4	12.6	11.5	3.9	46.8	46.8
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h		524	1023	471		392	1341	411		307	1944	604	143	1135	555
V/C Ratio(X)		0.91	0.96	1.23		0.89	0.75	0.58		0.84	0.33	0.31	0.69	1.01	1.01
Avail Cap(c_a), veh/h		613	1023	471		396	1341	411		431	2015	626	219	1135	555
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		58.3	47.9	48.8		61.0	47.2	44.8		62.7	30.6	30.2	66.1	46.5	46.5
Incr Delay (d2), s/veh		15.3	18.2	120.7		20.0	2.1	1.4		7.7	0.0	0.1	2.2	28.8	41.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		10.2	21.1	33.8		7.7	12.0	8.2		5.3	5.9	5.0	1.9	26.3	27.6
LnGrp Delay(d),s/veh		73.6	66.1	169.5		81.0	49.2	46.2		70.4	30.6	30.3	68.2	75.2	87.6
LnGrp LOS		E	E	F		F	D	D		E	C	C	E	F	F
Approach Vol, veh/h			2035				1587				1092			1804	
Approach Delay, s/veh			97.3				55.8				40.0			78.7	
Approach LOS			F				E				D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	52.4	26.8	42.7	11.3	59.0	21.4	48.0
Change Period (Y+Rc), s	5.5	* 5.6	5.5	5.8	5.5	* 5.6	5.5	5.8
Max Green Setting (Gmax), s	17.5	* 47	24.9	33.4	8.9	* 55	16.1	42.2
Max Q Clear Time (g_c+I1), s	12.4	48.8	21.1	27.2	5.9	14.6	15.9	44.2
Green Ext Time (p_c), s	0.1	0.0	0.2	1.7	0.0	1.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	72.4
HCM 2010 LOS	E

Notes

Movement	EBL2	EBL	EBT	EBR	WBR	WBR2	NBT	NBR	NBR2	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	690	10	120	1136	910	140	1936	490	10	1283	170
Future Volume (vph)	690	10	120	1136	910	140	1936	490	10	1283	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8	6.8	4.5		4.6			4.6	4.0
Lane Util. Factor		0.91	0.86	0.91	0.88		0.86			0.91	1.00
Frpb, ped/bikes		1.00	0.99	0.98	1.00		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.88	0.85	0.85		0.97			1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1610	2770	1415	2787		6180			5085	1545
Flt Permitted		0.95	1.00	1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		1610	2770	1415	2787		6180			5085	1545
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	750	11	130	1235	989	152	2104	533	11	1395	185
RTOR Reduction (vph)	0	0	31	38	59	0	1	0	0	0	0
Lane Group Flow (vph)	0	751	727	579	1082	0	2647	0	0	1395	185
Confl. Peds. (#/hr)	6	6		6	3	3		3	3		6
Confl. Bikes (#/hr)								2	2		3
Turn Type	Split	Split	NA	Perm	Prot		NA			NA	Free
Protected Phases	4	4	4		5		6			2	
Permitted Phases				4							Free
Actuated Green, G (s)		37.2	37.2	37.2	26.5		40.4			71.4	120.0
Effective Green, g (s)		37.2	37.2	37.2	26.5		40.4			71.4	120.0
Actuated g/C Ratio		0.31	0.31	0.31	0.22		0.34			0.60	1.00
Clearance Time (s)		6.8	6.8	6.8	4.5		4.6			4.6	
Vehicle Extension (s)		1.0	1.0	1.0	3.0		1.0			1.0	
Lane Grp Cap (vph)		499	858	438	615		2080			3025	1545
v/s Ratio Prot		c0.47	0.26		c0.39		c0.43			0.27	
v/s Ratio Perm				0.41							0.12
v/c Ratio		1.51	1.31dr	1.32	1.76		1.27			0.46	0.12
Uniform Delay, d1		41.4	38.7	41.4	46.8		39.8			13.6	0.0
Progression Factor		1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		237.5	7.5	160.2	348.2		126.7			0.0	0.2
Delay (s)		278.9	46.2	201.6	395.0		166.5			13.6	0.2
Level of Service		F	D	F	F		F			B	A
Approach Delay (s)			173.5				166.5			12.0	
Approach LOS			F				F			B	

Intersection Summary			
HCM 2000 Control Delay	170.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	115.4%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations																
Traffic Volume (veh/h)	40	530	1340	430	10	350	690	40	70	462	1110	340	40	220	1455	170
Future Volume (veh/h)	40	530	1340	430	10	350	690	40	70	462	1110	340	40	220	1455	170
Number		3	8	18		7	4	14		1	6	16		5	2	12
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		1.00		1.00		0.99		1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		576	1457	467		380	750	43		502	1207	370		239	1582	185
Adj No. of Lanes		2	2	1		2	3	1		2	3	1		2	3	1
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2		2	2	2
Cap, veh/h		613	1098	484		267	1067	331		374	1472	452		279	1332	408
Arrive On Green		0.20	0.34	0.34		0.09	0.23	0.23		0.12	0.32	0.32		0.09	0.29	0.29
Sat Flow, veh/h		3097	3185	1403		3097	4577	1420		3097	4577	1404		3097	4577	1401
Grp Volume(v), veh/h		576	1457	467		380	750	43		502	1207	370		239	1582	185
Grp Sat Flow(s),veh/h/ln		1549	1593	1403		1549	1526	1420		1549	1526	1404		1549	1526	1401
Q Serve(g_s), s		26.6	50.0	47.4		12.5	21.8	3.5		17.5	35.2	35.2		11.0	42.2	15.6
Cycle Q Clear(g_c), s		26.6	50.0	47.4		12.5	21.8	3.5		17.5	35.2	35.2		11.0	42.2	15.6
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		613	1098	484		267	1067	331		374	1472	452		279	1332	408
V/C Ratio(X)		0.94	1.33	0.97		1.42	0.70	0.13		1.34	0.82	0.82		0.86	1.19	0.45
Avail Cap(c_a), veh/h		641	1098	484		267	1067	331		374	1472	452		303	1332	408
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		57.3	47.5	46.7		66.3	51.0	44.0		63.7	45.3	45.3		65.1	51.4	42.0
Incr Delay (d2), s/veh		21.1	153.3	32.4		210.9	3.3	0.6		171.3	4.2	12.5		18.3	92.3	1.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		13.2	45.4	22.6		13.2	9.5	1.4		16.4	15.4	15.2		5.4	29.1	6.2
LnGrp Delay(d),s/veh		78.4	200.8	79.1		277.1	54.3	44.6		235.0	49.5	57.8		83.4	143.7	43.6
LnGrp LOS		E	F	E		F	D	D		F	D	E		F	F	D
Approach Vol, veh/h			2500				1173				2079				2006	
Approach Delay, s/veh			149.9				126.1				95.8				127.3	
Approach LOS			F				F				F				F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	48.0	34.2	39.8	18.6	52.4	18.0	56.0
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	17.5	* 42	30.0	32.5	14.2	* 46	12.5	50.0
Max Q Clear Time (g_c+I1), s	19.5	44.2	28.6	23.8	13.0	37.2	14.5	52.0
Green Ext Time (p_c), s	0.0	0.0	0.1	5.4	0.0	7.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	125.9
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	130	40	316	60	20	60	30	364	2638	20	60	2526	120
Future Volume (veh/h)	130	40	316	60	20	60	30	364	2638	20	60	2526	120
Number	7	4	14	3	8	18		1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900		1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	141	162	264	65	22	65		396	2867	22	65	2746	130
Adj No. of Lanes	0	1	1	1	1	0		2	3	0	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2	2
Cap, veh/h	164	188	304	132	31	91		308	2595	20	83	2306	699
Arrive On Green	0.19	0.19	0.19	0.07	0.07	0.07		0.09	0.50	0.50	0.05	0.45	0.45
Sat Flow, veh/h	847	973	1573	1774	415	1226		3442	5206	40	1774	5085	1542
Grp Volume(v), veh/h	303	0	264	65	0	87		396	1865	1024	65	2746	130
Grp Sat Flow(s),veh/h/ln	1820	0	1573	1774	0	1641		1721	1695	1856	1774	1695	1542
Q Serve(g_s), s	17.8	0.0	18.0	3.9	0.0	5.7		9.9	55.2	55.2	4.0	50.2	5.6
Cycle Q Clear(g_c), s	17.8	0.0	18.0	3.9	0.0	5.7		9.9	55.2	55.2	4.0	50.2	5.6
Prop In Lane	0.47		1.00	1.00		0.75		1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	352	0	304	132	0	122		308	1690	925	83	2306	699
V/C Ratio(X)	0.86	0.00	0.87	0.49	0.00	0.71		1.29	1.10	1.11	0.78	1.19	0.19
Avail Cap(c_a), veh/h	526	0	455	513	0	474		308	1690	925	179	2306	699
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	0.0	43.3	49.2	0.0	50.1		50.4	27.8	27.8	52.2	30.3	18.1
Incr Delay (d2), s/veh	6.4	0.0	7.9	1.1	0.0	2.9		151.4	55.9	63.5	5.8	90.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	0.0	8.5	2.0	0.0	2.7		11.1	38.7	44.3	2.1	42.6	2.4
LnGrp Delay(d),s/veh	49.6	0.0	51.2	50.3	0.0	53.0		201.8	83.6	91.3	58.0	120.8	18.1
LnGrp LOS	D		D	D		D		F	F	F	E	F	B
Approach Vol, veh/h		567			152				3285			2941	
Approach Delay, s/veh		50.3			51.8				100.3			114.8	
Approach LOS		D			D				F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	55.1		26.9	10.0	60.1		13.7
Change Period (Y+Rc), s	* 5.1	* 4.9		5.5	* 4.8	* 4.9		5.5
Max Green Setting (Gmax), s	* 9.9	* 50		32.0	* 11	* 49		32.0
Max Q Clear Time (g_c+I1), s	11.9	52.2		20.0	6.0	57.2		7.7
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	0.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	101.3
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	896	1464	0	1043	120	50	786
Future Volume (veh/h)	896	1464	0	1043	120	50	786
Number	1	6		2	12	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h	974	1591		1134	130	54	854
Adj No. of Lanes	2	2		2	1	1	1
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1036	2314		1041	466	370	330
Arrive On Green	0.30	0.65		0.29	0.29	0.21	0.21
Sat Flow, veh/h	3442	3632		3632	1583	1774	1583
Grp Volume(v), veh/h	974	1591		1134	130	54	854
Grp Sat Flow(s),veh/h/ln	1721	1770		1770	1583	1774	1583
Q Serve(g_s), s	24.5	25.1		26.1	5.6	2.2	18.5
Cycle Q Clear(g_c), s	24.5	25.1		26.1	5.6	2.2	18.5
Prop In Lane	1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1036	2314		1041	466	370	330
V/C Ratio(X)	0.94	0.69		1.09	0.28	0.15	2.59
Avail Cap(c_a), veh/h	1086	2314		1041	466	370	330
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	9.7		31.3	24.1	28.6	35.1
Incr Delay (d2), s/veh	14.4	0.7		55.3	0.1	0.1	722.4
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.7	12.2		20.6	2.5	1.1	74.4
LnGrp Delay(d),s/veh	44.6	10.4		86.6	24.2	28.7	757.5
LnGrp LOS	D	B		F	C	C	F
Approach Vol, veh/h		2565		1264		908	
Approach Delay, s/veh		23.4		80.2		714.2	
Approach LOS		C		F		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	31.9	32.8				64.7		24.0
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 28	* 26				* 50		18.5
Max Q Clear Time (g_c+I1), s	26.5	28.1				27.1		20.5
Green Ext Time (p_c), s	0.2	0.0				3.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	171.0
HCM 2010 LOS	F

Notes

Appendix C

Analysis Worksheets for Existing (2017) plus Proposed Project Mitigated Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	325	4	5	461	1	9	142	31	0	2	12
Future Volume (veh/h)	59	325	4	5	461	1	9	142	31	0	2	12
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	65	357	4	5	501	1	13	203	44	0	3	17
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	684	8	12	594	1	18	286	260	0	185	157
Arrive On Green	0.06	0.37	0.37	0.01	0.32	0.32	0.16	0.16	0.16	0.00	0.10	0.10
Sat Flow, veh/h	1774	1839	21	1774	1858	4	112	1745	1583	0	1863	1583
Grp Volume(v), veh/h	65	0	361	5	0	502	216	0	44	0	3	17
Grp Sat Flow(s),veh/h/ln	1774	0	1859	1774	0	1862	1857	0	1583	0	1863	1583
Q Serve(g_s), s	1.8	0.0	7.6	0.1	0.0	12.6	5.5	0.0	1.2	0.0	0.1	0.5
Cycle Q Clear(g_c), s	1.8	0.0	7.6	0.1	0.0	12.6	5.5	0.0	1.2	0.0	0.1	0.5
Prop In Lane	1.00		0.01	1.00		0.00	0.06		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	105	0	692	12	0	595	305	0	260	0	185	157
V/C Ratio(X)	0.62	0.00	0.52	0.42	0.00	0.84	0.71	0.00	0.17	0.00	0.02	0.11
Avail Cap(c_a), veh/h	176	0	776	176	0	777	664	0	567	0	666	567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	0.0	12.3	24.9	0.0	15.9	19.9	0.0	18.1	0.0	20.4	20.6
Incr Delay (d2), s/veh	5.8	0.0	0.6	21.9	0.0	6.6	3.0	0.0	0.3	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	3.9	0.1	0.0	7.5	3.1	0.0	0.5	0.0	0.0	0.2
LnGrp Delay(d),s/veh	28.9	0.0	12.9	46.7	0.0	22.6	22.9	0.0	18.4	0.0	20.5	20.9
LnGrp LOS	C		B	D		C	C		B		C	C
Approach Vol, veh/h		426			507			260			20	
Approach Delay, s/veh		15.4			22.8			22.2			20.9	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	23.2		12.8	7.5	20.6		9.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	21.0		18.0	5.0	21.0		18.0
Max Q Clear Time (g_c+I1), s	2.1	9.6		7.5	3.8	14.6		2.5
Green Ext Time (p_c), s	0.0	1.4		0.9	0.0	1.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	695	403	8	0	320	8	7	33	5	3	9	351
Future Volume (veh/h)	695	403	8	0	320	8	7	33	5	3	9	351
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	709	411	0	0	438	11	7	34	5	0	0	430
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	2
Peak Hour Factor	0.98	0.98	0.98	0.73	0.73	0.73	0.98	0.98	0.98	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	725	1300	1105	1	452	11	10	49	7	0	278	472
Arrive On Green	0.41	0.70	0.00	0.00	0.25	0.25	0.04	0.04	0.04	0.00	0.00	0.15
Sat Flow, veh/h	1774	1863	1583	1774	1809	45	275	1338	197	0	1863	3167
Grp Volume(v), veh/h	709	411	0	0	0	449	46	0	0	0	0	430
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1855	1810	0	0	0	1863	1583
Q Serve(g_s), s	54.4	11.8	0.0	0.0	0.0	33.1	3.5	0.0	0.0	0.0	0.0	18.5
Cycle Q Clear(g_c), s	54.4	11.8	0.0	0.0	0.0	33.1	3.5	0.0	0.0	0.0	0.0	18.5
Prop In Lane	1.00		1.00	1.00		0.02	0.15		0.11	0.00		1.00
Lane Grp Cap(c), veh/h	725	1300	1105	1	0	464	67	0	0	0	278	472
V/C Ratio(X)	0.98	0.32	0.00	0.00	0.00	0.97	0.69	0.00	0.00	0.00	0.00	0.91
Avail Cap(c_a), veh/h	726	1300	1105	51	0	464	67	0	0	0	302	514
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	40.2	8.1	0.0	0.0	0.0	51.2	65.7	0.0	0.0	0.0	0.0	57.8
Incr Delay (d2), s/veh	27.9	0.1	0.0	0.0	0.0	33.5	21.9	0.0	0.0	0.0	0.0	18.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.2	6.1	0.0	0.0	0.0	21.3	2.1	0.0	0.0	0.0	0.0	9.3
LnGrp Delay(d),s/veh	68.1	8.1	0.0	0.0	0.0	84.7	87.5	0.0	0.0	0.0	0.0	76.5
LnGrp LOS	E	A				F	F					E
Approach Vol, veh/h		1120			449			46			430	
Approach Delay, s/veh		46.1			84.7			87.5			76.5	
Approach LOS		D			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	61.9	40.5		26.2	0.0	102.4		9.5
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		4.4
Max Green Setting (Gmax), s	56.5	34.5		* 22	4.0	* 87		5.1
Max Q Clear Time (g_c+I1), s	56.4	35.1		20.5	0.0	13.8		5.5
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	0.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	61.9
HCM 2010 LOS	E

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	45	110	168	83	1	149	301	139	42	321	1449	111
Future Volume (veh/h)	45	110	168	83	1	149	301	139	42	321	1449	111
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.99		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		118	181	89		159	320	148		349	1575	121
Adj No. of Lanes		2	2	1		2	3	1		2	3	1
Peak Hour Factor		0.93	0.93	0.93		0.94	0.94	0.94		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		167	488	214		211	765	237		400	2223	683
Arrive On Green		0.05	0.15	0.15		0.07	0.17	0.17		0.13	0.49	0.49
Sat Flow, veh/h		3097	3185	1396		3097	4577	1417		3097	4577	1406
Grp Volume(v), veh/h		118	181	89		159	320	148		349	1575	121
Grp Sat Flow(s),veh/h/ln		1549	1593	1396		1549	1526	1417		1549	1526	1406
Q Serve(g_s), s		4.3	5.9	6.6		5.8	7.2	11.2		12.7	31.1	5.6
Cycle Q Clear(g_c), s		4.3	5.9	6.6		5.8	7.2	11.2		12.7	31.1	5.6
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		167	488	214		211	765	237		400	2223	683
V/C Ratio(X)		0.71	0.37	0.42		0.75	0.42	0.62		0.87	0.71	0.18
Avail Cap(c_a), veh/h		524	1770	776		524	1351	418		524	2559	786
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		53.6	43.8	44.1		52.7	43.0	44.6		49.2	23.2	16.7
Incr Delay (d2), s/veh		2.0	1.0	2.6		2.1	1.3	8.9		10.1	1.1	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.9	2.7	2.7		2.6	3.1	5.0		6.0	13.2	2.2
LnGrp Delay(d),s/veh		55.6	44.7	46.7		54.8	44.2	53.5		59.3	24.3	16.9
LnGrp LOS		E	D	D		D	D	D		E	C	B
Approach Vol, veh/h			388				627				2045	
Approach Delay, s/veh			48.5				49.1				29.9	
Approach LOS			D				D				C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.4	57.8	11.7	25.2	16.5	61.7	13.3	23.6
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	19.5	* 64	19.5	34.0	19.5	* 64	19.5	64.0
Max Q Clear Time (g_c+I1), s	14.7	23.3	6.3	13.2	10.9	33.1	7.8	8.6
Green Ext Time (p_c), s	0.1	21.9	0.1	5.5	0.1	22.8	0.1	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	33.2
HCM 2010 LOS	C

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	21	224	1021	326
Future Volume (veh/h)	21	224	1021	326
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676
Adj Flow Rate, veh/h		243	1110	354
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2
Cap, veh/h		295	2068	634
Arrive On Green		0.10	0.45	0.45
Sat Flow, veh/h		3097	4577	1403
Grp Volume(v), veh/h		243	1110	354
Grp Sat Flow(s),veh/h/ln		1549	1526	1403
Q Serve(g_s), s		8.9	20.2	21.3
Cycle Q Clear(g_c), s		8.9	20.2	21.3
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		295	2068	634
V/C Ratio(X)		0.82	0.54	0.56
Avail Cap(c_a), veh/h		524	2551	782
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		51.2	22.8	23.1
Incr Delay (d2), s/veh		2.2	0.4	1.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.9	8.6	8.5
LnGrp Delay(d),s/veh		53.4	23.3	24.7
LnGrp LOS		D	C	C
Approach Vol, veh/h			1707	
Approach Delay, s/veh			27.9	
Approach LOS			C	
Timer				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	112	13	245	34	25	39	34	273	2450	20	36	3322
Future Volume (veh/h)	112	13	245	34	25	39	34	273	2450	20	36	3322
Number	7	4	14	3	8	18		1	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	129	15	282	43	32	49		281	2526	21	39	3572
Adj No. of Lanes	1	1	0	1	1	0		2	3	0	1	3
Peak Hour Factor	0.87	0.87	0.87	0.79	0.79	0.79		0.97	0.97	0.97	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	142	16	293	57	97	149		262	3445	29	49	3116
Arrive On Green	0.08	0.19	0.19	0.03	0.15	0.15		0.08	0.66	0.66	0.03	0.61
Sat Flow, veh/h	1774	80	1506	1774	664	1017		3442	5202	43	1774	5085
Grp Volume(v), veh/h	129	0	297	43	0	81		281	1645	902	39	3572
Grp Sat Flow(s),veh/h/ln	1774	0	1586	1774	0	1681		1721	1695	1855	1774	1695
Q Serve(g_s), s	17.9	0.0	46.1	6.0	0.0	10.7		18.9	78.9	79.3	5.4	152.0
Cycle Q Clear(g_c), s	17.9	0.0	46.1	6.0	0.0	10.7		18.9	78.9	79.3	5.4	152.0
Prop In Lane	1.00		0.95	1.00		0.60		1.00		0.02	1.00	
Lane Grp Cap(c), veh/h	142	0	308	57	0	246		262	2245	1229	49	3116
V/C Ratio(X)	0.91	0.00	0.96	0.75	0.00	0.33		1.07	0.73	0.73	0.79	1.15
Avail Cap(c_a), veh/h	187	0	317	62	0	246		262	2245	1229	86	3116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	113.1	0.0	99.1	119.1	0.0	95.0		114.6	27.5	27.5	119.8	48.0
Incr Delay (d2), s/veh	30.2	0.0	40.0	32.5	0.0	0.3		75.8	1.1	2.0	9.8	70.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	0.0	23.6	3.5	0.0	5.0		11.8	37.1	41.3	2.8	91.2
LnGrp Delay(d),s/veh	143.4	0.0	139.1	151.5	0.0	95.3		190.4	28.6	29.6	129.7	118.1
LnGrp LOS	F		F	F		F		F	C	C	F	F
Approach Vol, veh/h		426			124				2828			3696
Approach Delay, s/veh		140.4			114.8				45.0			116.0
Approach LOS		F			F				D			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	156.9	13.5	53.7	11.7	169.2	25.4	41.7
Change Period (Y+Rc), s	* 5.1	* 4.9	5.5	5.5	* 4.8	* 4.9	5.5	5.5
Max Green Setting (Gmax), s	* 19	* 1.5E2	8.7	49.5	* 12	* 1.6E2	26.2	32.0
Max Q Clear Time (g_c+I1), s	20.9	154.0	8.0	48.1	7.4	81.3	19.9	12.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	8.4	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	89.0
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	79
Future Volume (veh/h)	79
Number	12
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.98
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	85
Adj No. of Lanes	1
Peak Hour Factor	0.93
Percent Heavy Veh, %	2
Cap, veh/h	947
Arrive On Green	0.61
Sat Flow, veh/h	1545
Grp Volume(v), veh/h	85
Grp Sat Flow(s),veh/h/ln	1545
Q Serve(g_s), s	5.6
Cycle Q Clear(g_c), s	5.6
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	947
V/C Ratio(X)	0.09
Avail Cap(c_a), veh/h	947
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	19.7
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	2.4
LnGrp Delay(d),s/veh	19.7
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	553	0	15	315	2	4	6	1	0	158	115
Future Volume (veh/h)	19	553	0	15	315	2	4	6	1	0	158	115
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	20	595	0	19	399	3	6	9	1	0	216	158
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.79	0.79	0.79	0.70	0.70	0.70	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	730	0	42	722	5	15	22	32	0	331	282
Arrive On Green	0.02	0.39	0.00	0.02	0.39	0.39	0.02	0.02	0.02	0.00	0.18	0.18
Sat Flow, veh/h	1774	1863	0	1774	1846	14	730	1096	1583	0	1863	1583
Grp Volume(v), veh/h	20	595	0	19	0	402	15	0	1	0	216	158
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1774	0	1860	1826	0	1583	0	1863	1583
Q Serve(g_s), s	0.5	13.3	0.0	0.5	0.0	7.8	0.4	0.0	0.0	0.0	5.0	4.2
Cycle Q Clear(g_c), s	0.5	13.3	0.0	0.5	0.0	7.8	0.4	0.0	0.0	0.0	5.0	4.2
Prop In Lane	1.00		0.00	1.00		0.01	0.40		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	43	730	0	42	0	727	37	0	32	0	331	282
V/C Ratio(X)	0.46	0.82	0.00	0.46	0.00	0.55	0.41	0.00	0.03	0.00	0.65	0.56
Avail Cap(c_a), veh/h	191	1241	0	191	0	1239	706	0	612	0	721	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	12.6	0.0	22.4	0.0	11.0	22.5	0.0	22.4	0.0	17.8	17.5
Incr Delay (d2), s/veh	7.4	2.3	0.0	7.7	0.0	0.7	7.2	0.0	0.4	0.0	2.2	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	7.2	0.0	0.3	0.0	4.0	0.3	0.0	0.0	0.0	2.8	2.0
LnGrp Delay(d),s/veh	29.8	14.9	0.0	30.1	0.0	11.7	29.7	0.0	22.8	0.0	20.0	19.2
LnGrp LOS	C	B		C		B	C		C		B	B
Approach Vol, veh/h		615			421			16			374	
Approach Delay, s/veh		15.4			12.5			29.2			19.6	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	22.7		5.4	5.6	22.7		12.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	31.0		18.0	5.0	31.0		18.0
Max Q Clear Time (g_c+I1), s	2.5	15.3		2.4	2.5	9.8		7.0
Green Ext Time (p_c), s	0.0	3.0		0.0	0.0	2.0		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	271	352	7	1	443	9	7	16	1	11	35	764
Future Volume (veh/h)	271	352	7	1	443	9	7	16	1	11	35	764
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	291	378	0	1	461	9	8	19	1	0	0	860
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	2
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.85	0.85	0.85	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	838	712	2	500	10	20	49	3	0	464	1329
Arrive On Green	0.18	0.45	0.00	0.00	0.27	0.27	0.04	0.04	0.04	0.00	0.00	0.25
Sat Flow, veh/h	1774	1863	1583	1774	1820	36	521	1239	65	0	1863	3099
Grp Volume(v), veh/h	291	378	0	1	0	470	28	0	0	0	0	860
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1856	1825	0	0	0	1863	1549
Q Serve(g_s), s	13.3	11.5	0.0	0.0	0.0	20.3	1.2	0.0	0.0	0.0	0.0	18.2
Cycle Q Clear(g_c), s	13.3	11.5	0.0	0.0	0.0	20.3	1.2	0.0	0.0	0.0	0.0	18.2
Prop In Lane	1.00		1.00	1.00		0.02	0.29		0.04	0.00		1.00
Lane Grp Cap(c), veh/h	312	838	712	2	0	510	72	0	0	0	464	1329
V/C Ratio(X)	0.93	0.45	0.00	0.46	0.00	0.92	0.39	0.00	0.00	0.00	0.00	0.65
Avail Cap(c_a), veh/h	312	841	715	86	0	597	113	0	0	0	506	1400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	33.5	15.6	0.0	41.1	0.0	29.0	38.6	0.0	0.0	0.0	0.0	18.8
Incr Delay (d2), s/veh	33.2	0.1	0.0	48.3	0.0	17.1	1.3	0.0	0.0	0.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	5.9	0.0	0.1	0.0	12.7	0.6	0.0	0.0	0.0	0.0	7.8
LnGrp Delay(d),s/veh	66.6	15.8	0.0	89.4	0.0	46.2	39.9	0.0	0.0	0.0	0.0	19.6
LnGrp LOS	E	B		F		D	D					B
Approach Vol, veh/h		669			471			28			860	
Approach Delay, s/veh		37.9			46.2			39.9			19.6	
Approach LOS		D			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	28.6		26.1	5.6	43.1		7.6
Change Period (Y+Rc), s	5.5	6.0		* 5.6	5.5	* 6		4.4
Max Green Setting (Gmax), s	14.5	26.5		* 22	4.0	* 37		5.1
Max Q Clear Time (g_c+I1), s	15.3	22.3		20.2	2.0	13.5		3.2
Green Ext Time (p_c), s	0.0	0.4		0.3	0.0	0.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	305	457	139	107	104	182	849	112	246	2090	124
Future Volume (veh/h)	63	305	457	139	107	104	182	849	112	246	2090	124
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	66	318	476	170	130	127	200	933	123	270	2297	136
Adj No. of Lanes	2	3	1	2	2	1	2	3	1	2	3	1
Peak Hour Factor	0.96	0.96	0.96	0.82	0.82	0.82	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	1205	489	186	921	407	248	2185	672	319	2290	713
Arrive On Green	0.03	0.24	0.24	0.05	0.26	0.26	0.07	0.43	0.43	0.09	0.45	0.45
Sat Flow, veh/h	3442	5085	1583	3442	3539	1563	3442	5085	1564	3442	5085	1583
Grp Volume(v), veh/h	66	318	476	170	130	127	200	933	123	270	2297	136
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1770	1563	1721	1695	1564	1721	1695	1583
Q Serve(g_s), s	2.6	6.9	32.0	6.6	3.8	8.8	7.7	17.3	6.6	10.4	60.8	7.0
Cycle Q Clear(g_c), s	2.6	6.9	32.0	6.6	3.8	8.8	7.7	17.3	6.6	10.4	60.8	7.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	106	1205	489	186	921	407	248	2185	672	319	2290	713
V/C Ratio(X)	0.62	0.26	0.97	0.91	0.14	0.31	0.81	0.43	0.18	0.85	1.00	0.19
Avail Cap(c_a), veh/h	150	1205	489	186	921	407	250	2185	672	433	2290	713
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.6	41.9	46.1	63.5	38.4	40.2	61.7	26.9	23.8	60.3	37.1	22.3
Incr Delay (d2), s/veh	2.2	0.0	33.5	41.6	0.0	0.2	16.2	0.0	0.0	8.5	19.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.2	22.0	4.2	1.9	3.8	4.2	8.1	2.8	5.3	32.6	3.0
LnGrp Delay(d),s/veh	66.8	42.0	79.6	105.1	38.4	40.4	77.9	26.9	23.9	68.8	56.7	22.4
LnGrp LOS	E	D	E	F	D	D	E	C	C	E	F	C
Approach Vol, veh/h		860			427			1256			2703	
Approach Delay, s/veh		64.7			65.6			34.8			56.2	
Approach LOS		E			E			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	65.4	12.8	38.8	15.2	68.2	9.7	41.9
Change Period (Y+Rc), s	5.5	* 7.4	5.5	* 6.8	5.5	* 7.4	5.5	6.8
Max Green Setting (Gmax), s	17.0	* 54	7.3	* 32	9.8	* 61	5.9	33.3
Max Q Clear Time (g_c+I1), s	12.4	19.3	8.6	34.0	9.7	62.8	4.6	10.8
Green Ext Time (p_c), s	0.1	2.0	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	53.2
HCM 2010 LOS	D

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (veh/h)	35	251	565	258	11	248	297	213	71	226	1037	216
Future Volume (veh/h)	35	251	565	258	11	248	297	213	71	226	1037	216
Number		3	8	18		7	4	14		1	6	16
Initial Q (Qb), veh		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99		1.00		1.00		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676		1676	1676	1676		1676	1676	1676
Adj Flow Rate, veh/h		295	665	304		306	367	263		248	1140	237
Adj No. of Lanes		2	2	1		2	3	1		2	3	1
Peak Hour Factor		0.85	0.85	0.85		0.81	0.81	0.81		0.91	0.91	0.91
Percent Heavy Veh, %		2	2	2		2	2	2		2	2	2
Cap, veh/h		340	763	339		335	1089	338		295	1684	522
Arrive On Green		0.11	0.24	0.24		0.11	0.24	0.24		0.10	0.37	0.37
Sat Flow, veh/h		3097	3185	1414		3097	4577	1421		3097	4577	1418
Grp Volume(v), veh/h		295	665	304		306	367	263		248	1140	237
Grp Sat Flow(s),veh/h/ln		1549	1593	1414		1549	1526	1421		1549	1526	1418
Q Serve(g_s), s		11.5	24.7	25.6		12.0	8.2	21.3		9.7	25.8	15.6
Cycle Q Clear(g_c), s		11.5	24.7	25.6		12.0	8.2	21.3		9.7	25.8	15.6
Prop In Lane		1.00		1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h		340	763	339		335	1089	338		295	1684	522
V/C Ratio(X)		0.87	0.87	0.90		0.91	0.34	0.78		0.84	0.68	0.45
Avail Cap(c_a), veh/h		340	781	347		335	1115	346		325	1684	522
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		53.9	45.0	45.3		54.3	38.9	43.9		54.8	32.8	29.5
Incr Delay (d2), s/veh		19.9	11.2	25.7		28.1	0.6	14.3		15.1	1.4	1.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.9	12.1	12.4		6.4	3.5	9.7		4.8	11.1	6.3
LnGrp Delay(d),s/veh		73.8	56.1	71.0		82.4	39.5	58.1		69.9	34.2	30.8
LnGrp LOS		E	E	E		F	D	E		E	C	C
Approach Vol, veh/h			1264				936				1625	
Approach Delay, s/veh			63.8				58.8				39.1	
Approach LOS			E				E				D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.2	51.6	19.0	35.3	17.7	51.1	18.8	35.5
Change Period (Y+Rc), s	5.5	* 5.8	5.5	6.0	5.5	* 5.8	5.5	6.0
Max Green Setting (Gmax), s	12.9	* 46	13.5	30.0	15.4	* 44	13.3	30.2
Max Q Clear Time (g_c+I1), s	11.7	47.6	13.5	23.3	12.2	27.8	14.0	27.6
Green Ext Time (p_c), s	0.0	0.0	0.0	3.4	0.1	11.1	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	54.3
HCM 2010 LOS	D

Notes

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (veh/h)	36	226	1477	132
Future Volume (veh/h)	36	226	1477	132
Number		5	2	12
Initial Q (Qb), veh		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1676	1676	1676
Adj Flow Rate, veh/h		260	1698	152
Adj No. of Lanes		2	3	1
Peak Hour Factor		0.87	0.87	0.87
Percent Heavy Veh, %		2	2	2
Cap, veh/h		308	1703	528
Arrive On Green		0.10	0.37	0.37
Sat Flow, veh/h		3097	4577	1418
Grp Volume(v), veh/h		260	1698	152
Grp Sat Flow(s),veh/h/ln		1549	1526	1418
Q Serve(g_s), s		10.2	45.6	9.3
Cycle Q Clear(g_c), s		10.2	45.6	9.3
Prop In Lane		1.00		1.00
Lane Grp Cap(c), veh/h		308	1703	528
V/C Ratio(X)		0.85	1.00	0.29
Avail Cap(c_a), veh/h		387	1703	528
HCM Platoon Ratio		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00
Uniform Delay (d), s/veh		54.5	38.6	27.2
Incr Delay (d2), s/veh		10.9	21.2	0.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.8	22.5	3.7
LnGrp Delay(d),s/veh		65.4	59.8	27.8
LnGrp LOS		E	E	C
Approach Vol, veh/h			2110	
Approach Delay, s/veh			58.2	
Approach LOS			E	

Timer

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	186	36	180	61	23	57	33	155	2687	23	2	62
Future Volume (veh/h)	186	36	180	61	23	57	33	155	2687	23	2	62
Number	7	4	14	3	8	18		1	6	16		5
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900		1863	1863	1900		1863
Adj Flow Rate, veh/h	224	43	217	79	30	74		167	2889	25		68
Adj No. of Lanes	1	1	0	1	1	0		2	3	0		1
Peak Hour Factor	0.83	0.83	0.83	0.77	0.77	0.77		0.93	0.93	0.93		0.91
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	164	49	249	102	70	173		212	2949	25		86
Arrive On Green	0.09	0.19	0.19	0.06	0.15	0.15		0.06	0.57	0.57		0.05
Sat Flow, veh/h	1774	266	1344	1774	467	1152		3442	5199	45		1774
Grp Volume(v), veh/h	224	0	260	79	0	104		167	1881	1033		68
Grp Sat Flow(s),veh/h/ln	1774	0	1610	1774	0	1619		1721	1695	1854		1774
Q Serve(g_s), s	13.5	0.0	22.9	6.4	0.0	8.5		7.0	78.9	79.7		5.5
Cycle Q Clear(g_c), s	13.5	0.0	22.9	6.4	0.0	8.5		7.0	78.9	79.7		5.5
Prop In Lane	1.00		0.83	1.00		0.71		1.00		0.02		1.00
Lane Grp Cap(c), veh/h	164	0	298	102	0	244		212	1923	1052		86
V/C Ratio(X)	1.37	0.00	0.87	0.77	0.00	0.43		0.79	0.98	0.98		0.79
Avail Cap(c_a), veh/h	164	0	391	121	0	354		233	1923	1052		379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	66.4	0.0	57.9	68.0	0.0	56.4		67.7	30.8	30.9		68.8
Incr Delay (d2), s/veh	199.4	0.0	12.9	18.2	0.0	0.4		13.3	15.6	23.5		6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	15.7	0.0	11.3	3.7	0.0	3.8		3.7	40.7	47.3		2.9
LnGrp Delay(d),s/veh	265.7	0.0	70.8	86.2	0.0	56.8		81.0	46.3	54.4		74.8
LnGrp LOS	F		E	F		E		F	D	D		E
Approach Vol, veh/h		484			183				3081			
Approach Delay, s/veh		161.0			69.5				50.9			
Approach LOS		F			E				D			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	85.6	13.9	32.6	11.9	87.8	19.0	27.5
Change Period (Y+Rc), s	* 5.1	* 4.9	5.5	5.5	* 4.8	* 4.9	5.5	5.5
Max Green Setting (Gmax), s	* 9.9	* 84	10.0	35.5	* 31	* 63	13.5	32.0
Max Q Clear Time (g_c+I1), s	9.0	75.0	8.4	24.9	7.5	81.7	15.5	10.5
Green Ext Time (p_c), s	0.0	5.7	0.0	0.5	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	54.5
HCM 2010 LOS	D

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2440	96
Future Volume (veh/h)	2440	96
Number	2	12
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		0.99
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	2681	105
Adj No. of Lanes	3	1
Peak Hour Factor	0.91	0.91
Percent Heavy Veh, %	2	2
Cap, veh/h	2807	868
Arrive On Green	0.55	0.55
Sat Flow, veh/h	5085	1572
Grp Volume(v), veh/h	2681	105
Grp Sat Flow(s),veh/h/ln	1695	1572
Q Serve(g_s), s	73.0	4.7
Cycle Q Clear(g_c), s	73.0	4.7
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	2807	868
V/C Ratio(X)	0.96	0.12
Avail Cap(c_a), veh/h	2911	900
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	31.0	15.7
Incr Delay (d2), s/veh	8.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	36.2	2.0
LnGrp Delay(d),s/veh	39.3	15.7
LnGrp LOS	D	B
Approach Vol, veh/h	2854	
Approach Delay, s/veh	39.3	
Approach LOS	D	
Timer		

Appendix D

Analysis Worksheets for Cumulative (2040) plus Proposed Project Mitigated Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	490	624	30	30	1290	1092	80	130	50	287	10	90
Future Volume (veh/h)	490	624	30	30	1290	1092	80	130	50	287	10	90
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	533	678	33	33	1402	0	87	141	54	312	11	98
Adj No. of Lanes	1	2	0	2	3	1	1	1	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	460	1917	93	61	1591	495	110	167	64	320	568	254
Arrive On Green	0.26	0.56	0.56	0.02	0.31	0.00	0.06	0.13	0.13	0.09	0.16	0.16
Sat Flow, veh/h	1774	3436	167	3442	5085	1583	1774	1284	492	3442	3539	1583
Grp Volume(v), veh/h	533	349	362	33	1402	0	87	0	195	312	11	98
Grp Sat Flow(s),veh/h/ln	1774	1770	1833	1721	1695	1583	1774	0	1776	1721	1770	1583
Q Serve(g_s), s	26.5	11.1	11.1	1.0	26.8	0.0	4.9	0.0	11.0	9.2	0.3	5.7
Cycle Q Clear(g_c), s	26.5	11.1	11.1	1.0	26.8	0.0	4.9	0.0	11.0	9.2	0.3	5.7
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	460	988	1023	61	1591	495	110	0	231	320	568	254
V/C Ratio(X)	1.16	0.35	0.35	0.54	0.88	0.00	0.79	0.00	0.85	0.98	0.02	0.39
Avail Cap(c_a), veh/h	460	1388	1437	168	2903	904	147	0	608	320	1235	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	12.4	12.4	49.8	33.3	0.0	47.3	0.0	43.5	46.3	36.2	38.4
Incr Delay (d2), s/veh	93.7	0.1	0.1	2.7	0.7	0.0	13.1	0.0	3.3	43.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.9	5.5	5.7	0.5	12.6	0.0	2.8	0.0	5.6	6.3	0.1	2.5
LnGrp Delay(d),s/veh	131.6	12.5	12.5	52.5	34.0	0.0	60.4	0.0	46.8	89.8	36.2	38.8
LnGrp LOS	F	B	B	D	C		E		D	F	D	D
Approach Vol, veh/h		1244			1435			282			421	
Approach Delay, s/veh		63.5			34.4			51.0			76.5	
Approach LOS		E			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.0	36.9	11.9	21.5	6.9	62.0	15.0	18.4
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	26.5	* 58	8.5	* 36	* 5	* 80	9.5	* 35
Max Q Clear Time (g_c+I1), s	28.5	28.8	6.9	7.7	3.0	13.1	11.2	13.0
Green Ext Time (p_c), s	0.0	3.3	0.0	0.1	0.0	1.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	51.7
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	874	1234	0	1318	110	50	619
Future Volume (veh/h)	874	1234	0	1318	110	50	619
Number	1	6		2	12	3	18
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863		1863	1863	1863	1863
Adj Flow Rate, veh/h	950	1341		1433	120	0	731
Adj No. of Lanes	2	2		2	1	1	2
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	964	2600		1441	645	274	1376
Arrive On Green	0.28	0.73		0.41	0.41	0.00	0.15
Sat Flow, veh/h	3442	3632		3632	1583	1774	3167
Grp Volume(v), veh/h	950	1341		1433	120	0	731
Grp Sat Flow(s),veh/h/ln	1721	1770		1770	1583	1774	1583
Q Serve(g_s), s	30.2	17.8		44.4	5.3	0.0	17.0
Cycle Q Clear(g_c), s	30.2	17.8		44.4	5.3	0.0	17.0
Prop In Lane	1.00				1.00	1.00	1.00
Lane Grp Cap(c), veh/h	964	2600		1441	645	274	1376
V/C Ratio(X)	0.99	0.52		0.99	0.19	0.00	0.53
Avail Cap(c_a), veh/h	964	2603		1441	645	274	1376
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.4	6.2		32.5	20.9	0.0	22.9
Incr Delay (d2), s/veh	25.4	0.1		22.2	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.8	8.6		25.9	2.3	0.0	8.2
LnGrp Delay(d),s/veh	64.8	6.3		54.7	21.0	0.0	23.1
LnGrp LOS	E	A		D	C		C
Approach Vol, veh/h		2291		1553		731	
Approach Delay, s/veh		30.6		52.1		23.1	
Approach LOS		C		D		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	36.0	51.5				87.5		22.5
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 31	* 45				* 81		17.0
Max Q Clear Time (g_c+I1), s	32.2	46.4				19.8		19.0
Green Ext Time (p_c), s	0.0	0.0				3.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.7
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1038	160	50	790	428	20	20	30	1039	140	490
Future Volume (veh/h)	110	1038	160	50	790	428	20	20	30	1039	140	490
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	120	1128	174	54	859	0	22	22	33	1129	152	533
Adj No. of Lanes	1	2	0	2	3	1	1	1	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	1195	184	94	1675	522	27	34	52	1185	1346	602
Arrive On Green	0.08	0.39	0.39	0.03	0.33	0.00	0.01	0.05	0.05	0.34	0.38	0.38
Sat Flow, veh/h	1774	3076	473	3442	5085	1583	1774	674	1011	3442	3539	1583
Grp Volume(v), veh/h	120	648	654	54	859	0	22	0	55	1129	152	533
Grp Sat Flow(s),veh/h/ln	1774	1770	1779	1721	1695	1583	1774	0	1684	1721	1770	1583
Q Serve(g_s), s	7.3	38.5	38.8	1.7	14.9	0.0	1.3	0.0	3.5	34.9	3.0	34.3
Cycle Q Clear(g_c), s	7.3	38.5	38.8	1.7	14.9	0.0	1.3	0.0	3.5	34.9	3.0	34.3
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.60	1.00		1.00
Lane Grp Cap(c), veh/h	147	688	691	94	1675	522	27	0	86	1185	1346	602
V/C Ratio(X)	0.82	0.94	0.95	0.58	0.51	0.00	0.83	0.00	0.64	0.95	0.11	0.89
Avail Cap(c_a), veh/h	216	767	771	161	1809	563	99	0	540	1335	2300	1029
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.2	32.2	32.3	52.4	29.5	0.0	53.6	0.0	50.8	34.9	21.9	31.6
Incr Delay (d2), s/veh	8.9	17.9	18.7	2.1	0.1	0.0	20.8	0.0	2.9	13.5	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	22.1	22.5	0.8	6.9	0.0	0.8	0.0	1.7	18.8	1.5	15.3
LnGrp Delay(d),s/veh	58.2	50.1	50.9	54.5	29.6	0.0	74.4	0.0	53.7	48.4	21.9	34.1
LnGrp LOS	E	D	D	D	C		E		D	D	C	C
Approach Vol, veh/h		1422			913			77			1814	
Approach Delay, s/veh		51.1			31.1			59.6			42.0	
Approach LOS		D			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	40.8	7.1	46.6	8.1	47.3	43.0	10.7
Change Period (Y+Rc), s	5.5	* 4.9	5.5	* 5.1	* 5.1	* 4.9	5.5	* 5.1
Max Green Setting (Gmax), s	13.3	* 39	6.1	* 71	* 5.1	* 47	42.3	* 35
Max Q Clear Time (g_c+I1), s	9.3	16.9	3.3	36.3	3.7	40.8	36.9	5.5
Green Ext Time (p_c), s	0.0	1.8	0.0	0.5	0.0	1.6	0.6	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	43.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	896	1464	1043	120	50	786
Future Volume (veh/h)	896	1464	1043	120	50	786
Number	1	6	2	12	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	974	1591	1134	130	0	912
Adj No. of Lanes	2	2	2	1	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1036	2374	1101	493	340	1560
Arrive On Green	0.30	0.67	0.31	0.31	0.00	0.19
Sat Flow, veh/h	3442	3632	3632	1583	1774	3167
Grp Volume(v), veh/h	974	1591	1134	130	0	912
Grp Sat Flow(s),veh/h/ln	1721	1770	1770	1583	1774	1583
Q Serve(g_s), s	24.5	23.8	27.6	5.5	0.0	17.0
Cycle Q Clear(g_c), s	24.5	23.8	27.6	5.5	0.0	17.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1036	2374	1101	493	340	1560
V/C Ratio(X)	0.94	0.67	1.03	0.26	0.00	0.58
Avail Cap(c_a), veh/h	1086	2430	1101	493	340	1560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.2	8.7	30.5	22.9	0.0	16.0
Incr Delay (d2), s/veh	14.4	0.6	35.0	0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.7	11.7	18.7	2.4	0.0	7.9
LnGrp Delay(d),s/veh	44.6	9.3	65.5	23.0	0.0	16.4
LnGrp LOS	D	A	F	C		B
Approach Vol, veh/h		2565	1264		912	
Approach Delay, s/veh		22.7	61.2		16.4	
Approach LOS		C	E		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	31.9	34.3				66.2		22.5
Change Period (Y+Rc), s	* 5.2	* 6.7				* 6.7		5.5
Max Green Setting (Gmax), s	* 28	* 28				* 61		17.0
Max Q Clear Time (g_c+I1), s	26.5	29.6				25.8		19.0
Green Ext Time (p_c), s	0.2	0.0				3.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.8
HCM 2010 LOS	C

Notes

APPENDIX I.4

Memorandum RE: Jaeger Ranch Supplemental Traffic Analyses, Draft Trip Generation Memorandum

Kimley»Horn

Memorandum

To: Olga Sciorelli, P.E., QSD, QSP
Land Planning Manager
K. Hovnanian® Homes of California, Inc.

From: Chris Gregerson, P.E., T.E., PTP, PTOE

Re: **Jaeger Ranch Supplemental Traffic Analyses**
DRAFT *Trip Generation Memorandum*

Date: June 12, 2019

Per your request and authorization, we have prepared this trip generation memorandum for the above referenced project.

Project Understanding

This memorandum documents the results of a trip generation comparison completed for Jaeger Ranch (the "proposed project" or "project"). The vacant project site is located along Rancho Cordova Parkway/Jaeger Road, south of Douglas Road in Rancho Cordova, California. Kimley-Horn previously completed a traffic impact analysis[1] for the Jaeger Ranch project. Subsequently, Kimley-Horn also completed a supplemental traffic impact analysis for a new land use mix submitted by the applicant for the proposed project[2]. However, since the publication of these reports, the project applicant has further modified the land use mix of the proposed project. The purpose of this memorandum is to document the trip generation characteristics of the proposed project's published land use mix, the current land use mix, and a comparison between the two showing that the current land use mix does not result in more trips being generated compared to the published land use mix.

Project Trip Generation (Published)

As documented in the supplemental traffic impact analysis[2], the number of trips anticipated to be generated by the proposed project were approximated using data included in *Trip Generation, 9th Edition*, published by the Institute of Transportation Engineers (ITE). The land use considered for the supplemental analysis included 723 market rate single family detached units (SFR), 250 multi-family housing units, 743 Active Adult detached units (AAR), and 32,000 square-feet (s.f.) of commercial. Active Adult Residential (AAR) refers to detached age-restricted housing units. This land use type is understood to have trip characteristics that generate fewer daily trips when compared to non-age restrictive land use types. In fact, as described in Trip Generation, the daily trip rate for AAR is 61-percent less than the daily trip rate for SFR. The trip generation characteristics included in the Supplemental Analysis for the proposed project are presented in **Table 1**.

As shown in **Table 1**, the proposed project was estimated to generate approximately 11,606 new daily trips, with 843 and 1,102 trips occurring during the A.M. and P.M. peak-hours, respectively.

[1] *Transportation Impact Analysis, Jaeger Ranch,* Kimley-Horn and Associates, Inc., August 28,2018.
[2] *Jaeger Ranch Supplemental Traffic Analyses*, Kimley-Horn and Associates, Inc., December 3, 2018.

Table 1 – Proposed Project Trip Generation Characteristics (Supplemental Analysis)

Land Use (ITE Code)	Size (DU/KSF)	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Single Family Detached Housing (210)	735	6,796	547	136	411	716	451	265
Apartment (220)	215	1,225	105	21	84	114	74	40
Senior Adult Housing - Detached (251)	737	2,519	158	55	103	181	110	71
Senior Adult Housing - Attached (252)	38	112	8	3	5	10	6	4
Shopping Center (820)	32.000	954	23	14	9	81	39	42

Project Trip Generation (Proposed)

The number of trips anticipated to be generated by the proposed project with the proposed land use mix were approximated using data included in ITE's Trip Generation Manual. The currently proposed land use mix includes 735 market rate single family detached units (SFR), 215 multi-family housing units (MFR), 737 Active Adult detached units (AAR), 38 Active Adult attached units (AAMFR), and 32,000 s.f. of commercial. The trip generation characteristics for the currently proposed land use mix for the proposed project are presented in Table 2. Consistent with all previously completed analyses, internal capture and pass-by reductions were applied as applicable.

Table 2 – Proposed Project Trip Generation Characteristics (Proposed Land Use Mix)

Land Use (ITE Code)	Size (DU/KSF)	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Single Family Detached Housing (210)	735	6,796	547	136	411	716	451	265
Apartment (220)	215	1,225	105	21	84	114	74	40
Senior Adult Housing - Detached (251)	737	2,519	158	55	103	181	110	71
Senior Adult Housing - Attached (252)	38	112	8	3	5	10	6	4
Shopping Center (820)	32.000	954	23	14	9	81	39	42
Total		**11,606**	**841**	**229**	**612**	**1,102**	**680**	**422**

As shown in Table 2, the proposed project is estimated to generate approximately 11,606 new daily trips, with 841 and 1,102 trips occurring during the A.M. and P.M. peak-hours, respectively. In comparison to the number of trips generated for the land use mix documented in the Supplemental Analysis, the proposed land use mix generates no additional daily or PM peak-hour trips, and generates 2 fewer AM peak-hour trips.

APPENDIX J

Utilities Appendices

CONTENTS

Appendix J.1: Drainage Study

Appendix J.2: Level 1 Sewer Study

Appendix J.3: Level 2 Sewer Study

Appendix J.4: Water Supply Assessment

APPENDIX J.1

Drainage Study

The Ranch

Master Drainage Study

Third Submittal

April 30, 2019

Prepared by:
Watermark Engineering, Inc.
3153 Jenna Way
Roseville, CA 95747
Ph: 916. 774. 1111
Email: pstiehr@wtrmark.com

TABLE OF CONTENTS

Introduction 1
Overview 1
Previous Studies 2
Definitions 2
Design Criteria 3
General Requirements 3
Water Quality 3
Hydromodification 3
High Flow Attenuation 4
Methodology 4
Existing Conditions 4
Developed Conditions 4
Hydrologic analysis 5
Land Use 5
Soils 5
Groundwater 5
Surface Water 6
Existing Conditions 6
Developed Conditions 6
Hydraulic Analysis 8
Overview 8
Modeling 8
Permanent Pool 9
Hydromodification and High Flow Attenuation 10
Discussion of Approach 11
Basin Details 11
Outfalls 16
Existing and Post-Project Flows 16
Attachments:
A. Soils Information
B. Hydrologic Information
C. Hydraulic Information
D. Hydromodification
E. Morrison Creek South Branch – Existing and Post-Project Information

INTRODUCTION

OVERVIEW

The Ranch development project is a proposed 1,300 senior residential development over 530 acres within the City of Rancho Cordova. The proposed project is defined on the Small Lot Tentative Subdivision Map, THE RANCH, prepared by Wood Rodgers, dated February 2018. See **Figure 1**.

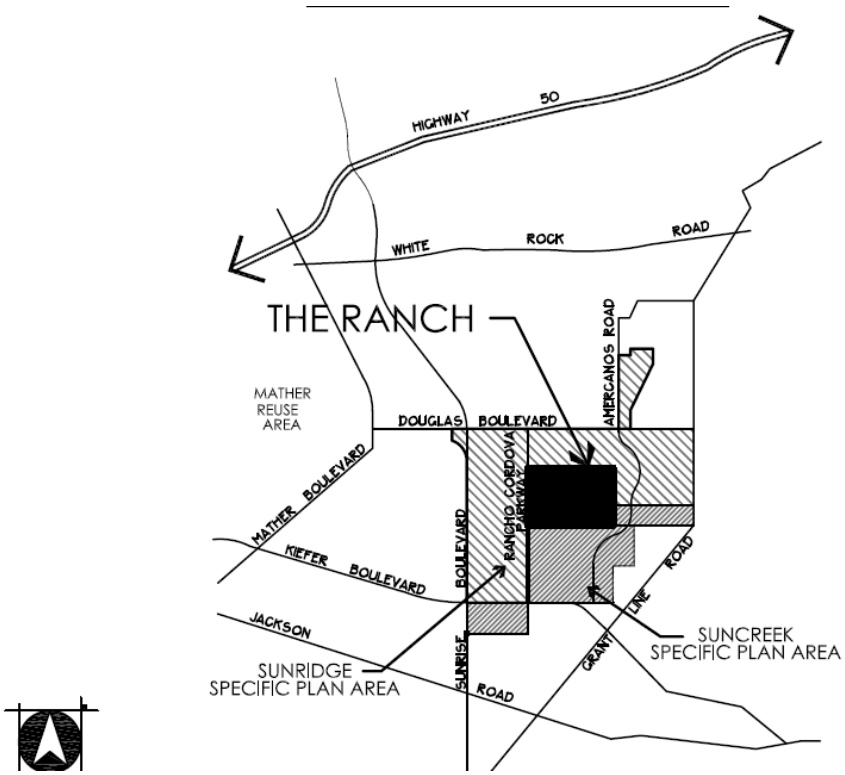


Figure 1. Vicinity Map

The project consists of two development areas at the northwest and southeast quadrants, with the remaining area as open space and an environmental corridor for the Lower Morrison Creek South. The northwest quadrant will drain to the Lower Morrison Creek South, and the southeast quadrant will drain to both the Lower Morrison Creek South and Kite Creek.

The open spaces will also include detention basins that will provide stormwater management. The management includes capture and treatment of summer irrigation flows, hydromodification of storm runoff, and attenuation of very large storms so that post-project flow rates are equal to or less than existing conditions. There will be three basins to manage runoff from the northwest quadrant development and two basins to manage the southeast quadrant stormwater runoff.

Current land use is cattle grazing. The topography is irregular and uneven, with gently rolling terraces, numerous hills, and depressions. The Lower Morrison Creek South meanders down the middle, generally from the northeast to southwest.

With the exception of a major road crossing (Crysanthy Boulevard) and four outflows from the respective detention basins, the South Branch of Morrison will remain as a meandering channel within an open space corridor. The outfall for the southern portion of the Southeast quadrant into Kite Creek is tentatively planned to be part of a larger outfall that will serve the proposed SunCreek Specific Plan.

PREVIOUS STUDIES

1. The "Drainage Study for The Preserve at Sunridge", County of Sacramento, March 2006, was prepared by Wood Rodgers. This study provided information for on-site and off-site drainage facilities for Ultimate Conditions and provided a solution for Interim Conditions. The development layout and environmental constraints have been significantly changed, and this study is no longer applicable.
2. The "Final Master Drainage Study, Sunrise-Douglas Community Plan Area, Sacramento, CA", dated October 16, 1998 by the Spink Corporation was available as a reference document for comparison of existing and developed conditions, flow volumes, and detention basin volumes.
3. The Montelena Drainage Study, including sections for Anatolia I and II, dated September 2007 by Wood Rodgers, is a compilation of drainage analyses prepared for several developments within the Sunrise-Douglas Community Plan. The studies focused on the Sunrise-Douglas Community Plan area but also included analyses of impacts to Laguna Creek.
4. The Master Drainage Study for Anatolia III, dated June 2004 by Wood Rodgers, provided the analysis and design information for the facilities to manage Anatolia III stormwater. The analysis and facilities information were used as presented for this study.
5. SunCreek Master Drainage Study, November 15, 2017, prepared by Watermark Engineering, Inc. for the SunCreek owners group. The study was for approximately 1,270 acres of mostly residential development east and mostly south of The Ranch property. The southeast quadrant of The Ranch drains to Kite Creek, which is also where most of the proposed SunCreek development drains.

This updated study relies on much of the basic data gathered and created by Wood Rodgers including land use information and topography mapping used for the cross-section data for the backwater analysis. It also relies on development information currently being prepared by CTA Engineering and Surveying.

DEFINITIONS

1. For this study, a shed or subshed, coupled with a number (#), is a portion of or an entire tributary area that drains to a specific location, either directly into a creek or into a basin (#).
2. A basin is the complete facility that will provide the stormwater management, including the permanent pool for water quality, storage for hydromodification and peak flow attenuation, and the outflow facilities.
3. Hydromodification is the change in watershed characteristics as a result of land use changes (development in this instance).
4. Lower Morrison Creek South Branch is identified as MCSB within this document.

DESIGN CRITERIA

GENERAL REQUIREMENTS

This study is prepared under the same criteria used for the SunCreek drainage study. Specifically, a drainage study must be submitted to the City to demonstrate that:

a. The proposed detention basins are appropriately sized in compliance with the SSQP's NPDES Permit and Hydromodification Management Plan to mimic existing conditions;
b. The stormwater basins will drain by gravity;
c. The basins can be designed to minimize long-term maintenance, especially the outlet structures.

Per additional city requirements:

d. The existing-conditions 100-year floodplain of Lower Morrison Creek South Branch has to be defined;
e. Developed flows leaving The Ranch shall not create significant impacts to downstream properties.

Topographic mapping and this analysis are based on the National Geodetic Vertical Datum of 1929 (NGVD29).

WATER QUALITY

Through coordination with City officials, the proposed water quality treatment will utilize both dry basins and wet basins that include a permanent pool. The basins will be designed per the "Stormwater Quality Design Manual for the Sacramento and South Placer Regions, July 2018, Water Quality Detention Basins".

Three basins are designed with a permanent pool located below the lowest elevation of the outfall facilities. This configuration and the design were based on Table DB-1 of the Stormwater Manual. The remaining two basins are designed as dry basins because of their relatively small size. It would be difficult to keep a small permanent pool healthy, and one of the dry basins is under PG & E power lines where water bodies are not allowed.

HYDROMODIFICATION

The hydromodification was completed using the SAHM (Sacramento Area Hydrology Model) dated December 2013, developed by Clear Creek Solutions, Inc. The computer program provides pre-project peak flows for 2- through 25-year recurrence intervals storms. The program then analyzes the proposes facilities and compares pre-project and post-development flows, ranging from 25 to 40% of the 2-year peak flow through the 10-year peak flow, to demonstrate that post-project flows are similar to pre-project flows.

HIGH FLOW ATTENUATION

There is a requirement to attenuate the 100-year storm to approximate pre-project conditions. The XP-SWMM software was used for that analysis as well as for the selected lesser storms as described later. Both the SAHM and XP SWMM software were used to size and configure the basin and corresponding outfall facilities.

METHODOLOGY

EXISTING CONDITIONS

The first major task was to select and analyze existing subsheds to determine runoff characteristics (hydrographs) and peak flows for the selected recurrence-intervals storms. SacCalc was used to generate the subshed hydrographs. The hydrographs were then added and routed using the XP-SWMM software. This software is approved by FEMA for Flood Insurance Studies and mapping revisions, so this information will also be used for the LOMR submittal.

DEVELOPED CONDITIONS

The Ranch was subdivided into five drainage areas and five corresponding basins based on topographic constraints and proximity to Lower Morrison Creek South and Kite Creek.

Where appropriate, existing conditions subsheds were used for developed conditions. However, the post-project subsheds are based on both development boundaries and topography. Development grading will redirect a small portion of the southeast quadrant development area to Kite Creek rather than to MCS, mainly due to grading constraints.

The southwest portion of The Ranch will remain as open space. This area currently drains to MCS but will be directed south to Kite Creek as part of the nearby SunCreek development. This specific area is not part of this drainage study.

The decision to convey this area to Kite Creek was made as part of Appendix D, Regional Master Drainage Study for SunCreek Specific Plan, prepared by Makay and Somps, dated August 22, 2011. An excerpt of page 24 of that document is show below.

The 102.3+/- acre Open Space Preserve (Sub-shed KCOS-05) located east of Rancho Cordova Parkway and north of the SunCreek Plan Area has been modeled in a similar fashion as the Morrison Spill. The storm related runoff from this sub-shed is from an undeveloped open space area and does not require water quality treatment or detention within the SunCreek Plan Area. The runoff from sub-shed KCOS-05 naturally drains towards the northeast corner of the Rancho Cordova Parkway-North Campus Drive intersection. An inlet structure will be constructed at this location and the storm runoff from sub-shed KCOS-05 is routed through a 48-inch diameter pipe located in Rancho Cordova Parkway. The 48-inch diameter pipeline is sized to convey the higher peak flow of 84 +/- cfs generated by the 100-year, 24-hour storm rather than the peak flow rate of 50 +/- cfs generated by the 100-year, 10-day storm. The 48-inch pipeline will follow Rancho Cordova Parkway to the south where it drops into a 72-inch diameter pipe. The drop into the 72-inch diameter pipeline will help to dissipate the velocity energy generated in the 48-inch pipeline before discharging into the preserve/open space area just upstream of the Rancho Cordova Parkway box culverts. Additional energy dissipation measures prior may be needed to discharge into the preserve/open space to prevent erosion of the streambed.

HYDROLOGIC ANALYSIS

LAND USE

The Ranch is undeveloped. The land may have been used for some dry farming in the past, but is currently used for cattle grazing.

SOILS

The soil classifications for this study were based on information available from Natural Resources Conservation Service (NRCS). The soils are mostly classified as Hydrologic Soils Group D with the remaining classified within Group C. Selected soils information is provided as **Attachment A**.

GROUNDWATER

Information from the nearby SunCreek Specific Plan Project DEIR/DEIS indicated that "groundwater is located from 20 to 100 feet below the ground surface depending on when and where the measurement was taken."

A preliminary geotechnical report prepared by WallaceKuhl entitled Jeager Ranch Property, dated Sept 26, 2016, stated that "groundwater is anticipated to vary between 150 and 240 feet below existing surface grades". As such, groundwater has not been considered in the analysis of the basins and drainage corridors.

There are two monitoring wells within The Ranch, but data collection and availability are not known at this time.

SURFACE WATER

The two sources of water that flow into the basins are rainfall runoff and runoff from excess landscaped irrigation. There are no other sources of surface water that could impact flows into and out of the proposed basins.

EXISTING CONDITIONS

MCSB generally flows from the northeast corner to the west central property boundary of The Ranch. The total tributary area of MCS entering The Ranch is 1,120 acres and the 100-year, 12-hour natural flow was estimated to be 678 cfs per Wood Rodgers (Reference 1). This hydrograph was used as model input at the northeast corner of the development site. Local inflow was added to the model at three locations along MCS as it meanders through The Ranch. Additional information of the flows along MCSB is provided later in this document.

DEVELOPED CONDITIONS

The Ranch was subdivided into five sheds: three sheds that represent the developed areas north of MCS; two development areas south of MCS; and the sixth shed representing the MCS corridor.
Drainage sheds were reconfigured based on land use, topography, and availability of suitable detention sites. The basins will be designed as wet basins except for the basins PG and SN. The permanent pool will be eight feet deep. The actual configuration of the basins has not been determined. Additional information about the basins is provided later in this document under Basin Details. The five sheds are shown on **Figure 2.**

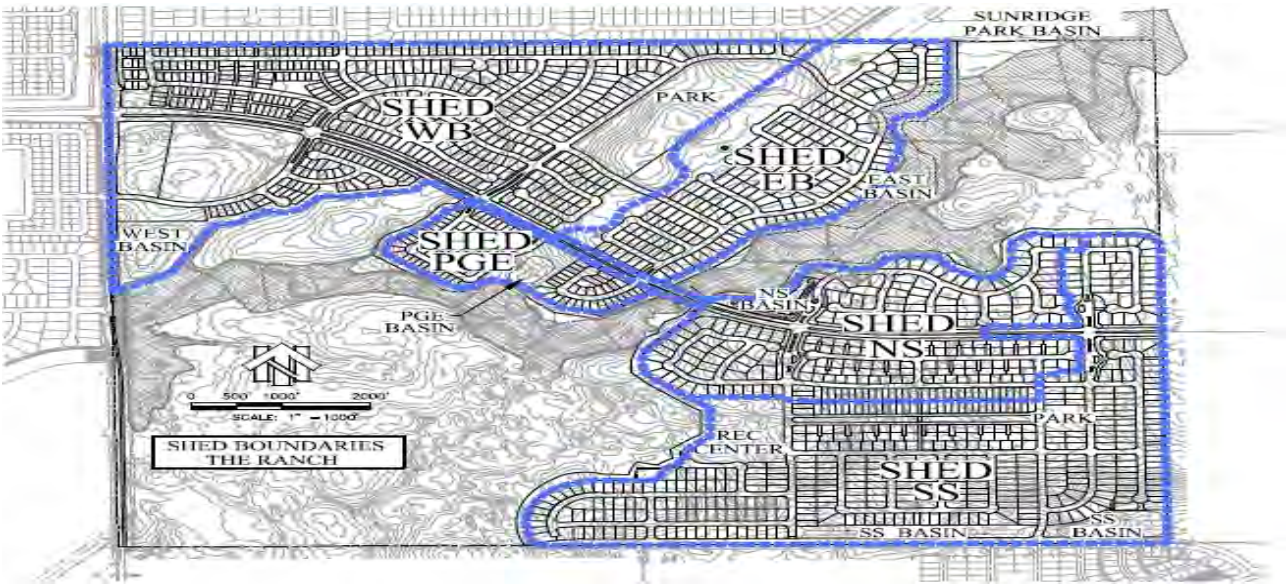


Figure 2. Sheds within The Ranch

A brief description of each shed and the corresponding detention basin facilities follows:

- **West Basin (WB):** The shed includes the northwest development area, and the basin is located just south of the tributary shed area and just east of Rancho Cordova Parkway. The outfall from this basin will enter MCS where it turns south and parallels the parkway in a man-made channel.

- **East Basin (EB)**: The EB shed includes the central and eastern portion of The Ranch development just north of MCS. The detention basin is adjacent to MCS near the middle of the development site. Outfall from this basin will be directly to MCS or conveyed south and discharged into the creek at the proposed Crysanthy Boulevard crossing.

- **PGE Basin (PGE):** This shed is located south of Crysanthy under the PG&E transmission lines. The shed area was minimized to comply with PG&E constraints for drainage facilities under their high-voltage power lines. The basin will be designed to create and maintain as much infiltration as can be reasonably achieved. An outflow will discharge south or west directly into MCS.

- **North South Basin (NS)** This shed is located along the left bank of MCS, generally along both sides of Crysanthy Boulevard east of the MCS crossing. The basin will be a dry-extended basin with an outflow to MCS upstream of the Crysanthy crossing. Note the modeling map shows SN rather than NS.

- **South-South Basin (SS):** All of the developed area south of MCS will drain to this linear basin that is located along the southern boundary of The Ranch. The permanent pool is at the southeast corner and will drain to Kite Creek. Its outfall will be part of a larger outfall that will also serve SunCreek and will become the new headwaters of Kite Creek.

  It is expected that the storm drains discharging into the wet basins will be below the water level of the permanent pool. This eliminates the need for access control at the outfalls. Manholes just upstream of the basin will include a slide gate so that the deep pipe can be isolated and cleaned as necessary.

Maps 1 and 2, folded in the back of this document, provide a detailed layout of the subshed areas, the proposed storm drain network, and the proposed detention basins. **Attachment B** provides a summary of imperviousness and peak flows for the 2-, 10-, and 100-year storms at the selected subsheds for post-project conditions. There is no comparative analysis for existing conditions because the subshed boundaries are not the same between existing and the post-project conditions.

HYDRAULIC ANALYSIS

OVERVIEW

The design of The Ranch of the three stormwater management wet basins can be described as three storage areas in a vertical stack. The lowest portion will be the permanent pool and will be below the lowest outfall. This permanent pool provides the water quality per the wet detention basin criteria.

The storage component to meet the hydromodification criteria is "stacked" in the middle and larger than the permanent pool. This hydromodification component also includes outflow facilities. For simplicity, the outflow facilities for each basin are designed to include a single orifice and a single weir.

The top area is the storage area needed to store and attenuate extreme storms up to the 100-year storm. The orifice and weir are designed to release flows to less than the pre-project flows. Trial and error model runs were used to determine the basin size, the size of the orifice, and the shape and size of the weir.

Each basin and corresponding outflow facility has to meet three distinct design criteria. The criteria were the size of a permanent pool for water quality, flow attenuation to meet the hydromodification protocol, and flow attenuation for extreme flows. To satisfy these criteria, a simple calculation and two computer models were used.

The basin under the PG&E transmission lines and the NS basin will be dry basins, designed to drain within 48 hours per water quality criteria. In addition, the basin bottom will be configured and constructed to improve and maintain infiltration. The design has not started, but concepts being considered to improve infiltration include pre-treatment areas, gravel beds, and excavation through the duripan layer, then backfilled with permeable material. Please note that infiltration has not been considered for sizing or flow control for these two dry basins. Rather, the design of the dry basins will include infiltration enhancements to reduce ponding time and reduce the chance of outflow from summer irrigation runoff.

MODELING

The computer model SAHM was used to determine the peak flows for the 2-, 5-, 10-, and 25-year events for each of the basins assuming existing conditions. These flows were used as "targets" within the XP-SWMM analysis. Peak 100-year target flows were available from the existing conditions subsheds but are not available because there are no "existing conditions" watershed parameters to use to compute flow. The developed conditions subshed boundaries are based on development boundaries, not watershed boundaries. As a result, basin parameters normally used to determine 100-year flows are not available.

A separate analysis was completed. The 100-year flows from the existing conditions subsheds were used to develop a regression equation to estimate 100-year flows from the man-made areas. The equation is:

$$Q_{100} = 3.06\ DA^{0.75},\ \text{where:}$$

Q_{100} = the 100-year flow in cubic feet per second (cfs), and
DA = drainage area in acres.

Table 1 provides a summary of the shed areas that includes estimates of natural flow from each shed. The flow estimates are used only as guides for the detention basin analyses.

Table 1. Summary of Existing Conditions Subsheds

Shed ID	Shed Area (ac)	100-yr Peak Flow (cfs)[a]
West	104.2	100
East	46.0	56
PGE	14.7	23
North-South	50.2	58
South-South	95.7	94
Remainder	218.7	na
Total	530	na

a: Estimated from regression equation developed for the SunCreek. See Modeling section for details.

The target flows were then used as a general guide to configure and evaluate various basin sizes and outfall facilities. They were used only as target flows and not specifically for design or compliance.

In addition to sizing the basin and outfall facilities, the upstream storm drain facilities were also modeled to provide preliminary pipe sizing based on containment of the 10-year flow. Note that the storm drain alignments are probably accurate but the pipe inverts and other design details are not yet available. As such, the hydraulic analysis of the pipe network is at the master drainage study level only. **Attachment C** provides additional information concerning design flows, preliminary pipe sizes, and information concerning basin and basin outfall parameters.

PERMANENT POOL

The permanent pool was sized based on the Sac County Water Quality manual (July 2018). While the actual design of the basins is not yet available, design guidelines and sizing information for each basin is provided later in this document. The wet basins are expected to be healthy, attractive, and maintain a fish population more than just mosquito fish.

All basins should be designed with side slopes of 4:1 or flatter. In addition, it is strongly recommended that soft curves be used for the shore line and basin perimeter. Clayey soils need to be stockpiled for the three wet ponds during excavation and nearby construction. Those soils will then be used to line the bottoms of the wet basins to minimize infiltration. The dry basins should not be lined.

The permanent pools will be eight feet deep or greater. The pan evaporation at the Folsom Lake weather station is about 52 inches for the months of May through October. Using a conversion

of 0.75, the loss during the summer would be about 39 inches. Assuming a full pool in late April, no summer inflow, and minimum infiltration, the pools should have about four feet of water remaining at the end of the summer. As a minimum, the pools are expected to have sufficient volume and depth to maintain suitable temperature and habitat for mosquito fish. Note that summer inflows would also help maintain minimum water levels during the summer. Also note that summer inflows are not expected to exceed evapotranspiration, causing spill during the summer.

HYDROMODIFICATION AND HIGH FLOW ATTENUATION

The following steps were used to size and configure the basins and outflow facilities. The SAHM model was set up, starting with the footprint of the permanent pool. A trial and error procedure was then used to determine a storage basin, a single orifice, and a rectangular notch that met the hydromodification criteria.

That proposed facilities information was then used as input for the XP-SWMM (XP) model. An outfall to Kite Creek was added to the facilities to evaluate backwater conditions into the analysis. Note that the SAHM model is not dynamic, so backwater cannot be evaluated within that model.

Trial and error was again used to confirm and/or modify the proposed storage capacity and outflow facilities to meet the 100-year attenuation criteria. After the outflow requirements were met within the XP model, the revised facilities were then reloaded into the SAHM model to ensure that the hydromodification criteria were met.

The basin and outfall features were then reloaded into the SAHM model using the SSD Table option. If the hydromodification criteria were not met, then the XP model was reworked. This whole process was required to be able to include the outflow rating using different weir configurations, to be able to account for backwater, and accurately represent a basin that has varied side slopes. Typically, the generic basin has mild side slopes above the permanent pool that rapidly increase storage, then steeper slopes near the top. The SAHM is not designed for complex basin configurations.

The results of the SAHM analyses for the five basins are provided in **Attachment D**. Please note that the SAHM analysis focuses on flows from 25% of the 2-year storm through the 10-year storm and does not analyze storms smaller or larger than this range. Therefore, the permanent pool information and the upper portions of the storage and outfall facilities are not needed and have generally not been included in the data input. As such, the basin stage-area-storage information and outfall information do not represent the complete facility. Please refer to the Basin Details section for complete information.

The existing tributary area of Shed SS is less than the post-project area. The SAHM models for Shed SS reflect this relatively small increase and the capacity and outfall facilities for Basin SS reflect these differences. Also note that the SAHM analysis showed failure between 40 and 43 cfs but passed above and below this relatively small range.

DISCUSSION OF APPROACH

There were several reasons for the trial and error approach. Both models were needed to meet the design criteria, but either model could control the basin size and shape and the outflow facilities.

Also, the criteria could have been easily met without the trial and error effort if the modeler did not consider basin size to be an important consideration. As an example, when backwater was considered in the XP model, the outflow was less compared to the SAHM model. In other words, the SAHM model overestimated the outflow. The backwater-controlled outflow was actually less which meant more storage (land) was needed if only the SAHM data were used. Hence the need to recycle the SAHM model with the XP data to gain a more efficient facility.

Another reason for the trial-and-error approach is the versatility of the XP-SWMM model. Any basin shape and configuration and a variety of outfall facilities can be quickly evaluated for compliance. In addition, the 100-year storm cannot be modeled within the SAHM model.

BASIN DETAILS

The stage-storage of each basin and the corresponding outfall facilities have been coordinated to meet water quality and hydromodification criteria as well as attenuation requirements along the creeks and downstream of the confluence of MCSB and Kite Creek.

Please note that the actual configuration can be modified without further analysis as long as the stage-storage-discharge relation remains similar to what is shown. If significant changes are proposed, then additional modeling may be needed to evaluate basin performance and downstream impacts. The entire basin may also be moved vertically, dependent on grading.

A basin might be reconfigured when the land use plan shows a larger footprint. That would accommodate a shallower basin with a larger, more freeform footprint. Conversely, a deeper basin may be desired. Either change could affect the size of the orifice, as well as the configuration and elevation of the weir. Any revised configuration or footprint would be addressed when there is more detailed development information.

Table 3 provides key parameters of each basin. The basins typically have an eight-foot depth for the permanent pool and an operating depth of 4 to 5 feet above the permanent pool. The top elevations of the basins are generally 1+ foot above the 100-year water surface elevation. An access road around each basin has not been included as part of the determination of needed basin area because there are too many unknowns at this time. However, the basin design will include access that is acceptable to the city. The additional area needed for a perimeter road would be in the range of up to one-half acre in addition to the basin areas shown in the summary table.

Detention/WQ basins and open channels shall be designed per Section I.8.5 of the SunCreek Specific Plan and per Section 7.4 and Section 8 of the City of Rancho Cordova Open Space Guidelines, dated December 2, 2013. Per the Open Space guidelines, consideration shall be given to designing detention basins to look natural with natural landscaping, to have gentle side-

slopes, and to have terraced areas with a variety of plants and trees. Where feasible, basin perimeters shall incorporate trails and bike paths. These natural features shall not interfere with normal function and maintenance.

Table 3. Basin Parameters and Hydraulic Information

Parameter	Basin ID				
	West	East	PG	NS	SS
Tributary Area (ac)	104.2	46.0	14.7	50.2	95.7
Land Use Percent Imperv (%)	52.9	42.4	53.9	54.6	50.3
Basin Surface Area (ac)	4.4	3.1	0.8	2.0	5.6
Req WQ Vol (Fig E-3) 48h(in)	0.38	0.32	0.39	0.40	0.37
Reg WQ Vol (af)	3.3	1.2	na	na	3.0
PP Surface area (ac)	1.4	1.5	na	na	1.0
Perm Pool (PP) Vol (af)	8.0	8.4	na	na	5.0
SAHM Trib Area (ac)	104.2	46.0	14.7	50.2	78.2
Top Elevation	175	188	183	187	180
Permanent Pool Elev (ft)	168	184	Dry	Dry	170
Bottom Elev. (ft)	160	176	176	181	162
Q2 In (cfs)	67	30	12	34	47
Q2 Out (cfs)	17	6	1.2	10	5
Q2 WSE (ft)	170.7	185.5	178.7	183.5	173.3
Q10 In (cfs)	116	61	24	70	82
Q10 Out (cfs)	54	26	1.6	27	18
Q10 WSE (ft)	172.7	185.9	180.0	184.4	174.5
Q100 In (cfs)	157	77	34	87	118
Q100 Out (cfs)	105	47	2.1	58	50
Q100 WSE (ft)	173.6	186.5	181.8	185.3	175.7
2-yr Storm WSE (ft) @ 24 hrs	170.2	185	177.4	182.0	172.8
Q100 WSE (ft) after 2yr, 24-hr	173.6	186.5	181.8	185.3	175.9

The proposed drainage facilities are shown on folded **Maps 1 and 2**. Hydraulic information and basin stage-area-volume information, taken from the XP model output, is provided in **Attachment C.** Copies of the SAHM output are provided at **Attachment D**.

The outflow facilities for the West, NS, and SS basins consisted of one orifice and one weir. The outflow for the PG&E basin is a single orifice. The outflow facility for the East Basin is a compound weir. **Table 4** provides a summary of the outfall facilities at each of the basins.

Table 4. Description of Basin Outfall Facilities					
Basin ID	**Orifice (in)**	**Flowline Elev (ft)[a]**	**Description of Weir**	**Flowline of Weir (ft)[b]**	**Comments**
West	Rect-0.5'h x 1.7'w	168	One foot wide at base (elev 170) and 6 ft wide at top at elev 175.	170	The weir is also considered the emergency spillway.
East	na	na	Compound weir, 0.6' BW @ elev 184, then 1.5' wide @elev 185.0, then 2.5'w @elev 185.01, and then sloping to 6' wide @ elev 188 (top).	184	The weir is also considered the emergency spillway.
PGE	6-in round	176	4' standpipe that will act as emergency weir. Open top will have Cooley type access cover.	182	Outfall pipe to be 12-in dia. Orifice connected to 4' standpipe.
NS	12" round	181	Weir: 1' w at base (elev 182.5), then 5.5' w at top at elev 187.	181	The weir is also the emergency spillway.
SS	12" round	170	Weir: 1' w at base (elev 172.5), then 4.0' w at top at elev 176.5.	172.5	The weir is also the emergency spillway.
a: All orifices assumed to be set 8 feet above basin bottom.					
b: All weirs assumed to be set 10 feet above basin bottom unless otherwise noted.					

Figures 2 and 3 provide a conceptual view of the basin configuration and proposed outfall facilities. These were taken from the SunCreek Drainage Study but are representative of the facilities planned for The Ranch.

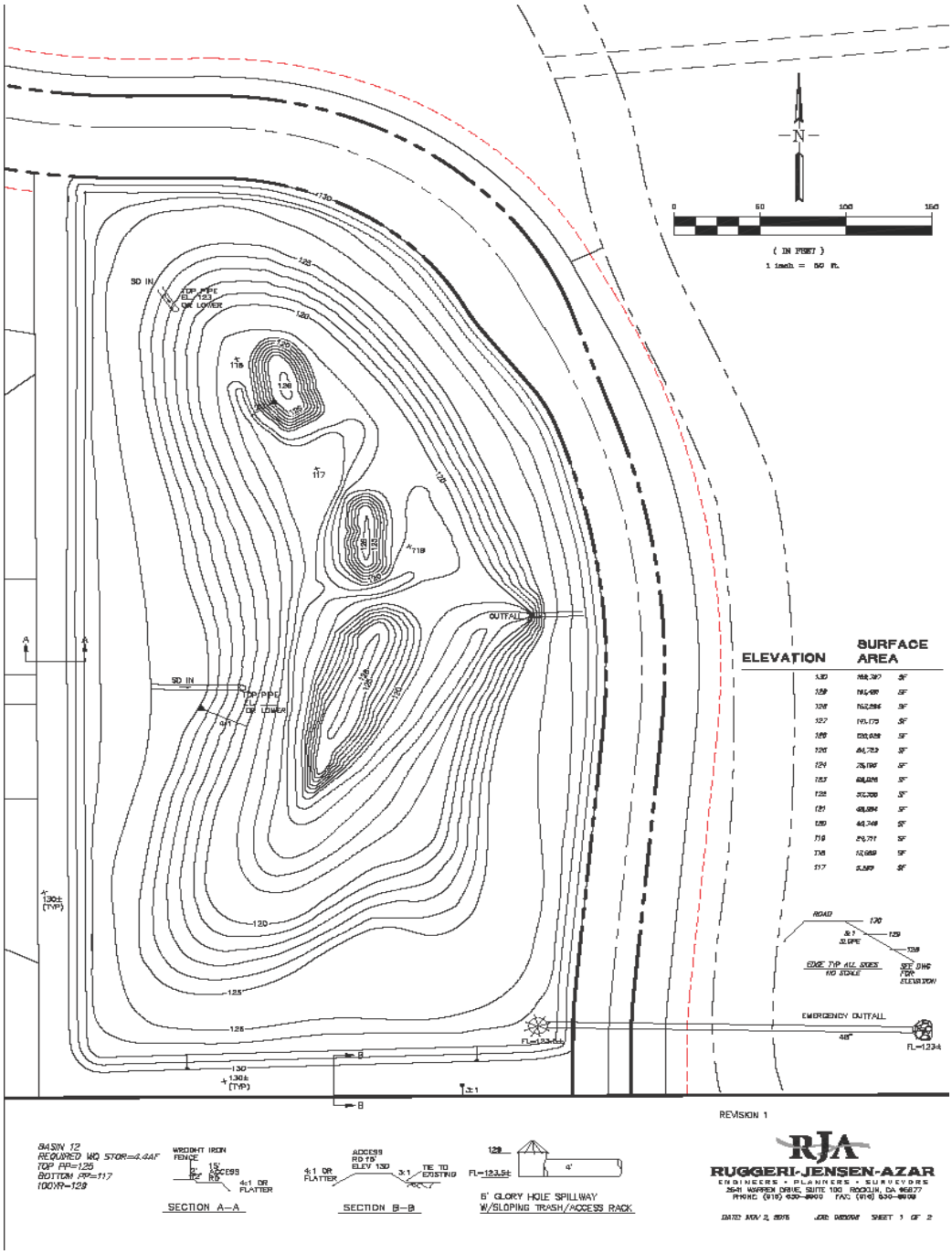


Figure 2. Preliminary Layout of Basin 9

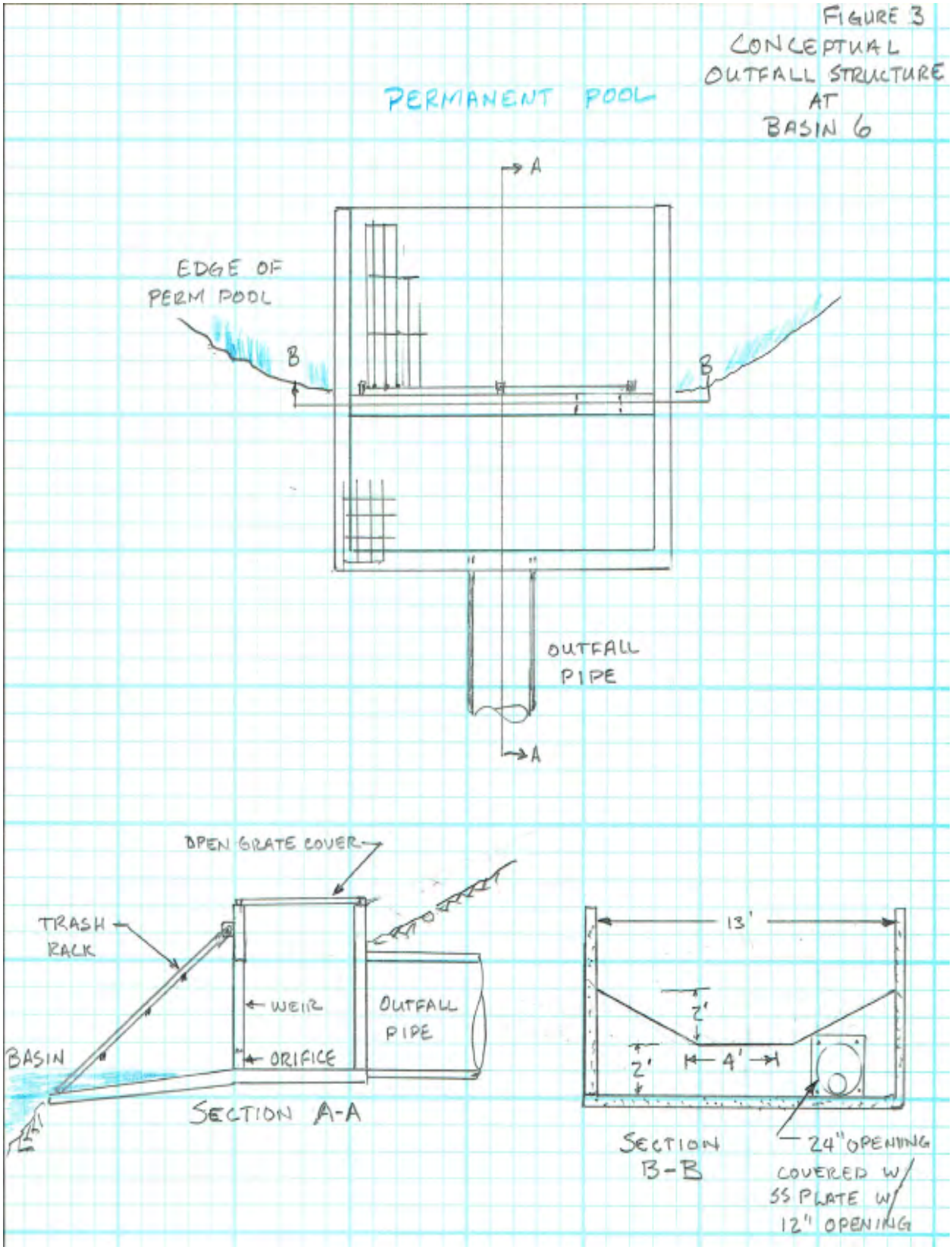


Figure 3. Preliminary Outfall from Basin 4, Typical of All Outfalls

OUTFALLS

The basins are sited up to several hundred feet from the channel with varied topography between the basin and the channel flow line. Releasing the basin outflow at the edge of the environmental corridor would generate erosion as a new channel would be cut into the native soils. This erosion is contrary to the purpose of attenuating peak flows.

For this study, it is recommended that an outfall pipe or armored channel be constructed so that runoff from the basins is released into or very near the stream flowline or thalweg. In addition, erosion protection at the outfalls is also recommended.

To minimize the disturbances within the preservation area, outfalls will be constructed as part of crossings where possible. **Table 5** provides a summary of existing and design flows and provides a preliminary description of the proposed outfalls.

Table 5. Locations of Basin Outfalls

Basin ID	Location and Description of Outfall
East	Outfall piped from the basin along Rancho Cordova Parkway right-of way and discharged into MCS at the constructed channel east of the parkway.
West	Discharged directly into MCS or piped southwest and discharged into MCS at the Chrysanthy Boulevard crossing.
PG	Discharged directly into MCS. Preliminary location west of Basin.
NS	Discharged to MCS upstream of Chrysanthy crossing
SS	Outfall piped to Kite Creek at the same location of the SunCreek Basin 2 outfall. The two or combined structure will become the headwaters of Kite Creek when that area of SunCreek is developed.

EXISTING AND POST-PROJECT FLOWS

Overview

A review comment from the first submittal was to include an analysis of potential impacts to upstream, adjacent, and downstream properties.

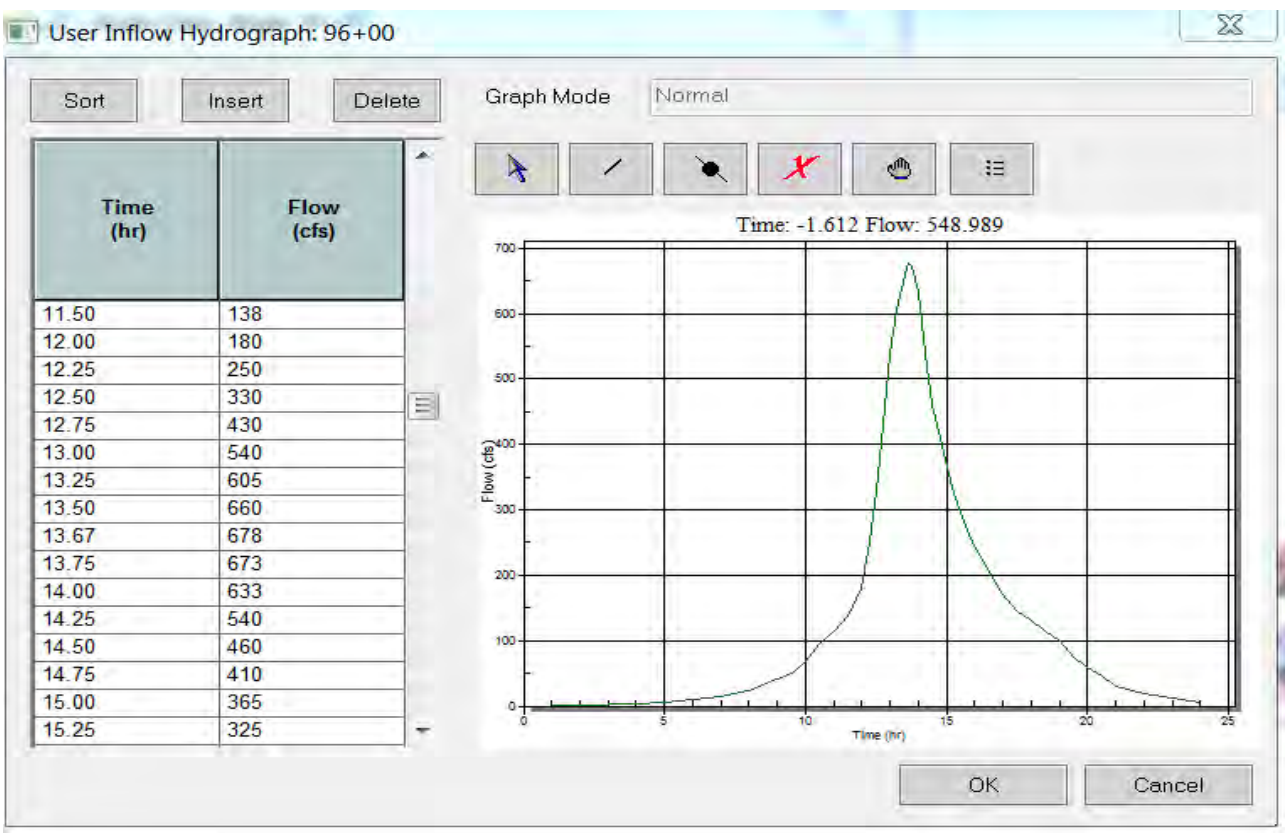
An XP model was used to evaluate the potential impacts along Morrison Creek South Branch (MCSB). To set up the analysis, the following steps were completed for the "existing conditions" model:

- Recreated the numerical hydrograph shown on Figure 4 provided by the Wood Rogers report entitled *Drainage Study for The Preserve at Sunridge*. The hydrograph with a peak flow of 678 cfs for the 100-year flow was applied at cross-section 96+00 near the upstream boundary of The Ranch.

- Forty cross-sections of the South Branch Morrison Creek were taken from available topographic information.
- Three existing sheds within The Ranch corridor and tributary to MCSB were then added to the existing conditions model.

The Post-Project (PP) information was then added to the model as a Scenario. Key components of the PP scenario were as follows:

- The inflow hydrograph at the upstream end of MCSB was not changed.
- The natural tributary subsheds along MCSB were turned off.
- The four tributary sheds (WB, PG, EB, and NS) that represent The Ranch development were added.
- The local remaining natural subsheds along MCSB were added at five locations.
- Encroachment along the MCSB cross-sections was added per the proposed development.
- The proposed Contech arch at the Crysanthy Boulevard crossing was added.



Time (hr)	Flow (cfs)
11.50	138
12.00	180
12.25	250
12.50	330
12.75	430
13.00	540
13.25	605
13.50	660
13.67	678
13.75	673
14.00	633
14.25	540
14.50	460
14.75	410
15.00	365
15.25	325

Figure 4. Inflow Hydrograph of Morrison Creek South Branch into The Ranch

Upstream Impacts

There is encroachment that will raise the water level within The Ranch property. However, the backwater effect is insignificant (0.02 ft) at Section 96+00 which is near the upstream property line. The impact is less at the property line.

Adjacent Property Impacts

Both the flow and water level along MCSB varied because of the changed conditions and the slight changes where local flows were added to the model. There are impacts along MCS where there will be encroachment from development. The maximum changes were + 15 cfs and -18 cfs. Maximum water elevation changes were +0.03 and -0.48 feet. The Ranch development is on both sides of the South Branch of Morrison Creek, so no other properties are affected. It is the responsibility of developers to protect their own property and is part of the design considerations.

Downstream Impacts

At the downstream end, downstream of Rancho Cordova Parkway, the model results indicate a slight decrease in flow (15 cfs) and a slight decrease of the water level (-0.06 ft) for post-project conditions compared to existing conditions. **Figures 5** and **6** show the flows and water surface elevations just downstream of Rancho Cordova Parkway. **Attachment E** provides additional modeling details for the comparative analysis. The cross-section locations are shown on **Maps 1** and **2**. **Attachment E** provides more detailed information from the comparative analysis.

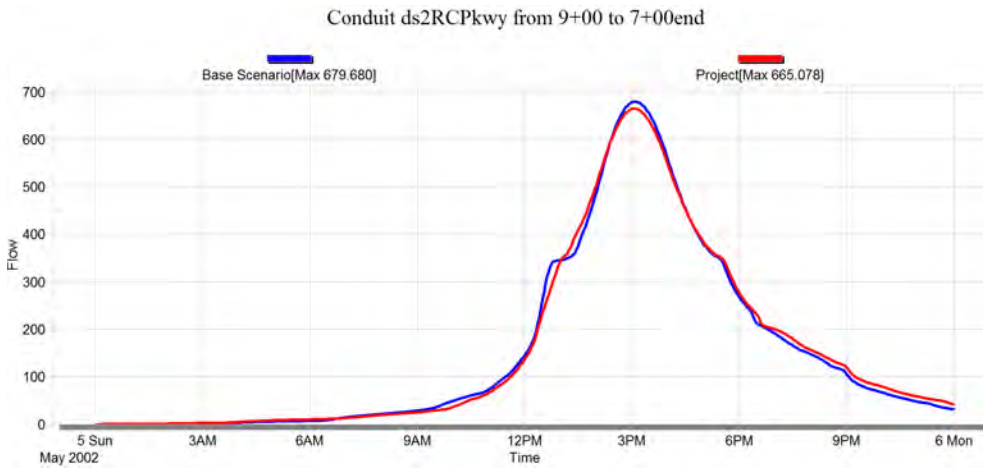


Figure 5. Existing and Post-project 100-yr Flows DS of Rancho Cordova Parkway

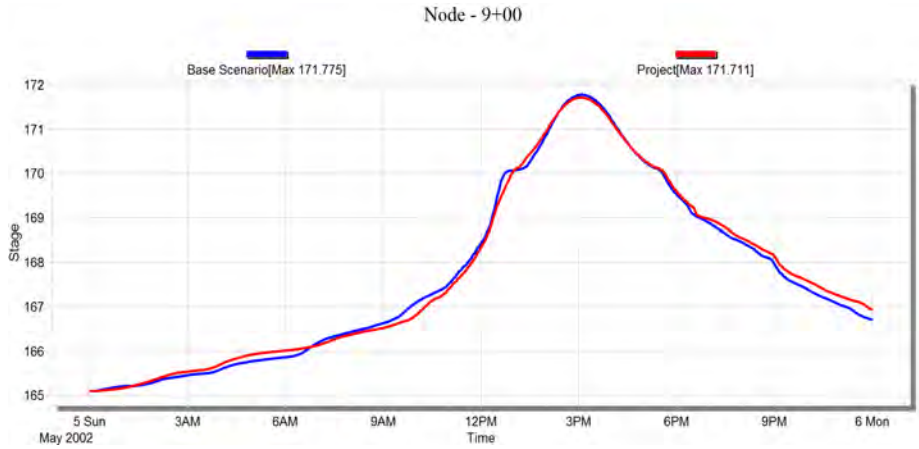


Figure 5. Existing and Post-project 100-yr Water Levels DS of Rancho Cordova Parkway

PDF of appendices has been requested from project applicant to include with drainage study

APPENDIX J.2

Level 1 Sewer Study

THE RANCH
LEVEL 1 SEWER STUDY

1st Submittal: September 2018

Prepared Under The Direction Of:

DRAFT

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

INTRODUCTION 1

VICINITY MAP

DESIGN 1

SEWER FLOW INFORMATION 2

SEWER ALIGNMENTS AND FACILITIES 2

CONCLUSIONS 2

APPENDIX A
- TABLE A-1 SEWER DESIGN SUMMARY SPREADSHEET

ATTACHMENTS
- LOCATION MAP
- LOCATION MAP WITH TOPOGRAPHY
- SITE PLAN – THE RANCH
- SMALL LOT TENTATIVE MAP – THE RANCH
- SEWER SHED MAP –THE RANCH
- SRCSD SERVICE AREA
- SASD SERVICE AREA
- AJ SUNRISE DOUGLAS TRUNK SHED
- FIGURE 6-1 - TRUNK SHEDS MAP - 2010 SASD SYSTEM CAPACITY PLAN
- BR EAST RANCH TRUNK SHED – 2015 AMENDMENT

EXECUTIVE SUMMARY

The purpose of this Level 1 Sewer Study is to identify trunk main sewer facilities for proposed The Ranch Special Planning Area project. This study will demonstrate the ability of the proposed gravity sewers to serve The Ranch and offsite areas from the east.

The Ranch SPA encompasses 530.06 acres in the City of Rancho Cordova. The project is situated at eastern terminus of Chrysanthy Boulevard on the easterly side of Rancho Cordova Parkway, and approximately one half mile to the south of Douglas Boulevard. The proposed SPA development consists of mixed land uses and densities. There are proposed lots of low and medium density residential, private and public parks, private recreation center, private and public landscape lots, open spaces, public protected areas, commercial, and water quality/detention basins. Protected areas and a portion of roadway adjacent to protected areas, not subject to future development, account for 227.21 acres of the gross project area. The net developable area is 302.85 acres. The project is planned to be constructed in several phases.

Proposed sewer system improvements will serve The Ranch project needs, as well as the proposed Arista Del Sol to the east. Development of The Ranch will result in 1817 ESDs resulting in PWWF of 1.35 mgd. The upstream project to the east, Arista Del Sol, is 243.7 acres. ADS will result in 1462 ESD's and 1.14 mgd. Therefore, the total ESD's and PWWF are 3279 ESD's and 2.49 mgd exiting the site at Ranch Cordova Parkway.

The proposed trunk main will exit into existing 24" sewer line stubbed at the intersection of Rancho Cordova Parkway and Chrysanthy Boulevard. The existing 24" sewer line discharges into Aerojet Interceptor 1B (36" trunk main) flowing westerly into SASD facility S-132 lift station. The SASD system capacity plan shows The Ranch will sewer to the west.

Interim facilities or pump station are not expected to be required for The Ranch SPA.

INTRODUCTION

Level of Study - The Ranch sewer study is a Level 1 report which focuses on the design of Major Trunk and sewer facilities serving The Ranch SPA and potential upstream sewer sheds.

Location - The Ranch is located in Rancho Cordova, east of Rancho Cordova Parkway, between Douglas Blvd, Kiefer Road, and Grant Line Road. See the Vicinity Map, Figure 1.

Topography – Lower Morrison Creek South traverses The Ranch, generally along a southwesterly flow path, joined by lesser tributary channels entering the site on the northern and eastern boundaries. Existing site topography is undulating, ranging from approximately 168.5 feet to 200 feet in elevation (NGVD 1929). Adjacent property to north and west are developed residential while the properties to the south and east are similar rolling agricultural land uses. Adjacent offsite area may drain into the natural channel network.

Project Description - The Ranch is a residential subdivision consisting of 1374 single family lots, neighborhood park sites, and open space lots. Proposed site grading enables gravity sewer service throughout the project. The proposed in-tract collection system will discharge at a single point into off-site sewer in Rancho Cordova Parkway at the location shown on the Sewer Study Map.

Land Use and Zoning – The current land use is vacant, agricultural grazing land. The existing zoning is AG-80. Proposed zoning is Special Planning Area Current zoning consisting of General Plan uses (LDR, MDR, RMU, CMU, P/QP, P/OS, NR). The gross project area is 530.06 acres; protected areas/adjacent roadway comprises of 227.21 acres.

DESIGN

Assumptions – The Ranch sewer study is premised upon the following assumptions:

- There will be no future connections into the proposed on-site sewer system. Property east of the project will sewer to the west through future Chrysanthy. Property south of the project will swer to the south. Adjacent parcels north and west of The Ranch are already sewered or will remain as open space.
- There is adequate capacity in existing, downstream sewer facilities. (Please see attached email from SASD regarding downstream Aerojet 2 Interceptor has capacity without surcharge conditions as verified by SASD and SCRSD. (This section is being verified by SASD at time of draft report)
- Groundwater will be confirmed through future Geotechnical studies for the project. Recent information from monitoring wells in the area suggests groundwater is 140 below ground surface.

Approach – Design of the proposed The Ranch sewer system followed the sequence described as follows.

- Sewer sheds reflect project layout shown on the accompanying Sewer Shed Map.
- Design flows, summarized in Table A-1, Appendix A, adhere to SASD Design Standards, dated July 24, 2013.
- Pipe sizes and slopes meet applicable design criteria.

Design Criteria - Design of the proposed The Ranch sewer system is based on the following criteria.

- Sewer flow is calculated on the basis of 6 ESD (Equivalent Single-Family Dwelling) per acre, or the actual count within a shed, whichever is greater.
- Park areas use a design flow of 6 ESD per acre.
- Design flows are computed using formulas from Section 201.2.2 of SASD standards and specifications:
    - PWWF (mgd) = ADWF *PF +I/I
    - ADWF (mgd) = (310 GPD/ESD)*(ESD/ac)*(ac)/1,000,000
    - PF = 3.5 - 1.8*Q^0.05, where Q=ADWF, PF= 1.2 minimum
    - I/I = 1,400 gpd/ac (new pipeline)
- Design of gravity sewers adheres to the following, from Section 203 of SASD standards and specifications:
    - The minimum pipe size (diameter) is 8 inches.
    - The minimum velocity is 2 fps when the pipe is ½ full or full.
    - The ‘n’ value is 0.013.
    - The minimum slope for a collector serving fewer than 6 ESDs is 0.007.
    - The minimum slope for an 8” sewer is 0.0035.

SEWER FLOW INFORMATION

On-site flow from The Ranch SPA totals 1817 ESDs, resulting in PWWF of 1.35 mgd. There would be off-site contribution from proposed Arista Del Sol project of approximately 1462 ESD’s and 1.14mgd.

SEWER ALIGNMENT & FACILITIES

- No interim facilities are required for The Ranch project. All pipes are sized for ultimate PWWF.
- Ultimate facilities consist of the following:
    - 8-inch in-tract gravity sewer pipe
    - 15-inch to 21-inch truck main sewer pipe in Chrysanthy Blvd
    - 24-inch offsite gravity sewer located in Rancho Cordova Parkway, west from the project entry to the existing manhole in Rancho Cordova Parkway as shown.

CONCLUSIONS

The Level 1 Sewer Study for The Ranch demonstrates the ability of the proposed gravity system to serve the project. System components are sized for ultimate conditions. According to SASD staff, there is adequate capacity in existing downstream sewer facilities to serve project needs.

APPENDIX A

TABLE A-1 SEWER DESIGN SUMMARY SPREADSHEET

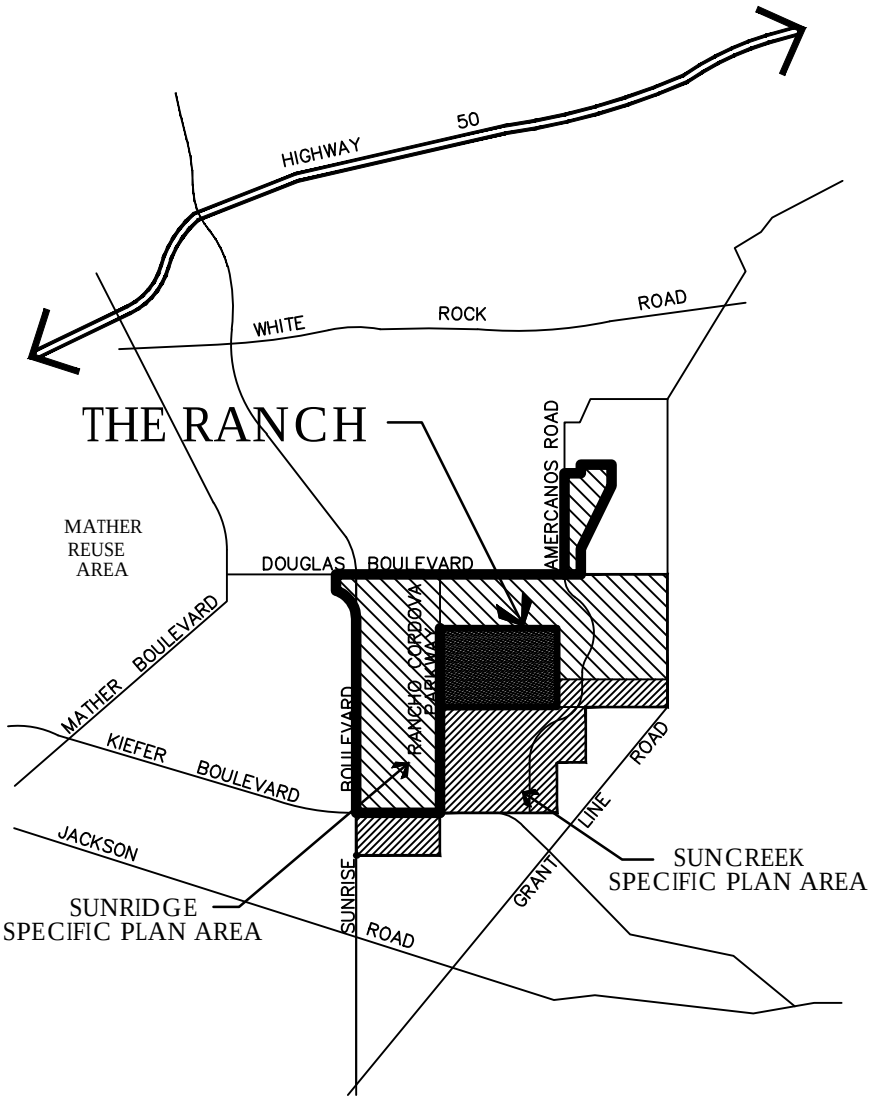
TABLE A-1

THE RANCH SEWER DESIGN SUMMARY																									
		LAND USE					TOTALS								PIPE DATA										
START NODE	STOP NODE	LAND USE	AREA (AC)	ESDs @ 6 ESD/AC	ACTUAL ESDs	MAX ESDs	AREA (AC)	CUM ESDs	I/I[1/] (mgd)	ADWF[2/] (mgd)	PF[3/]	PDWF[4/] (mgd)	PWWF[5/] (mgd)	PWWF[5/] (cfs)	DIA (in)	S (ft/ft)	Capacity @ S (cfs)	Capacity @ S (mgd)	US MAN HOLE DEPTH (FT)	V @ PWWF[6/] (fps)					
ADS1	A	R	243.7	1462	1462	1462	243.7	1462	0.3412	0.4532	1.77	0.8021	1.1433	1.7690	15	0.0018	2.74	1.77	29	2.38					
A	B	R	44	264	215	264	287.7	1726	0.4028	0.5351	1.76	0.9393	1.3420	2.0764	15	0.0018	2.74	1.77	29	2.46					
B	C	R	100.18	601	473	601	387.88	2327	0.5430	0.7214	1.73	1.2474	1.7904	2.7701	18	0.0014	3.93	2.54	32	2.41					
C	D	R	39.72	238	205	238	427.6	2565	0.5986	0.7952	1.72	1.3681	1.9667	3.0429	18	0.0014	3.93	2.54	40	2.46					
D	E	R	43.94	264	134	264	471.54	2829	0.6602	0.8770	1.71	1.5012	2.1614	3.3441	18	0.0014	3.93	2.54	38	2.49					
E	F	R	72.79	437	347	437	544.33	3266	0.7621	1.0125	1.70	1.7201	2.4821	3.8404	21	0.0012	5.49	3.55	33.5	2.47					
F	POC	R	2.22	13	0	13	546.55	3279	0.7652	1.0165	1.70	1.7265	2.4917	3.8552	24										
			546.55	3279	2836	3266	546.55		0.7652																
	[1/] 1400 gpd/ac																								
	[2/] 310 gpd/ESD * ESD/ac * A																								
	[3/] 3.5-1.8*(Q^0.05) where Q is ADWF																								
	[4/] ADWF * PF																								
	[5/] ADWF * PF + I/I																								
	[6/] see Flowmaster computations																								

ATTACHMENTS

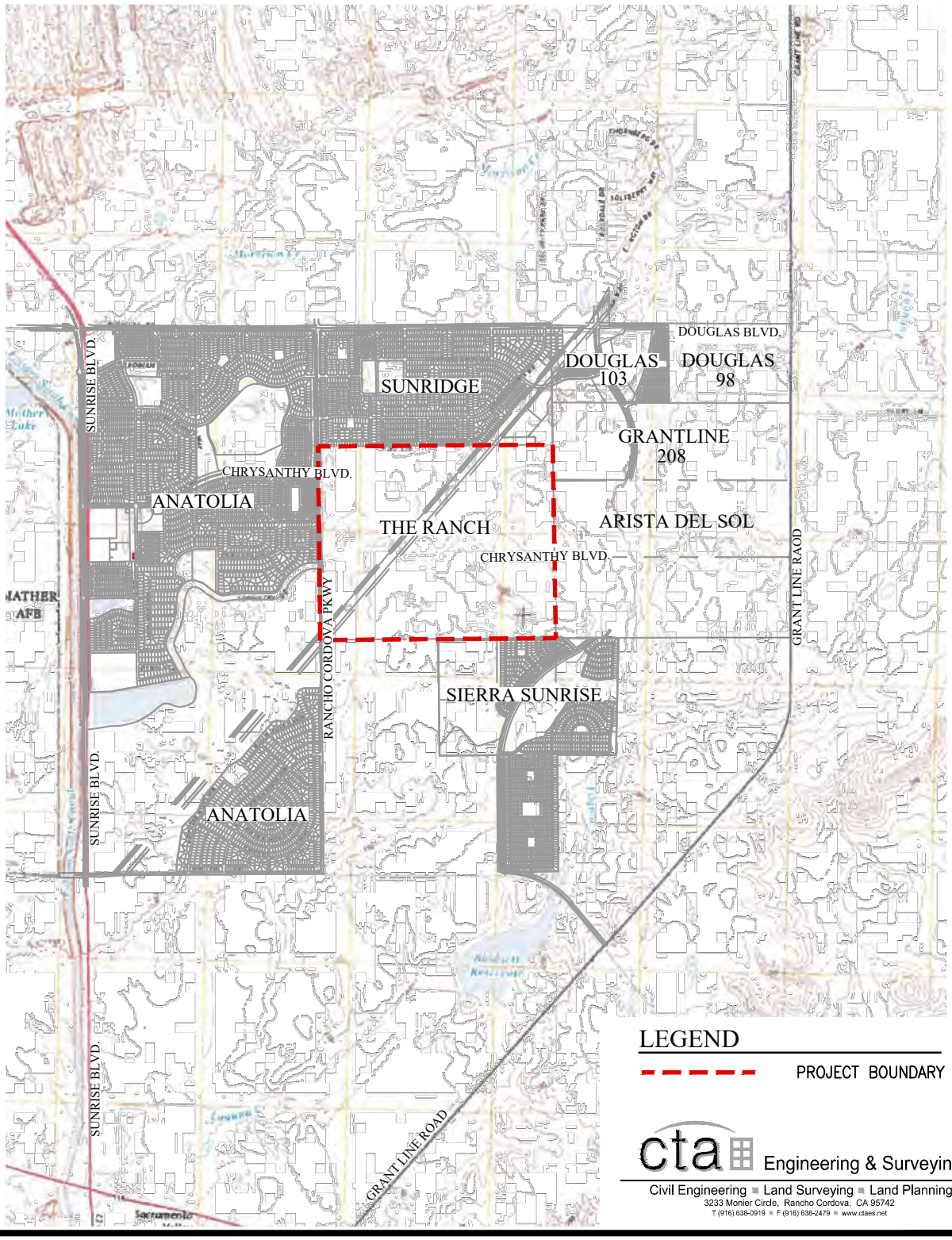
LOCATION MAP
LOCATION MAP WITH TOPOGRAPHY
SITE PLAN – THE RANCH
SMALL LOT TENTATIVE MAP – THE RANCH
PRELIMINARY GRADING AND DRAINAGE PLAN – THE RANCH
SEWER SHED MAP –THE RANCH
SRCSD SERVICE AREA
SASD SERVICE AREA
AJ SUNRISE DOUGLAS TRUNK SHED
FIGURE 6-1 - TRUNK SHEDS MAP - 2010 SASD SYSTEM CAPACITY PLAN
BR EAST RANCH TRUNK SHED – 2015 AMENDMENT

LOCATION MAP



THE RANCH
LOCATION MAP

RANCHO CORDOVA, CALIFORNIA
NOT TO SCALE AUGUST, 2018



LEGEND

PROJECT BOUNDARY

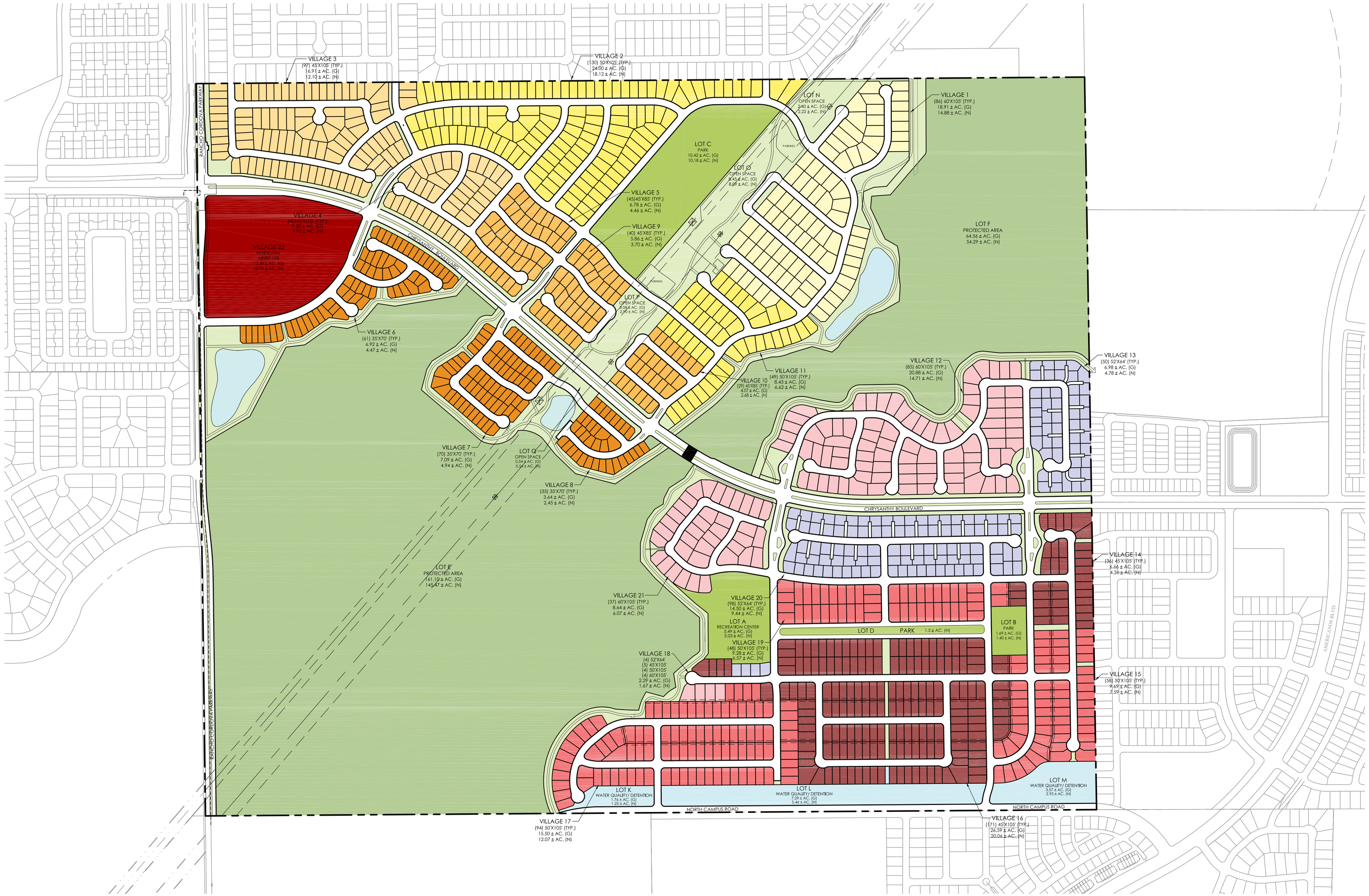
cta Engineering & Surveying
Civil Engineering ■ Land Surveying ■ Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742
T (916) 638-0919 ■ F (916) 638-2479 ■ www.ctaes.net

SITE PLAN

THE RANCH

CITY OF RANCHO CORDOVA, CALIFORNIA

JULY 24, 2018



LAND USE SUMMARY

LAND USE	DWELLING UNITS
MARKET RATE	
60' x 105' (TYP.)	86
50' x 105' (TYP.)	179
45' x 105' (TYP.)	137
45' x 85' (TYP.)	114
36' x 70' (TYP.)	166
SUBTOTAL	682
ACTIVE ADULT	
60' x 105' (TYP.)	127
50' x 105' (TYP.)	203
45' x 105' (TYP.)	212
WINTER (4-PACK)	152
SUBTOTAL	694
TOTAL	1,376

NORTH

0 600

300 1200

WOOD RODGERS
DEVELOPING INNOVATIVE DESIGN SOLUTIONS
3301 C St, Bldg. 100-B Tel 916.341.7760
Sacramento, CA 95816 Fax 916.341.7767

J:\1000-s\1277_TheRanch\TheRanch-OA\Planning\Exhibits\Tentative Map - PD\SitePlan-TheRanch.dwg 7/24/2018 9:27 AM Katie Caradec

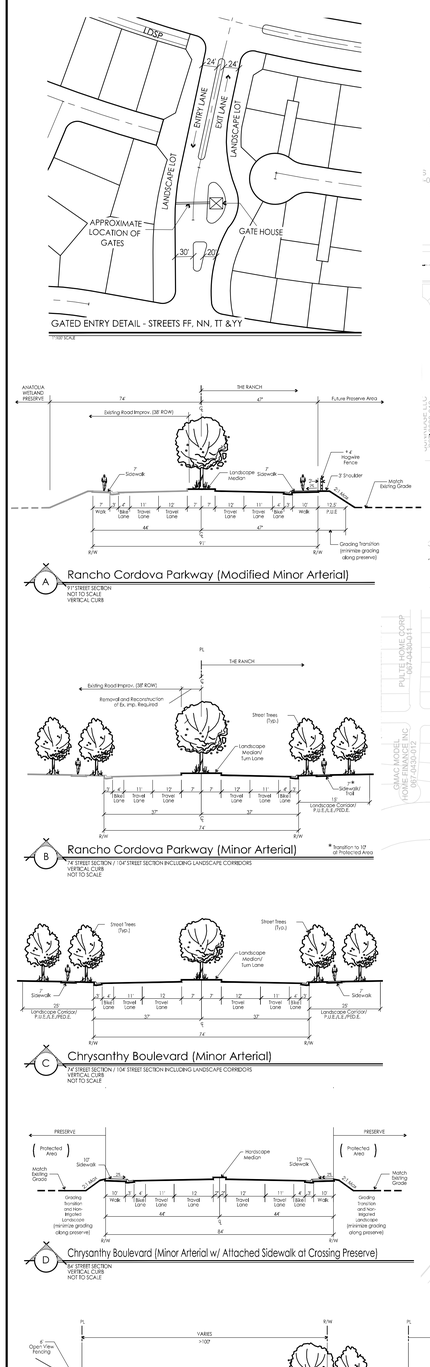
SMALL LOT TENTATIVE SUBDIVISION MAP

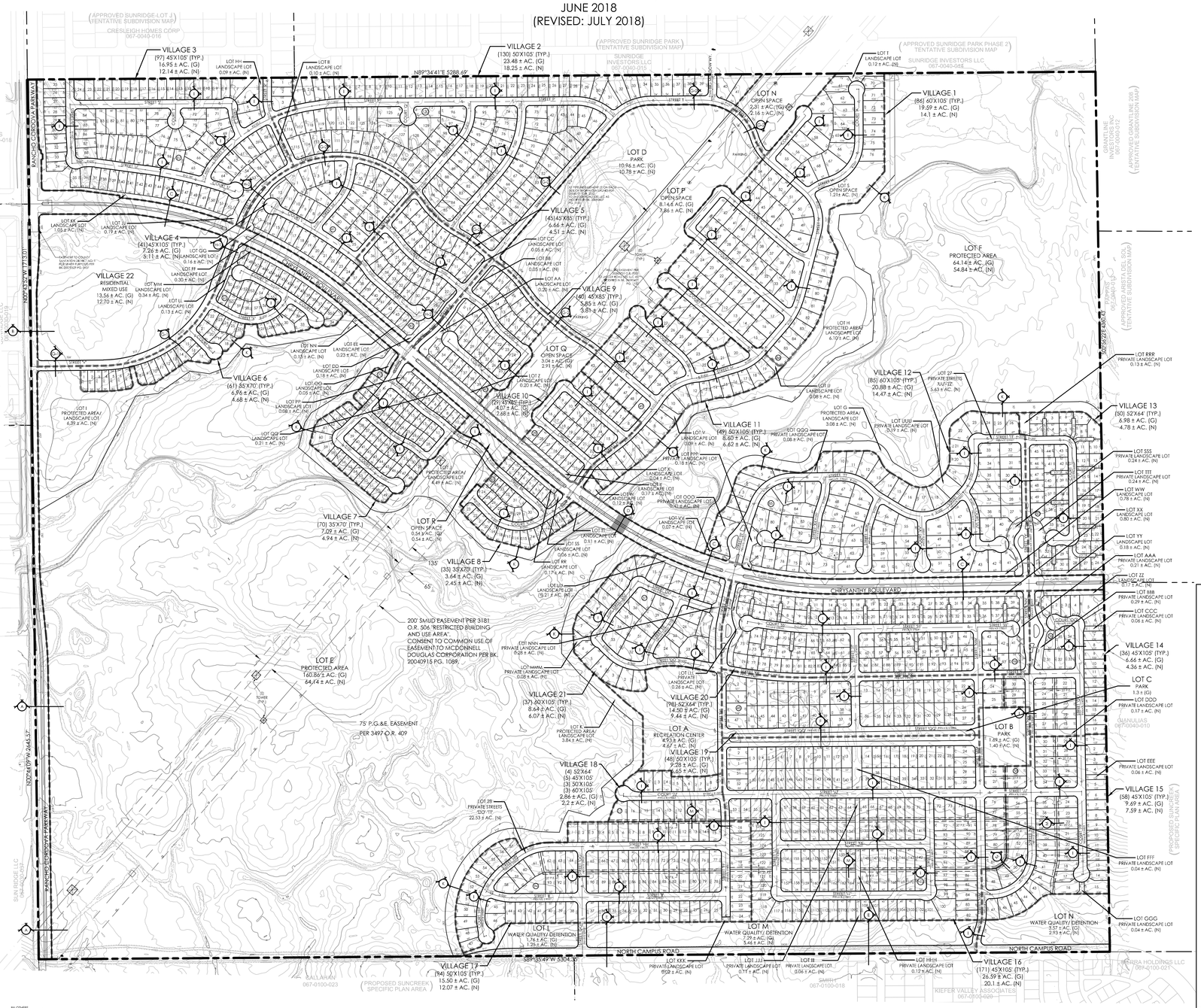
THE RANCH

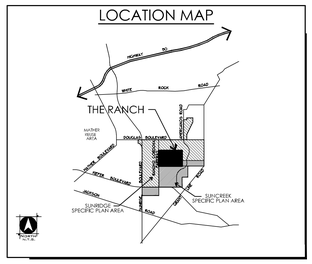
CITY OF RANCHO CORDOVA, CALIFORNIA

JUNE 2018

(REVISED: JULY 2018)







PROJECT NOTES

OWNER/APPLICANT
K. HOVNANIAN HOMES, NORTHERN INC.
3721 DOUGLAS BOULEVARD, SUITE 150
ROSEVILLE, CA 95661
CONTACT: OLGA SCIORELLI
PHONE: (916) 945-5362

PLANNER
WOOD RODGERS INC.
3301 "C" STREET, BLDG. 100-B
SACRAMENTO, CA. 95816
CONTACT: PAUL MEUSER
PHONE: (916) 341-7760

ENGINEER/SURVEYOR
CTA ENGINEERING AND SURVEYING
3253 MONIER CIRCLE
RANCHO CORDOVA, CA 95742
CONTACT: TOM CASSERA
PHONE: (916) 638-0919

ASSESSORS PARCEL NUMBERS
067-0040-008

AREA
530.1± ACRES GROSS

NUMBER OF LOTS/PARCELS

1,372	SINGLE FAMILY LOTS
1	RESIDENTIAL MIXED USE LOT
1	RECREATION CENTER LOT
3	PARK LOTS
2	PROTECTED AREA LOTS
5	PROTECTED AREA/ LANDSCAPE LOTS
3	WATER QUALITY/ DETENTION BASIN LOTS
5	OPEN SPACE LOTS
33	PUBLIC LANDSCAPE LOTS
21	PRIVATE LANDSCAPE LOTS
26	PRIVATE DRIVE LOTS

EXISTING USE
VACANT

EXISTING GENERAL PLAN
URBAN DEVELOPMENT AREA

PROPOSED GENERAL PLAN
LDR, MDR, RMU, CMU, P/QP, P/OS, NR

EXISTING ZONING
AG-80

PROPOSED ZONING
SPECIAL PLANNING AREA

PUBLIC SERVICES & FACILITY PROVIDERS

IMPROVEMENTS:	CITY OF RANCHO CORDOVA
WATER:	SACRAMENTO COUNTY WATER
SEWER:	SACRAMENTO AREA SEWER DISTRICT
DRAINAGE:	CITY OF RANCHO CORDOVA
ELECTRICITY:	S.M.U.D.
GAS:	PACIFIC GAS & ELECTRIC
TELEPHONE:	AT&T
SCHOOL DISTRICT:	ELK GROVE UNIFIED SCHOOL DISTRICT
FIRE DISTRICT:	SACRAMENTO METRO FIRE DISTRICT
PARK DISTRICT:	CORDOVA RECREATION & PARK DISTRICT

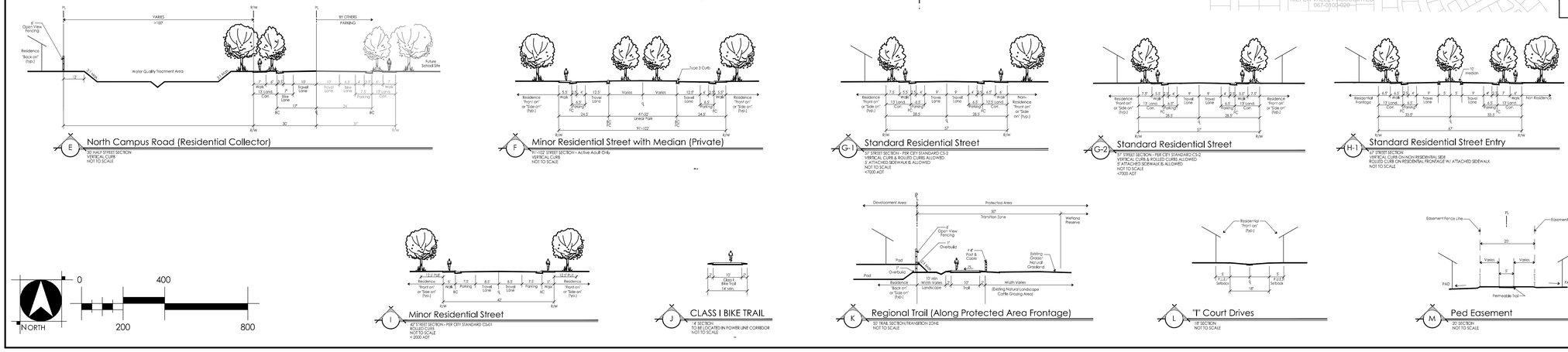
NOTES:

1. SUBDIVIDER(S) RESERVES THE RIGHT TO FILE MULTIPLE MAPS PURSUANT TO SECTION 66456.1 OF THE SUBDIVISION MAP ACT.
2. THIS IS AN APPLICATION FOR A DEVELOPMENT PERMIT.
3. A 12.5 FOOT PUBLIC UTILITY EASEMENT WILL BE LOCATED ADJACENT TO ALL RIGHTS OF WAY EXCEPT AS APPROVED BY THE CITY ENGINEER. THIS APPLICATION REQUESTS A 5' P.U.E./SETBACK FOR 'T' COURT PRODUCT (PARCEL T).
4. PARCEL (LARGE LOT) NUMBERING IS FOR IDENTIFICATION PURPOSES ONLY AND DOES NOT INDICATE PHASING ORDER OF DEVELOPMENT. ULTIMATE DEVELOPMENT PHASING SHALL BE ORDERLY AND WILL BE DETERMINED AT FINAL MAP AND/OR IMPROVEMENT PLAN STAGE.
5. THIS APPLICATION ALSO SEEKS A GENERAL PLAN AMENDMENT, REZONE, AND SPECIAL DEVELOPMENT PERMIT.
6. ALL EXISTING STRUCTURES TO BE REMOVED AND ALL EXISTING WELLS TO BE ABANDONED, ADJUSTED(BY OTHERS) AND/OR RELOCATED.
7. THE AERIAL TOPOGRAPHY SHOWN HEREON WAS FLOWN IN NOVEMBER 2003.
8. THIS EXHIBIT IS FOR TENTATIVE MAP PURPOSES ONLY. ALL SITE AREAS TO BE VERIFIED PRIOR TO FINAL MAP.
9. PARK FEES FOR ALL RMU LOTS WILL BE DEFERRED UNTIL ACTUAL SITE DEVELOPMENT PERMIT.
10. NON-STANDARD ELBOW. NO ON-STREET PARKING ALLOWED ON KNUCKLE.

LAND USE SUMMARY

PARCEL/ LOT NUMBER	GENERAL PLAN DESIGNATION	LAND USE (LOT SIZE)	GROSS ACRES	NET ACRES	DWELLING UNITS	GROSS DENSITY
TRADITIONAL SINGLE-FAMILY RESIDENTIAL						
VILLAGE 1	LDR (2.1-6.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (60X105)	19.59	14.1	86	4.4
VILLAGE 2	LDR (2.1-6.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (50X105)	23.48	18.25	130	5.5
VILLAGE 3	LDR (2.1-6.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (45X105)	16.95	12.14	97	5.7
VILLAGE 4	LDR (2.1-6.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (60X105)	7.26	5.11	41	5.6
VILLAGE 5	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (45X85)	6.66	4.51	45	6.8
VILLAGE 6	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (35X70)	6.96	4.68	61	8.8
VILLAGE 7	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (35X70)	7.09	4.94	70	9.9
VILLAGE 8	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (35X70)	3.64	2.45	35	9.6
VILLAGE 9	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (45X85)	5.85	3.81	40	6.8
VILLAGE 10	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (45X85)	4.07	2.68	29	7.1
VILLAGE 11	LDR (2.1-6.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (50X105)	8.60	6.62	49	5.7
SUB-TOTAL			**110.15**	**79.29**	**683**	
ACTIVE ADULT SINGLE-FAMILY RESIDENTIAL						
VILLAGE 12	LDR (2.1-6.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (60X105)	20.88	14.47	85	4.1
VILLAGE 13	MDR (6.1-18.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (52X64)	6.98	4.78	50	7.2
VILLAGE 14	LDR (2.1-6.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (45X105)	6.66	4.36	36	5.4
VILLAGE 15	LDR (6.1-18.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (45X105)	9.69	7.59	58	6.0
VILLAGE 16	MDR (6.1-18.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (45X105)	26.59	20.1	171	6.4
VILLAGE 17	MDR (6.1-18.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (50X105)	15.50	12.07	94	6.1
VILLAGE 18	LDR (2.1-6.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (VARY)	2.86	2.2	17	5.9
VILLAGE 19	LDR (2.1-6.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (50X105)	9.28	6.65	48	5.2
VILLAGE 20	MDR (6.1-18.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (52X64)	14.50	9.44	98	6.8
VILLAGE 21	LDR (2.1-6.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (60X105)	8.64	6.07	37	4.3
SUB-TOTAL			**121.58**	**87.73**	**694**	
VILLAGE 22	RMU	RESIDENTIAL MIXED USE	**13.77**	**12.90**	-	-
SUB-TOTAL			**13.77**	**12.90**	-	-
LOT A	P/OS	RECREATION CENTER (PRIVATE)	**4.93**	**4.67**	-	-
LOT B	P/OS	PARK (PRIVATE)	**1.69**	**1.40**	-	-
LOT C	P/OS	PARK (PRIVATE)	**10.96**	**10.78**	-	-
LOT D	P/OS	PARK (PUBLIC)	**1.30**		-	-
LOT E	NR	PROTECTED AREA (PUBLIC)	**160.86**	**145.47**	-	-
LOT F	NR	PROTECTED AREA (PUBLIC)	**64.14**	**54.84**	-	-
LOT G-K	NR	PROTECTED AREA/ LANDSCAPE LOT		**23.90**	-	-
LOT L-N	P/OS	WATER QUALITY/DETENTION	**12.62**	**9.44**	-	-
LOT O-R	P/OS	OPEN SPACE	**14.02**	**13.45**		
S	LDR	OPEN SPACE	-	**1.21**		
LOT I-ZZ	LDR/MDR	PUBLIC LANDSCAPE LOT	-	**6.91**		
LOT AAA-UUU	LDR/MDR	PRIVATE LANDSCAPE LOT	-	**3.46**	-	-
LOT 1-26	MDR	PRIVATE DRIVE	-	**1.01**		
LOT 27 & 28	LDR/MDR & P/OS	PRIVAB REGHT-OF-WAY	-	**30.70**		
MINOR RIGHT-OF-WAY	LDR/MDR & P/OS	PUBLIC RIGHT-OF-WAY	-	**27.36**	-	-
MAJOR RIGHT-OF-WAY	-	-	**14.04**	**15.34**	-	-
SUB-TOTAL			**284.56**	**350.14**	-	-
TOTAL			**530.06**	**530.06**	**1,377**	-

NOTE:
GROSS ACREAGE EXCLUDES RANCHO CORDOVA PARKWAY & CHRYSANTHY BOULEVARD ONLY.
VILLAGE NET ACREAGE EXCLUDES PROTECTED AREA/ LANDSCAPE LOTS, PRIVATE & PUBLIC LANDSCAPE LOTS, PRIVATE DRIVES AND PRIVATE & PUBLIC RIGHT-OF-WAYS.



K Hovnanian

WOOD RODGERS
ENGINEERING • MAPPING • PLANNING • SURVEYING
3301 C St, Bldg. 100-B Tel 916.341.7760
Sacramento, CA 95816 Fax 916.341.7767

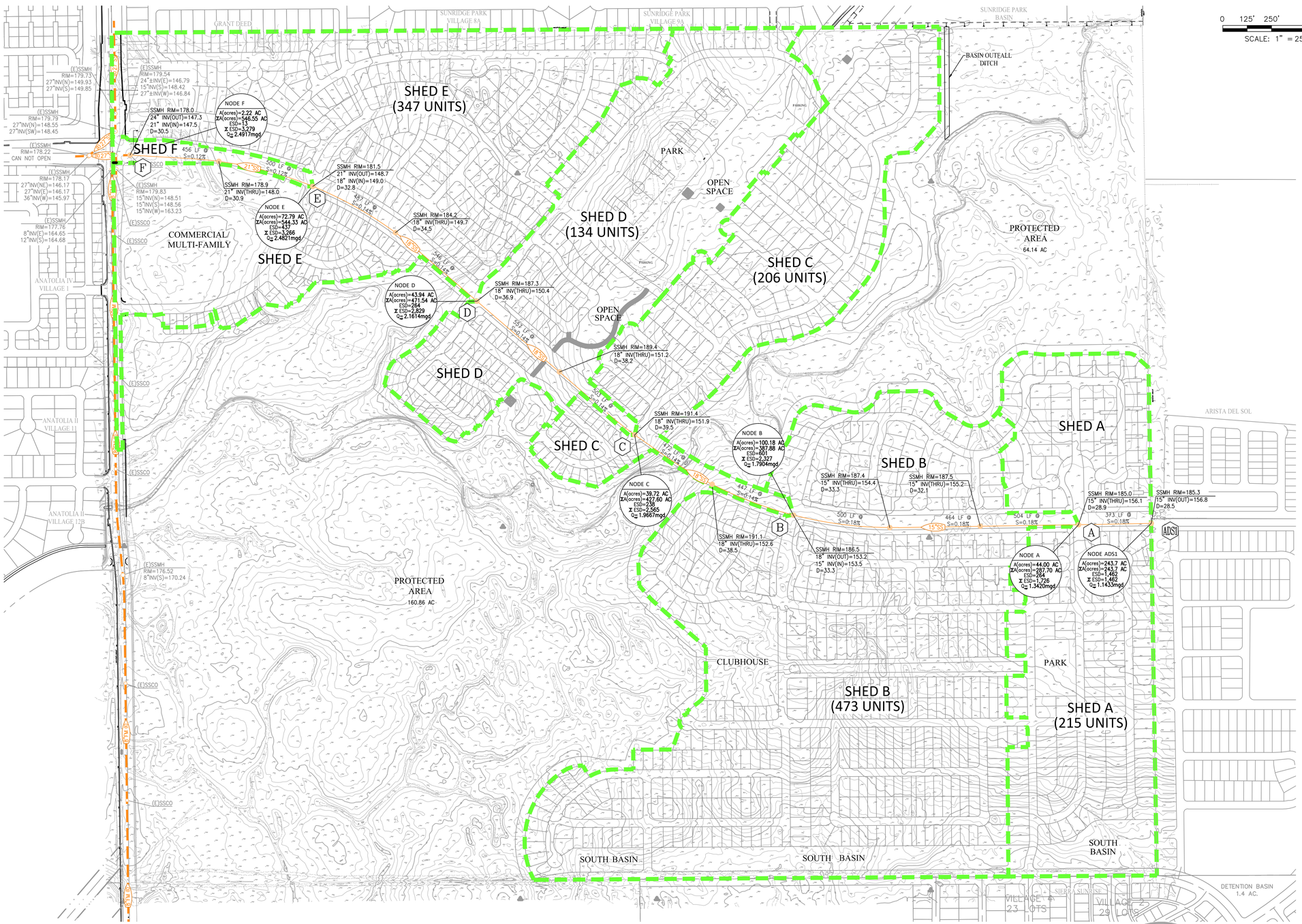
THE RANCH
SEWER SHED MAP
CITY OF RANCHO CORDOVA, CALIFORNIA

SCALE: 1"=250' AUGUST, 2018

LEGEND

- EXISTING SEWER (10-27"SS)
- PROPOSED SEWER (24"SS)
- SEWER SHED BOUNDARY
- NODE POINT (X)
- BOUNDARY LINE
- PROPERTY LINE

SHED TABLE		
NODE	ACREAGE	UNITS
ADS1	243.70	1462
A	44.00	215
B	100.18	473
C	39.72	206
D	43.94	134
E	72.79	347
F	2.22	0
TOTAL	546.55	2,836



cta Engineering & Surveying

Civil Engineering ■ Land Surveying ■ Land Planning

3233 Monier Circle, Rancho Cordova, CA 95742

T (916) 638-0919 ■ F (916) 638-2479 ■ www.ctaes.net

PRELIMINARY GRADING AND DRAINAGE PLAN

THE RANCH

CITY OF RANCHO CORDOVA | SEPTEMBER, 2018 | STATE OF CALIFORNIA

cta Engineering & Surveying

Civil Engineering ≈ Land Surveying ≈ Land Planning

3233 Monier Circle, Rancho Cordova, CA 95742

T (916) 638-0916 ≈ F (916) 638-2479 ≈ www.ctaeas.net

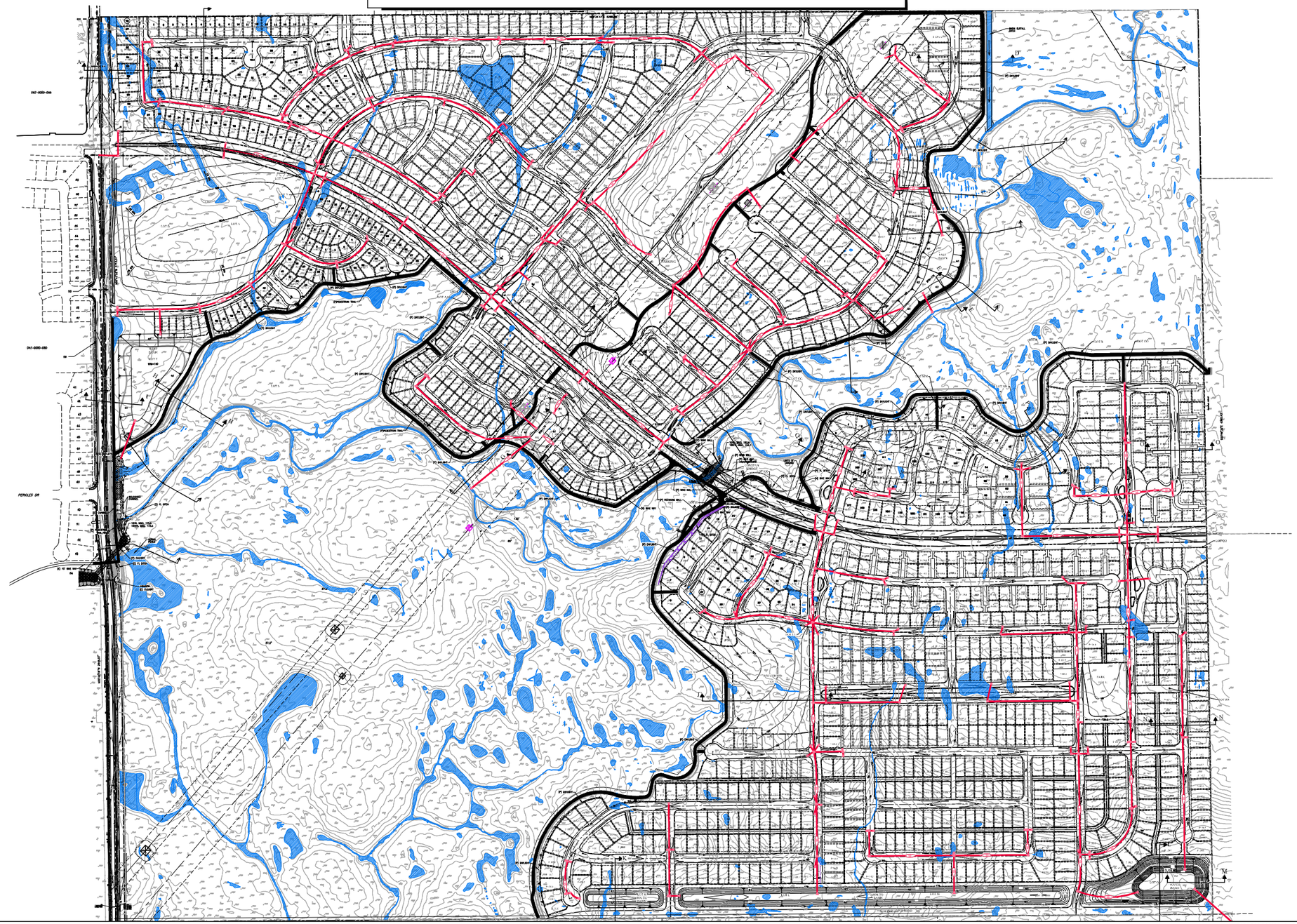
EARTHWORK

CUT	956,378 CY
FILL	825,899 CY
TOTAL	130,479 CY

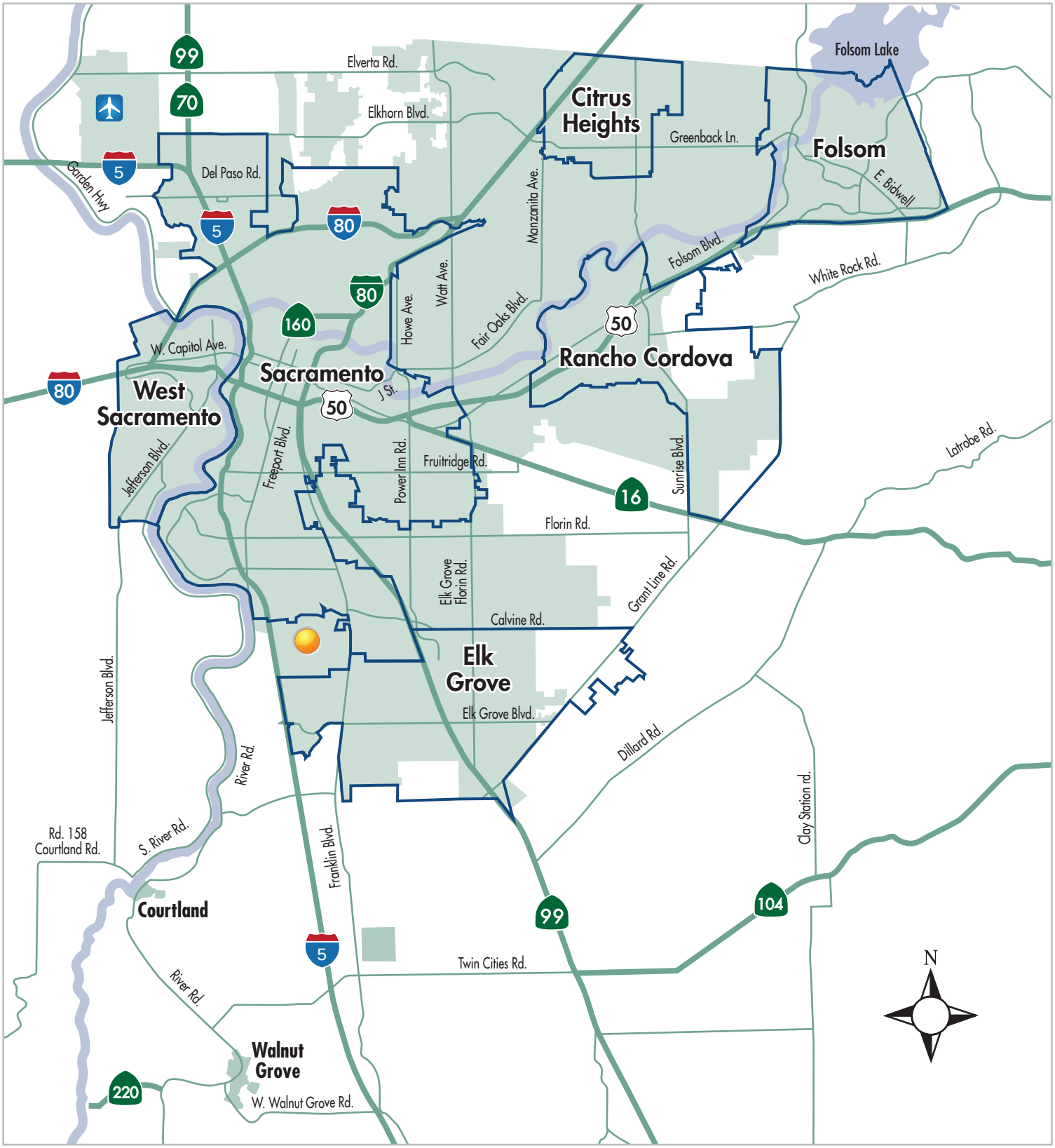
LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- P=1022.0 PROPOSED PAD ELEVATION
- PROPOSED RETAINING WALL (H=10') MAX WALL HEIGHT
- 2:1 UNLESS OTHERWISE NOTED TOP TOE PROPOSED SLOPE BANK
- PROPOSED DAYLIGHT LINE
- OUTFALL RSP PROPOSED DRAINAGE SYSTEM
- PROPOSED PEDESTRIAN TRAIL
- WETLAND 100 YR. WATER SURFACE ELEVATION

SCALE: 1" = 150'


FERGUSON ROAD
HAZELDEN DRIVE
FERGUSON TRAIL
PERCOLES DR
DRAINAGE CHANNEL
PARK SITE
LOT A
LOT B
LOT C
LOT D
LOT E
LOT F
LOT G
LOT H
LOT I
LOT J
LOT K
LOT L
LOT M
LOT N
LOT O
LOT P
LOT Q
LOT R
LOT S
LOT T
LOT U
LOT V
LOT W
LOT X
LOT Y
LOT Z
LOT AA
LOT BB
LOT CC
LOT DD
LOT EE
LOT FF
LOT GG
LOT HH
LOT II
LOT JJ
LOT KK
LOT LL
LOT MM
LOT NN
LOT OO
LOT PP
LOT QQ
LOT RR
LOT SS
LOT TT
LOT UU
LOT VV
LOT WW
LOT XX
LOT YY
LOT ZZ
LOT AAA
LOT BBB
LOT CCC
LOT DDD
LOT EEE
LOT FFF
LOT GGG
LOT HHH
LOT III
LOT JJJ
LOT KKK
LOT LLL
LOT MMM
LOT NNN
LOT OOO
LOT PPP
LOT QQQ
LOT RRR
LOT SSS
LOT TTT
LOT UUU
LOT VVV
LOT WWW
LOT XXX
LOT YYY
LOT ZZZ
LOT AAAA
LOT BBBB
LOT CCCC
LOT DDDD
LOT EEEE
LOT FFFF
LOT GGGG
LOT HHHH
LOT IIII
LOT JJJJ
LOT KKKK
LOT LLLL
LOT MMMM
LOT NNNN
LOT OOOO
LOT PPPP
LOT QQQQ
LOT RRRR
LOT SSSS
LOT TTTT
LOT UUUU
LOT VVVV
LOT WWWW
LOT XXXX
LOT YYYY
LOT ZZZZ
LOT AAAAA
LOT BBBBB
LOT CCCCC
LOT DDDDD
LOT EEEEE
LOT FFFFF
LOT GGGGG
LOT HHHHH
LOT IIIII
LOT JJJJJ
LOT KKKKK
LOT LLLLL
LOT MMMMM
LOT NNNNN
LOT OOOOO
LOT PPPPP
LOT QQQQQ
LOT RRRRR
LOT SSSSS
LOT TTTTT
LOT UUUUU
LOT VVVVV
LOT WWWWW
LOT XXXXX
LOT YYYYY
LOT ZZZZZ
LOT AAAAAA
LOT BBBBBB
LOT CCCCCC
LOT DDDDDD
LOT EEEEEE
LOT FFFFFF
LOT GGGGGG
LOT HHHHHH
LOT IIIIII
LOT JJJJJJ
LOT KKKKKK
LOT LLLLLL
LOT MMMMMM
LOT NNNNNN
LOT OOOOOO
LOT PPPPPP
LOT QQQQQQ
LOT RRRRRR
LOT SSSSSS
LOT TTTTTT
LOT UUUUUU
LOT VVVVVV
LOT WWWWWW
LOT XXXXXX
LOT YYYYYY
LOT ZZZZZZ
LOT AAAAAAA
LOT BBBBBBB
LOT CCCCCCC
LOT DDDDDDD
LOT EEEEEEE
LOT FFFFFFF
LOT GGGGGGG
LOT HHHHHHH
LOT IIIIIIII
LOT JJJJJJJ
LOT KKKKKKK
LOT LLLLLLL
LOT MMMMMMM
LOT NNNNNNN
LOT OOOOOOO
LOT PPPPPPP
LOT QQQQQQQ
LOT RRRRRRR
LOT SSSSSSS
LOT TTTTTTT
LOT UUUUUUU
LOT VVVVVVV
LOT WWWWWWW
LOT XXXXXXX
LOT YYYYYYY
LOT ZZZZZZZ
LOT AAAAAAAA
LOT BBBBBBBB
LOT CCCCCCCC
LOT DDDDDDDD
LOT EEEEEEEE
LOT FFFFFFFF
LOT GGGGGGGG
LOT HHHHHHHH
LOT IIIIIIIII
LOT JJJJJJJJ
LOT KKKKKKKK
LOT LLLLLLLL
LOT MMMMMMMM
LOT NNNNNNNN
LOT OOOOOOOO
LOT PPPPPPPP
LOT QQQQQQQQ
LOT RRRRRRRR
LOT SSSSSSSS
LOT TTTTTTTT
LOT UUUUUUUU
LOT VVVVVVVV
LOT WWWWWWWW
LOT XXXXXXXX
LOT YYYYYYYY
LOT ZZZZZZZZ
LOT AAAAAAAAA
LOT BBBBBBBBB
LOT CCCCCCCCC
LOT DDDDDDDDD
LOT EEEEEEEEE
LOT FFFFFFFFF
LOT GGGGGGGGG
LOT HHHHHHHHH
LOT IIIIIIIIII
LOT JJJJJJJJJ
LOT KKKKKKKKK
LOT LLLLLLLLL
LOT MMMMMMMMM
LOT NNNNNNNNN
LOT OOOOOOOOO
LOT PPPPPPPPP
LOT QQQQQQQQQ
LOT RRRRRRRRR
LOT SSSSSSSSS
LOT TTTTTTTTT
LOT UUUUUUUUU
LOT VVVVVVVVV
LOT WWWWWWWWW
LOT XXXXXXXXX
LOT YYYYYYYYY
LOT ZZZZZZZZZ
LOT AAAAAAAAAA
LOT BBBBBBBBBB
LOT CCCCCCCCCC
LOT DDDDDDDDDD
LOT EEEEEEEEEE
LOT FFFFFFFFFF
LOT GGGGGGGGGG
LOT HHHHHHHHHH
LOT IIIIIIIIIII
LOT JJJJJJJJJJ
LOT KKKKKKKKKK
LOT LLLLLLLLLL
LOT MMMMMMMMMM
LOT NNNNNNNNNN
LOT OOOOOOOOOO
LOT PPPPPPPPPP
LOT QQQQQQQQQQ
LOT RRRRRRRRRR
LOT SSSSSSSSSS
LOT TTTTTTTTTT
LOT UUUUUUUUUU
LOT VVVVVVVVVV
LOT WWWWWWWWWW
LOT XXXXXXXXXX
LOT YYYYYYYYYY
LOT ZZZZZZZZZZ
LOT AAAAAAAAAAA
LOT BBBBBBBBBBB
LOT CCCCCCCCCCC
LOT DDDDDDDDDDD
LOT EEEEEEEEEEE
LOT FFFFFFFFFFF
LOT GGGGGGGGGGG
LOT HHHHHHHHHHH
LOT IIIIIIIIIIII
LOT JJJJJJJJJJJ
LOT KKKKKKKKKKK
LOT LLLLLLLLLLL
LOT MMMMMMMMMMM
LOT NNNNNNNNNNN
LOT OOOOOOOOOOO
LOT PPPPPPPPPPP
LOT QQQQQQQQQQQ
LOT RRRRRRRRRRR
LOT SSSSSSSSSSS
LOT TTTTTTTTTTT
LOT UUUUUUUUUUU
LOT VVVVVVVVVVV
LOT WWWWWWWWWWW
LOT XXXXXXXXXXX
LOT YYYYYYYYYYY
LOT ZZZZZZZZZZZ
LOT AAAAAAAAAAAA
LOT BBBBBBBBBBBB
LOT CCCCCCCCCCCC
LOT DDDDDDDDDDDD
LOT EEEEEEEEEEEE
LOT FFFFFFFFFFFF
LOT GGGGGGGGGGGG
LOT HHHHHHHHHHHH
LOT IIIIIIIIIIIII
LOT JJJJJJJJJJJJ
LOT KKKKKKKKKKKK
LOT LLLLLLLLLLLL
LOT MMMMMMMMMMMM
LOT NNNNNNNNNNNN
LOT OOOOOOOOOOOO
LOT PPPPPPPPPPPP
LOT QQQQQQQQQQQQ
LOT RRRRRRRRRRRR
LOT SSSSSSSSSSSS
LOT TTTTTTTTTTTT
LOT UUUUUUUUUUUU
LOT VVVVVVVVVVVV
LOT WWWWWWWWWWWW
LOT XXXXXXXXXXXX
LOT YYYYYYYYYYYY
LOT ZZZZZZZZZZZZ
LOT AAAAAAAAAAAAA
LOT BBBBBBBBBBBBB
LOT CCCCCCCCCCCCC
LOT DDDDDDDDDDDDD
LOT EEEEEEEEEEEEE
LOT FFFFFFFFFFFFF
LOT GGGGGGGGGGGGG
LOT HHHHHHHHHHHHH
LOT IIIIIIIIIIIIII
LOT JJJJJJJJJJJJJ
LOT KKKKKKKKKKKKK
LOT LLLLLLLLLLLLL
LOT MMMMMMMMMMMMM
LOT NNNNNNNNNNNNN
LOT OOOOOOOOOOOOO
LOT PPPPPPPPPPPPP
LOT QQQQQQQQQQQQQ
LOT RRRRRRRRRRRRR
LOT SSSSSSSSSSSSS
LOT TTTTTTTTTTTTT
LOT UUUUUUUUUUUUU
LOT VVVVVVVVVVVVV
LOT WWWWWWWWWWWWW
LOT XXXXXXXXXXXXX
LOT YYYYYYYYYYYYY
LOT ZZZZZZZZZZZZZ
LOT AAAAAAAAAAAAAA
LOT BBBBBBBBBBBBBB
LOT CCCCCCCCCCCCCC
LOT DDDDDDDDDDDDDD
LOT EEEEEEEEEEEEEE
LOT FFFFFFFFFFFFFF
LOT GGGGGGGGGGGGGG
LOT HHHHHHHHHHHHHH
LOT IIIIIIIIIIIIIIII
LOT JJJJJJJJJJJJJJ
LOT KKKKKKKKKKKKKK
LOT LLLLLLLLLLLLLL
LOT MMMMMMMMMMMMMM
LOT NNNNNNNNNNNNNN
LOT OOOOOOOOOOOOOO
LOT PPPPPPPPPPPPPP
LOT QQQQQQQQQQQQQQ
LOT RRRRRRRRRRRRRR
LOT SSSSSSSSSSSSSS
LOT TTTTTTTTTTTTTT
LOT UUUUUUUUUUUUUU
LOT VVVVVVVVVVVVVV
LOT WWWWWWWWWWWWWW
LOT XXXXXXXXXXXXXX
LOT YYYYYYYYYYYYYY
LOT ZZZZZZZZZZZZZZ
LOT AAAAAAAAAAAAAAA
LOT BBBBBBBBBBBBBBB
LOT CCCCCCCCCCCCCCC
LOT DDDDDDDDDDDDDDD
LOT EEEEEEEEEEEEEEE
LOT FFFFFFFFFFFFFFF
LOT GGGGGGGGGGGGGGG
LOT HHHHHHHHHHHHHHH
LOT IIIIIIIIIIIIIIIII
LOT JJJJJJJJJJJJJJJ
LOT KKKKKKKKKKKKKKK
LOT LLLLLLLLLLLLLLL
LOT MMMMMMMMMMMMMMM
LOT NNNNNNNNNNNNNNN
LOT OOOOOOOOOOOOOOO
LOT PPPPPPPPPPPPPPP
LOT QQQQQQQQQQQQQQQ
LOT RRRRRRRRRRRRRRR
LOT SSSSSSSSSSSSSSS
LOT TTTTTTTTTTTTTTT
LOT UUUUUUUUUUUUUUU
LOT VVVVVVVVVVVVVVV
LOT WWWWWWWWWWWWWWW
LOT XXXXXXXXXXXXXXX
LOT YYYYYYYYYYYYYYY
LOT ZZZZZZZZZZZZZZZ
LOT AAAAAAAAAAAAAAAA
LOT BBBBBBBBBBBBBBBB
LOT CCCCCCCCCCCCCCCC
LOT DDDDDDDDDDDDDDDD
LOT EEEEEEEEEEEEEEEE
LOT FFFFFFFFFFFFFFFF
LOT GGGGGGGGGGGGGGGG
LOT HHHHHHHHHHHHHHHH
LOT IIIIIIIIIIIIIIIIII
LOT JJJJJJJJJJJJJJJJ
LOT KKKKKKKKKKKKKKKK
LOT LLLLLLLLLLLLLLLL
LOT MMMMMMMMMMMMMMMM
LOT NNNNNNNNNNNNNNNN
LOT OOOOOOOOOOOOOOOO
LOT PPPPPPPPPPPPPPPP
LOT QQQQQQQQQQQQQQQQ
LOT RRRRRRRRRRRRRRRR
LOT SSSSSSSSSSSSSSSS
LOT TTTTTTTTTTTTTTTT
LOT UUUUUUUUUUUUUUUU
LOT VVVVVVVVVVVVVVVV
LOT WWWWWWWWWWWWWWWW
LOT XXXXXXXXXXXXXXXX
LOT YYYYYYYYYYYYYYYY
LOT ZZZZZZZZZZZZZZZZ
LOT AAAAAAAAAAAAAAAAA
LOT BBBBBBBBBBBBBBBBB
LOT CCCCCCCCCCCCCCCCC
LOT DDDDDDDDDDDDDDDDD
LOT EEEEEEEEEEEEEEEEE
LOT FFFFFFFFFFFFFFFFF
LOT GGGGGGGGGGGGGGGGG
LOT HHHHHHHHHHHHHHHHH
LOT IIIIIIIIIIIIIIIIIII
LOT JJJJJJJJJJJJJJJJJ
LOT KKKKKKKKKKKKKKKKK
LOT LLLLLLLLLLLLLLLLL
LOT MMMMMMMMMMMMMMMMM
LOT NNNNNNNNNNNNNNNNN
LOT OOOOOOOOOOOOOOOOO
LOT PPPPPPPPPPPPPPPPP
LOT QQQQQQQQQQQQQQQQQ
LOT RRRRRRRRRRRRRRRRR
LOT SSSSSSSSSSSSSSSSS
LOT TTTTTTTTTTTTTTTTT
LOT UUUUUUUUUUUUUUUUU
LOT VVVVVVVVVVVVVVVVV
LOT WWWWWWWWWWWWWWWWW
LOT XXXXXXXXXXXXXXXXX
LOT YYYYYYYYYYYYYYYYY
LOT ZZZZZZZZZZZZZZZZZ
LOT AAAAAAAAAAAAAAAAAA
LOT BBBBBBBBBBBBBBBBBB
LOT CCCCCCCCCCCCCCCCCC
LOT DDDDDDDDDDDDDDDDDD
LOT EEEEEEEEEEEEEEEEEE
LOT FFFFFFFFFFFFFFFFFF
LOT GGGGGGGGGGGGGGGGGG
LOT HHHHHHHHHHHHHHHHHH
LOT IIIIIIIIIIIIIIIIIIII
LOT JJJJJJJJJJJJJJJJJJ
LOT KKKKKKKKKKKKKKKKKK
LOT LLLLLLLLLLLLLLLLLL
LOT MMMMMMMMMMMMMMMMMM
LOT NNNNNNNNNNNNNNNNNN
LOT OOOOOOOOOOOOOOOOOO
LOT PPPPPPPPPPPPPPPPPP
LOT QQQQQQQQQQQQQQQQQQ
LOT RRRRRRRRRRRRRRRRRR
LOT SSSSSSSSSSSSSSSSSS
LOT TTTTTTTTTTTTTTTTTT
LOT UUUUUUUUUUUUUUUUUU
LOT VVVVVVVVVVVVVVVVVV
LOT WWWWWWWWWWWWWWWWWW
LOT XXXXXXXXXXXXXXXXXX
LOT YYYYYYYYYYYYYYYYYY
LOT ZZZZZZZZZZZZZZZZZZ
LOT AAAAAAAAAAAAAAAAAAA
LOT BBBBBBBBBBBBBBBBBBB
LOT CCCCCCCCCCCCCCCCCCC
LOT DDDDDDDDDDDDDDDDDDD
LOT EEEEEEEEEEEEEEEEEEE
LOT FFFFFFFFFFFFFFFFFFF
LOT GGGGGGGGGGGGGGGGGGG
LOT HHHHHHHHHHHHHHHHHHH
LOT IIIIIIIIIIIIIIIIIIIII
LOT JJJJJJJJJJJJJJJJJJJ
LOT KKKKKKKKKKKKKKKKKKK
LOT LLLLLLLLLLLLLLLLLLL
LOT MMMMMMMMMMMMMMMMMMM
LOT NNNNNNNNNNNNNNNNNNN
LOT OOOOOOOOOOOOOOOOOOO
LOT PPPPPPPPPPPPPPPPPPP
LOT QQQQQQQQQQQQQQQQQQQ
LOT RRRRRRRRRRRRRRRRRRR
LOT SSSSSSSSSSSSSSSSSSS
LOT TTTTTTTTTTTTTTTTTTT
LOT UUUUUUUUUUUUUUUUUUU
LOT VVVVVVVVVVVVVVVVVVV
LOT WWWWWWWWWWWWWWWWWWW
LOT XXXXXXXXXXXXXXXXXXX
LOT YYYYYYYYYYYYYYYYYYY
LOT Z

SRCSD SERVICE AREA



LEGEND

- SRCSD Service Area
- City Boundaries
- Rivers
- Sacramento Regional Wastewater Treatment Plant
- Highways
- Main Roads

Exhibit G

SASD SERVICE AREA

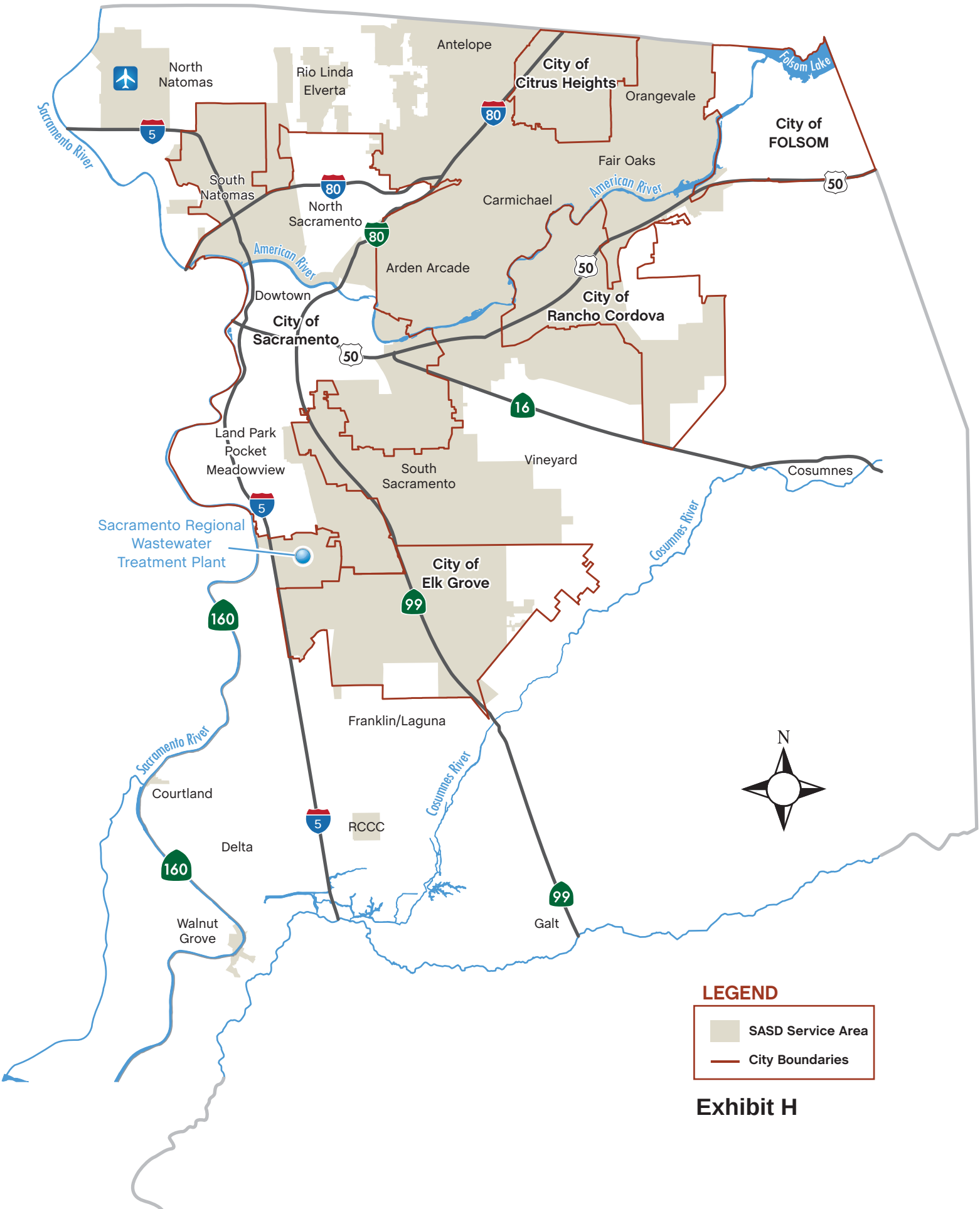


Exhibit H

AJ SUNRISE DOUGLAS TRUNK SHED

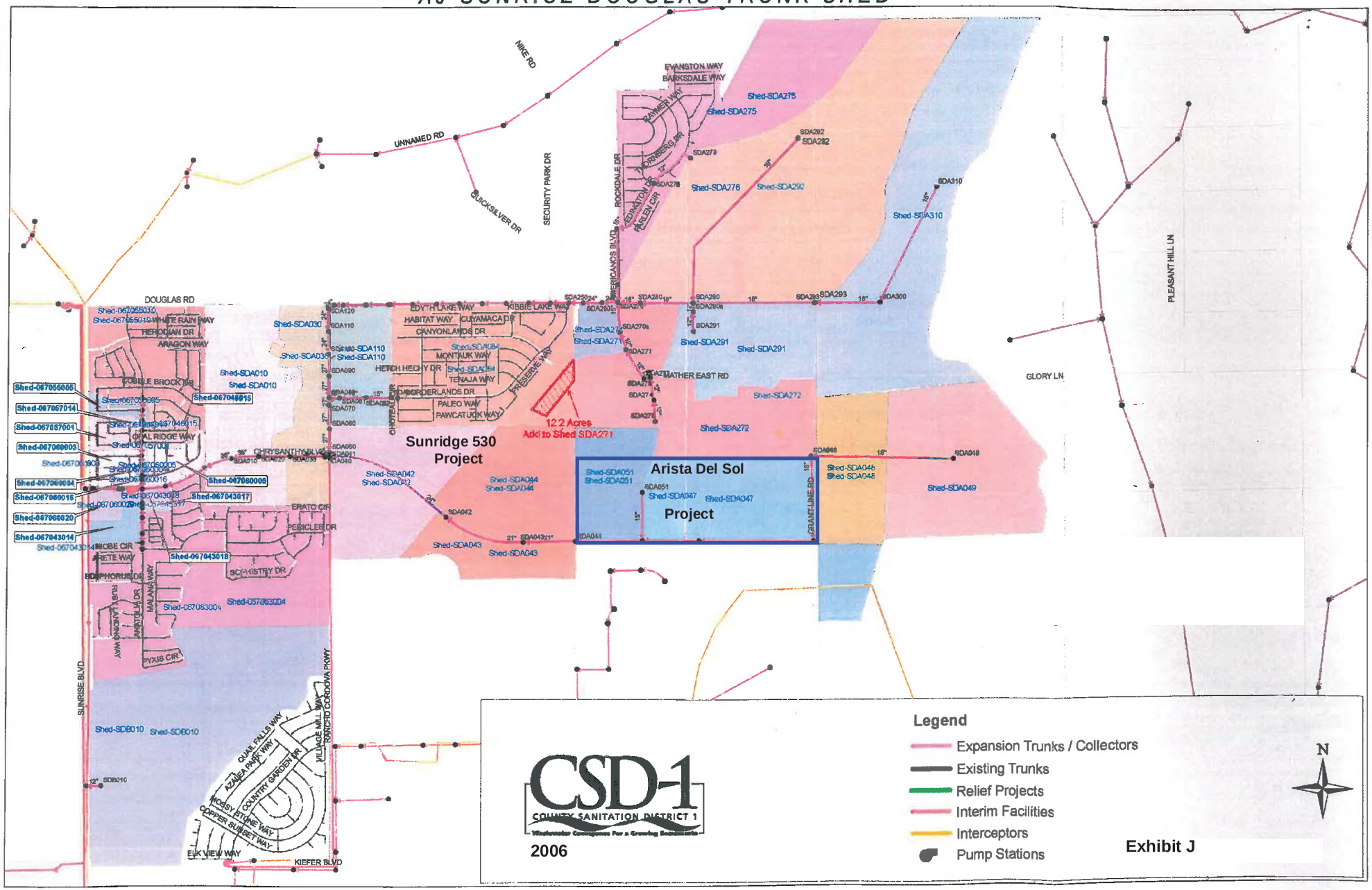
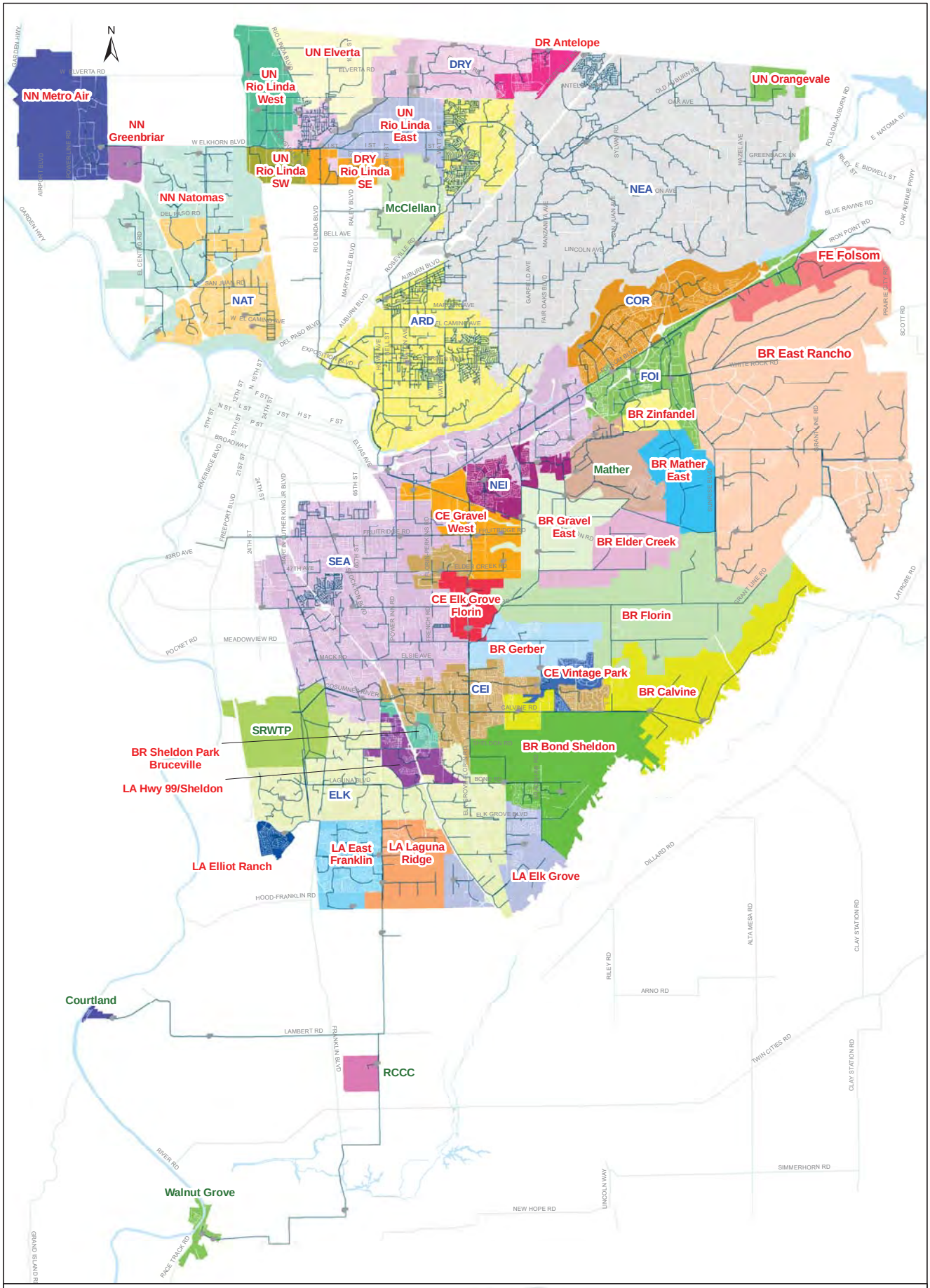


Exhibit J



Legend

Blue Label: Relief Area Shed

Red Label: Expansion Area Shed

Green Label: To be Determined

SACRAMENTO AREA SEWER DISTRICT

2010 SASD SYSTEM CAPACITY PLAN

Trunk Sheds Map

FIGURE 6-1

Date last revised: 9/6/2011

SASD 2010 SYSTEM CAPACITY PLAN EXPANSION TRUNK SHEDS

BR EAST RANCHO TRUNK SHED – *2015 AMENDMENT*

Introduction

This amendment summarizes the new BR East Rancho near-term and buildout expansion trunk shed plans. Due to recent development activity, SASD has proceeded with an update to the BR East Rancho Expansion Trunk Shed Plan, ahead of the scheduled 2020 System Capacity Plan (SCP) update.

The information in the 2010 SCP BR East Rancho Expansion Trunk Shed Plan was used as a starting reference for this 2015 update. The latest approved sewer study information was included in the update, along with the most recent land use information from the City of Rancho Cordova and Sacramento County. Significant changes to the 2010 SCP were made in areas that were previously planned to be served by future interceptors.

Area Description

The BR East Rancho Trunk Shed encompasses a large area located in the eastern part of Sacramento County, south of Folsom Boulevard. The western half of the shed lies in the City of Rancho Cordova, east of Sunrise Boulevard. The shed extends east to the Urban Services Boundary. The southern boundary includes Grant Line Road and the Urban Services Boundary.

Trunk System Facilities

The BR East Rancho **buildout** expansion trunks are planned to drain to either of two locations which are referred to as Location #1 Outfall and Location #2 Outfall. Location #1 Outfall is located at the S132 Chrysanthy Pump Station (PS), and it will serve the developments in the southern portion of the BR East Rancho shed. Location #2 Outfall is located adjacent to White Rock Road, approximately one-half mile east of Sunrise Boulevard, and it will serve the developments in the northern portion of the BR East Rancho shed. Flows at the two outfall locations are planned to be conveyed by future Regional interceptor facilities.

For the **near-term** conditions, initial flows from the developments in the northern portion of BR East Rancho (Rio Del Oro and Westborough) will drain to the S070 Sunrise White Rock PS system on the interim basis. Ultimately these developments will discharge to Location #2 Outfall. Flows from the developments in the southern portion of BR East Rancho (Anatolia, Arista Del Sol, Cordova Hills, Montelena, North Douglas, Sunridge Lot J, Sunridge Park, and SunCreek) will be conveyed to the S132 Chrysanthy PS.

The BR East Rancho Trunk Shed near-term expansion trunk facilities will be presented first, followed by the buildout summary. The planning trunk facilities are summarized for each of the development areas. The development areas are defined by the sewer studies names, and the areas without sewer studies have been given a name in most cases.

Please refer to the **BR East Rancho Planned Development Areas** map (**Figure A.3-1)** when reviewing the trunk shed plan descriptions below.

A. BR East Rancho Near-Term Expansion Trunk Facilities (Figure A.3-2)

Anatolia, Montelena, Sunridge Lot J, Sunridge Park, and North Douglas – These sheds discharge to the existing trunk system. Their flows are conveyed to S132 PS.

Arista Del Sol – The shed is served by an interim PS. The interim force main will convey flow northward and connect to the existing Douglas Trunk.

Cordova Hills – Phase 1 development will be served by a new permanent PS. Its force main will convey flow northward and connect to the existing Douglas Trunk on an interim basis. The upstream portion of the force main between the PS wet well and Chrysanthy Boulevard will be permanent. The downstream portion of the force main from Chrysanthy Boulevard to the existing Douglas Trunk will be interim until the permanent force main is extended west along Chrysanthy Boulevard and discharges to the Location #1 Outfall.

SunCreek – The Phase 1 development will be served by a new permanent PS. Its force main will convey flow northward and connect to the existing Aerojet Interceptor 1 on Chrysanthy Boulevard.

Rio Del Oro – The Phase 1 development will discharge to existing collectors on White Rock Road, and its flow will be conveyed to S070.

Westborough – The Phase 1 development will be served by an interim pump station. The interim force main will convey flow west along White Rock Road and discharge into the existing 10-inch S070 force main.

B. BR East Rancho Buildout Expansion Trunk Facilities (Figure A.3-3)

Aerojet Lands – This area currently does not have an approved sewer study. The proposed sewer system of the northern portion of this area has been redirected to drain to the Folsom East Interceptor; therefore, it is no longer a part of the BR East Rancho Trunk Shed. The southern portion of the Aerojet Lands area is planned to be served by a trunk that discharges to the Location #2 Outfall.

Anatolia – The trunk system that serves this area has been constructed, and no new trunks are required.

Arboretum – This area is planned to be served by a pump station and two trunk branches. The pump station will be located near the intersection of Jackson Highway and Sunrise Boulevard. The force main will convey flow to the north along Sunrise Boulevard and discharge to the Location #1 Outfall.

Arista Del Sol – Arista Del Sol is planned to be served by a trunk that will be constructed across The Ranch development. The connection point to this future trunk is located in the southwest corner of the development, near the shared boundary with The Ranch development.

Cordova Hills – Cordova Hills will be served by two trunk pump stations situated near each other in the southwest portion of the development. The north pump station will have two contributing trunks while the south pump station will have one contributing trunk. The south pump station will also serve significant areas that lie outside of the Cordova Hills development, known as South Cordova Hills. The pump station force mains convey flow northward to Chrysanthy Boulevard where they follow the right of way west and discharge to the Location #1 Outfall.

Douglas 98 – This area will drain to a future trunk extension of the existing Douglas Trunk.

Douglas 103 – This area requires no additional trunk facilities. Local collectors will discharge to the existing Douglas Trunk.

Grantline 208 – This area requires no additional trunk facilities. Local collectors will discharge to the existing Douglas Trunk.

Montelena – The trunk system that serves this development has been constructed. No additional trunk facilities are required.

North Cordova Hills – North Cordova Hills and the area located to the west currently have no sewer studies. The North Cordova Hills area is proposed to be served by two trunk pump stations located on Glory Lane. Both pump stations' force mains convey flow west along Glory Lane and Douglas Road to the Location #1 Outfall. Each pump station is served by a primary trunk and its minor trunk branches. The area to the immediate west of North Cordova Hills will be served by a trunk that discharges to the extension of the existing Douglas Trunk. The area to the northwest of North Cordova Hills and east of Rio Del Oro will be served by a trunk system that conveys flow to the west along White Rock Road and drains to the Location #2 Outfall.

North Douglas – The sewer system that serves this area has been constructed, and no new trunks are required.

Rio Del Oro – Rio Del Oro will be served by several trunks and a pump station. The proposed pump station located in the southwest corner of the development will serve the southern portion of the development. The pump station force main conveys flow south, adjacent to Sunrise Boulevard, to the Location #1 Outfall. The trunks serving the northern portion of Rio Del Oro will drain to the Location #2 Outfall.

South Cordova Hills – This area is located south of the Cordova Hills development, and it does not have a sewer study. This area is planned to be served by one of the Cordova Hills pump stations.

SunCreek – SunCreek will be served by two trunk pump stations. One proposed pump station is located approximately in the center of the development and will capture flow from the northern portions of the shed area via two trunks. Its force main will convey flow to the north along Rancho Cordova Parkway and discharge to the existing Aerojet Interceptor 1B located in Chrysanthy Boulevard. The second proposed pump station is located in the southwest corner of the development, and it serves the remainder of the shed. This pump station will also provide service to the Anatolia 3 development, which currently is draining to an interim pump station. The ultimate buildout force main of the second proposed pump station will convey flow to the north, along Sunrise Boulevard, and discharge to the Location #1 Outfall.

Sunridge Lot J – The trunk system that serves this development has been constructed. No additional trunk facilities are required.

Sunridge Park – The trunk system that serves this development has been constructed. No additional trunk facilities are required.

The Ranch – The Ranch development is planned to be served by a future trunk that connects to the Aerojet Interceptor 1B located in Chrysanthy Boulevard.

Westborough – The Westborough development will be served by a trunk that discharges to the Location #2 Outfall.

Attribute data and model results for the BR East Rancho **buildout** expansion trunks are presented in the table below. The BR East Rancho Trunk Shed is subdivided into five smaller sub areas as shown in **Figure A.3-4**. **Figures A.3-5** through **A.3-9** display the details of each sub area which include the proposed trunk sewers, modeled manholes, and the contributing area to each manhole.

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
2879-EN02	2879-EN01	Pump									6.7		
2207-EN03	2207-EN02	Gravity Main	15	475	139.0	117.4	138.0	108.9	1.800	5.6	0.9	16	0.8
2123-EN01	2207-EN02	Gravity Main	21	1965	140.5	111.7	138.0	108.9	0.140	3.9	1.0	25	0.5
2207-EN01	2291-EN01	Gravity Main	24	1285	139.0	107.9	134.5	106.1	0.140	5.5	2.6	47	0.5
2207-EN02	2207-EN01	Gravity Main	24	805	138.0	108.9	139.0	107.9	0.120	5.1	2.2	44	0.5
2291-EN01	2375-EN01	Gravity Main	27	2380	134.5	106.1	139.5	103.2	0.120	7.0	3.0	43	0.5
2375-EN01	2376-EN05	Gravity Main	27	740	139.5	103.2	136.5	102.3	0.120	7.0	3.7	53	0.5
2376-EN05	2376-EN03	Gravity Main	27	585	136.5	102.3	134.0	101.4	0.160	8.1	3.9	48	0.6
2376-EN01	2460-EN01	Gravity Main	30	935	130.5	99.9	128.5	98.7	0.120	9.2	4.9	53	0.5
2376-EN02	2376-EN01	Gravity Main	30	795	132.5	100.8	130.5	99.9	0.120	9.2	4.7	51	0.5
2376-EN03	2376-EN02	Gravity Main	30	455	134.0	101.4	132.5	100.8	0.120	9.2	4.6	50	0.5
2460-EN01	2460-EN02	Gravity Main	30	185	128.5	98.7	124.0	98.5	0.120	9.4	5.1	54	0.5
2460-EN02	2460-INT01	Gravity Main	30	311	124.0	98.5	124.7	98.2	0.100	8.4	5.1	60	0.5
2285-EN02	2285-EN01	Gravity Main	10	2269	275.6	261.0	258.0	240.0	0.920	1.4	1.3	93	0.8
2288-EN01	2373-EN01	Gravity Main	15	3313	194.7	173.1	191.1	167.1	0.180	1.8	1.1	62	0.6
2285-EN01	2286-EN01	Gravity Main	15	2961	258.0	233.2	229.7	212.0	0.720	3.5	2.3	64	0.8
2286-EN01	2287-EN01	Gravity Main	15	2884	229.7	212.0	201.7	186.3	0.890	4.0	3.5	89	0.7
2375-EN03	2375-EN02	Gravity Main	18	687	170.6	151.3	138.0	125.6	3.740	13.2	8.5	64	0.6
2287-EN01	2372-EN01	Gravity Main	27	2704	201.7	185.3	193.4	182.6	0.100	6.3	4.7	74	0.6
2372-EN01	2373-EN01	Gravity Main	27	2661	193.4	172.2	191.1	169.6	0.100	6.3	5.3	83	0.7
2375-EN02	2460-INT01	Gravity Main	27	2935	138.0	124.8	124.7	118.0	0.230	9.7	8.7	90	0.8
2373-EN01	2374-EN01	Gravity Main	30	2653	191.1	157.2	180.9	154.5	0.100	8.4	7.4	88	0.8
2374-EN01	2375-EN03	Gravity Main	30	3264	180.9	154.5	170.6	151.3	0.100	8.4	8.1	97	0.8
2452-EN01	2453-EN02	Gravity Main	10	1334	280.0	267.9	273.1	256.8	0.830	1.3	1.0	79	0.7
2453-EN01	2454-EN02	Gravity Main	12	2208	267.1	253.8	232.0	217.8	1.630	2.9	2.1	72	0.7
2537-EN01	2454-EN02	Gravity Main	12	2398	259.9	241.1	232.0	225.0	0.670	1.9	1.7	89	0.7
2453-EN02	2453-EN01	Gravity Main	15	1476	273.1	256.4	267.1	253.8	0.180	1.8	1.5	86	0.7
2537-EN02	2537-EN01	Gravity Main	15	1439	266.0	245.3	259.9	241.1	0.300	2.3	1.4	61	0.6
2454-EN01	2455-EN01	Gravity Main	18	2610	253.3	210.0	204.1	191.9	0.690	5.7	5.0	89	0.7
2454-EN02	2454-EN01	Gravity Main	18	1590	232.0	217.0	253.3	210.0	0.440	4.5	4.5	99	0.9
2623-EN01	2539-EN01	Gravity Main	10	2308	218.0	212.0	192.0	187.4	1.070	1.5	1.0	70	0.6
2539-EN01	2455-EN01	Gravity Main	15	2336	192.0	187.0	204.1	182.8	0.180	1.8	1.4	81	0.7
2374-EN02	2459-EN01	Gravity Main	21	2964	180.9	162.4	142.6	129.9	1.100	10.7	7.3	68	0.6
2459-EN01	2460-INT01	Gravity Main	24	3146	142.6	129.7	124.7	115.0	0.470	10.0	7.3	73	0.6
2371-EN01	2371-EN02	Gravity Main	30	638	240.0	179.8	191.4	179.2	0.100	8.4	7.4	88	0.7
2372-EN02	2373-EN02	Gravity Main	30	2751	190.1	168.0	180.2	165.3	0.100	8.4	7.4	88	0.7
2373-EN02	2374-EN02	Gravity Main	30	2825	180.2	165.3	180.9	162.4	0.100	8.4	7.3	87	0.7
2371-EN02	2372-EN02	Gravity Main	30	2683	191.4	179.2	190.1	176.5	0.100	8.4	7.4	88	0.7
2455-EN01	2371-EN01	Gravity Main	30	1719	204.1	181.5	240.0	179.8	0.100	8.4	6.9	83	0.8
2618-EN02	2618-EN01	Gravity Main	12	1316	222.1	204.5	202.0	193.0	0.870	2.2	1.2	54	0.5
2618-EN03	2618-EN02	Gravity Main	12	476	227.7	208.6	222.1	204.5	0.870	2.2	1.2	54	0.5
2618-EN01	2702-EN01	Gravity Main	18	1362	202.0	187.0	198.0	183.5	0.260	3.5	3.1	88	0.8
2786-EN01	2870-EN01	Gravity Main	18	2264	208.9	178.5	180.4	169.9	0.380	4.2	3.7	87	0.7
2702-EN01	2786-EN01	Gravity Main	18	1303	198.0	183.5	208.9	178.5	0.380	4.2	3.7	87	0.7
2870-EN01	2954-EN02	Gravity Main	21	2418	180.4	160.0	192.3	152.0	0.330	5.9	4.6	78	0.7
2954-EN02	2954-EN03	Gravity Main	24	535	192.3	152.0	158.0	150.4	0.310	8.1	5.4	66	0.6
2618-EN05	2618-EN04	Gravity Main	12	1437	224.3	213.0	206.0	193.0	1.390	2.7	1.0	36	0.4
2619-EN01	2618-EN05	Gravity Main	12	2104	254.4	240.8	224.3	213.0	1.320	2.7	1.0	37	0.4
2618-EN04	2618-EN01	Gravity Main	15	1300	206.0	192.6	202.0	187.2	0.410	2.7	1.7	62	0.7
3460-EN05	3460-EN06	Pump									6.8		

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

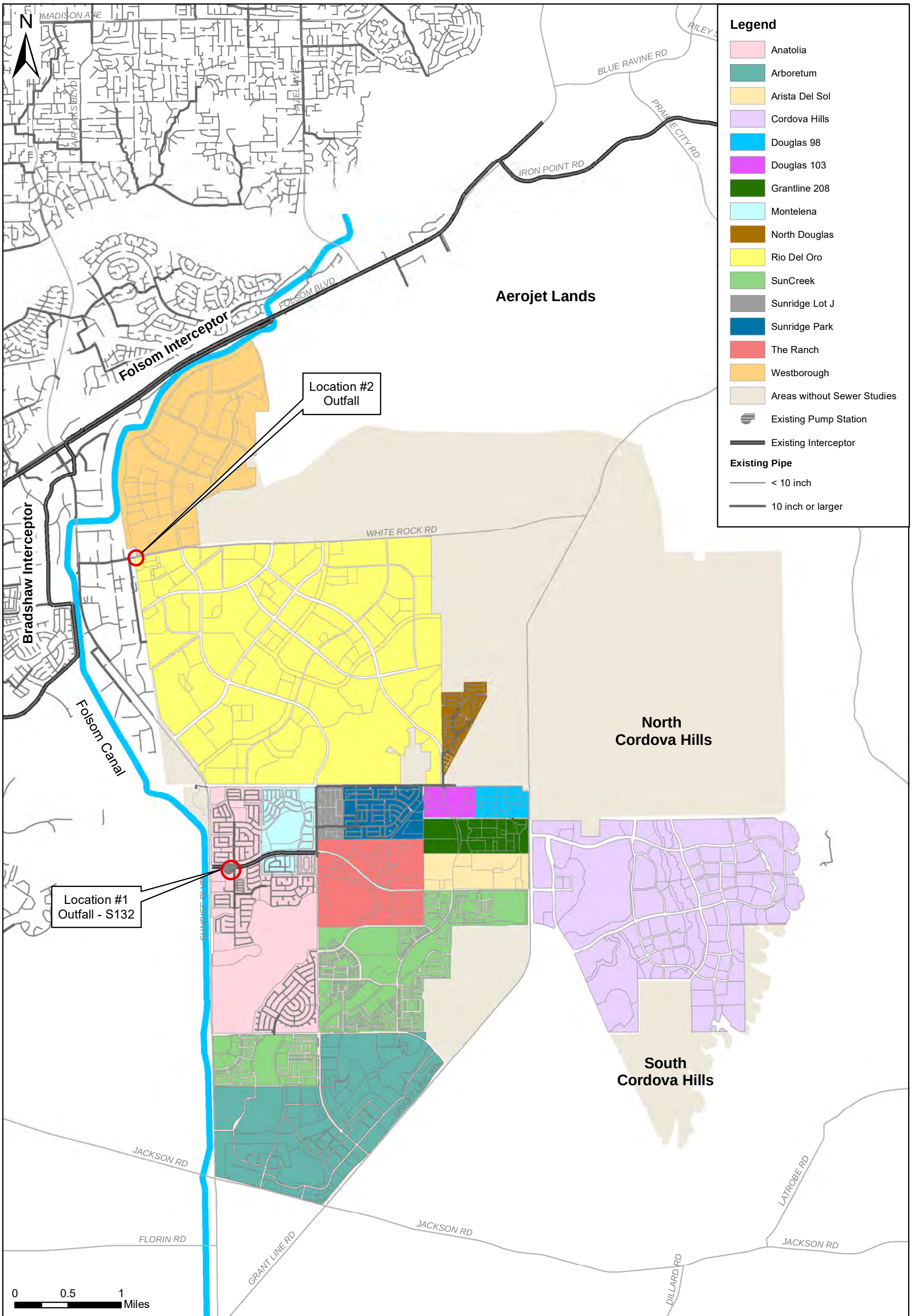
US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
2787-EN02	2787-EN01	Gravity Main	12	1391	224.3	207.0	211.8	200.0	0.500	1.6	1.3	80	0.7
2787-EN01	2872-EN02	Gravity Main	15	1142	211.8	200.0	203.3	190.0	0.880	3.9	1.7	44	0.7
2872-EN02	2872-EN01	Gravity Main	15	1347	203.3	190.0	193.9	180.7	0.690	3.5	2.4	68	0.6
2872-EN01	2956-EN01	Gravity Main	18	687	193.9	180.5	188.1	177.0	0.500	4.8	3.5	73	0.6
2956-EN01	2955-EN02	Gravity Main	27	1171	188.1	171.2	184.0	170.0	0.100	6.3	4.5	72	0.6
2789-EN01	2873-EN02	Gravity Main	15	1479	257.3	231.9	256.0	229.3	0.180	1.8	1.3	76	0.8
2873-EN02	2873-EN01	Gravity Main	15	1263	256.0	229.3	248.0	227.0	0.180	1.8	1.6	90	0.7
2874-EN01	2874-EN02	Gravity Main	18	3042	247.8	220.2	215.4	191.0	0.960	6.7	2.4	37	0.6
2874-EN02	2875-EN02	Gravity Main	18	339	215.4	191.0	210.7	189.2	0.510	4.9	3.1	63	0.6
2875-EN01	326-227-1011	Gravity Main	18	349	208.6	187.5	206.3	185.3	0.630	5.4	3.1	57	0.7
2875-EN02	2875-EN01	Gravity Main	18	311	210.7	189.2	208.6	187.6	0.520	4.9	3.1	62	0.6
2873-EN01	2874-EN01	Gravity Main	21	202	248.0	220.5	247.8	220.2	0.120	3.6	2.4	69	0.6
2708-EN01	2709-EN02	Gravity Main	12	1480	198.3	171.4	172.0	162.0	0.630	1.8	1.2	64	0.6
2709-EN01	2710-EN01	Gravity Main	18	1402	173.7	150.0	164.1	147.4	0.190	2.9	2.2	75	0.9
2709-EN02	2709-EN01	Gravity Main	18	2589	172.0	156.5	173.7	150.3	0.240	3.3	1.8	53	0.5
2710-EN01	2794-EN01	Gravity Main	18	1820	164.1	147.7	150.0	142.3	0.300	3.7	2.9	79	0.7
2794-EN01	2795-EN03	Gravity Main	21	1945	150.0	142.0	152.0	139.7	0.120	3.6	3.2	90	0.7
2795-EN03	2879-EN03	Gravity Main	24	2195	152.0	136.1	146.0	133.7	0.110	4.9	3.8	78	0.7
2879-EN03	2879-EN02	Gravity Main	30	59	146.0	118.5	146.0	118.5	0.100	8.4	6.7	80	0.5
3460-EN03	3460-EN01	Pump									4.2		
2795-EN02	2795-EN01	Gravity Main	12	1788	164.8	128.4	148.0	122.7	0.320	1.3	1.1	86	0.7
2795-EN01	2879-EN03	Gravity Main	18	1904	148.0	122.2	146.0	119.5	0.140	2.5	1.8	70	0.6
2954-EN03	2954-EN01	Pump									5.4		
3205-EN01	3205-EN04	Gravity Main	15	625	155.0	125.9	147.0	124.5	0.230	2.0	1.4	70	0.7
3205-EN02	3205-EN01	Gravity Main	15	757	158.0	133.0	155.0	130.7	0.300	2.3	1.4	61	0.6
3290-EN01	3374-EN01	Gravity Main	15	1398	141.7	120.3	141.0	117.7	0.180	1.8	1.7	97	0.8
3290-EN02	3290-EN01	Gravity Main	15	566	151.6	121.3	141.7	120.3	0.180	1.8	1.7	93	0.8
3205-EN04	3206-EN02	Gravity Main	15	894	147.0	124.5	145.2	122.9	0.180	1.8	1.5	83	0.8
3206-EN02	3290-EN02	Gravity Main	15	892	145.2	122.9	151.6	121.3	0.180	1.8	1.7	93	0.8
3374-EN01	3458-EN01	Gravity Main	18	1743	141.0	117.5	142.1	114.8	0.150	2.7	1.8	68	0.7
3458-EN01	3459-EN03	Gravity Main	18	1743	142.1	114.8	136.0	112.4	0.140	2.5	1.9	74	0.6
3459-EN02	3543-EN01	Gravity Main	21	2126	138.0	110.9	142.7	108.3	0.120	3.6	2.9	81	0.8
3459-EN03	3459-EN02	Gravity Main	21	1051	136.0	112.1	138.0	110.9	0.120	3.6	2.6	72	0.7
3543-EN01	3627-EN01	Gravity Main	21	1861	142.7	108.3	132.1	106.1	0.120	3.6	3.2	90	0.7
3460-EN02	3460-EN03	Gravity Main	24	22	124.0	100.8	124.0	100.7	0.110	4.9	4.2	87	0.5
3627-EN01	3628-EN01	Gravity Main	24	1326	132.1	105.8	135.6	104.4	0.110	4.9	3.8	77	0.7
3628-EN01	3460-EN02	Gravity Main	24	3280	135.6	104.4	124.0	100.8	0.110	4.9	3.9	81	0.7
3123-EN04	3123-EN03	Gravity Main	12	735	185.0	177.6	187.0	175.2	0.330	1.3	0.9	70	0.6
3123-EN03	3207-EN07	Gravity Main	15	650	187.0	175.2	181.0	172.9	0.350	2.5	1.1	44	0.6
3207-EN06	3207-EN05	Gravity Main	15	784	182.0	170.0	177.0	167.5	0.320	2.4	1.5	62	0.6
3207-EN07	3207-EN06	Gravity Main	15	878	181.0	172.9	182.0	170.0	0.330	2.4	1.4	56	0.6
3291-EN05	3291-EN03	Gravity Main	18	567	164.4	154.4	166.5	153.6	0.140	2.6	2.1	81	0.8
3291-EN06	3291-EN07	Gravity Main	18	486	169.0	160.9	165.0	154.8	1.260	7.6	2.0	26	0.7
3291-EN07	3291-EN05	Gravity Main	18	291	165.0	154.8	164.4	154.4	0.140	2.5	2.0	80	0.7
3291-EN09	3291-EN06	Gravity Main	18	1182	172.0	165.0	169.0	160.9	0.350	4.0	1.9	48	0.5
3207-EN05	3291-EN09	Gravity Main	18	633	177.0	167.5	172.0	165.0	0.400	4.3	1.6	37	0.5
2955-EN02	2955-EN01	Pump									4.5		
3207-EN03	3207-EN02	Gravity Main	12	362	176.0	166.4	166.0	163.7	0.750	2.0	1.0	49	0.5
3207-EN01	3291-En04	Gravity Main	15	1385	170.1	159.6	173.8	156.2	0.250	2.1	1.1	53	0.6
3207-EN02	3207-EN01	Gravity Main	15	547	166.0	163.4	170.1	159.6	0.700	3.5	1.1	31	0.5

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
3291-EN04	3291-EN03	Gravity Main	18	936	173.8	156.2	166.5	153.6	0.280	3.6	1.7	48	0.8
3291-EN01	3376-EN03	Gravity Main	24	2503	161.8	148.0	148.0	134.0	0.560	11.0	4.1	37	0.4
3291-EN02	3291-EN01	Gravity Main	24	590	170.0	153.0	161.8	148.1	0.830	13.3	4.0	30	0.4
3376-EN01	3460-EN04	Gravity Main	24	180	142.0	124.2	132.0	120.9	1.840	19.8	4.5	23	0.6
3376-EN02	3376-EN01	Gravity Main	24	1123	138.0	129.0	142.0	124.3	0.420	9.5	4.5	48	0.5
3376-EN03	3376-EN02	Gravity Main	24	918	148.0	133.9	138.0	129.1	0.520	10.6	4.5	42	0.5
3291-EN03	3291-EN02	Gravity Main	24	386	166.5	153.6	170.0	153.0	0.160	5.8	3.9	67	0.6
3460-EN04	3460-EN05	Gravity Main	27	43	132.0	120.9	132.0	120.9	0.100	6.3	6.8	107	0.6
3293-EN01	3460-EN04	Gravity Main	10	4219	237.0	200.0	132.0	122.3	1.840	1.9	1.7	86	0.7
3209-EN01	3293-EN01	Gravity Main	12	899	237.0	206.9	237.0	200.0	0.770	2.0	1.4	69	0.6
3209-EN02	3209-EN01	Gravity Main	12	796	236.0	212.6	237.0	207.0	0.700	1.9	1.3	65	0.6
3209-EN03	3209-EN02	Gravity Main	12	957	238.0	217.4	236.0	212.7	0.490	1.6	0.9	55	0.5
3719-EN03	3719-EN02	Pump									3.7		
3213-EN01	3296-EN01	Gravity Main	15	859	169.0	154.5	162.5	153.0	0.180	1.8	1.0	58	0.6
3296-EN01	3296-EN02	Gravity Main	15	491	162.5	146.2	161.8	145.6	0.130	1.5	1.3	89	0.7
3211-EN01	3211-EN02	Gravity Main	15	373	181.0	168.6	180.0	168.0	0.160	1.7	0.9	54	0.5
3211-EN02	3212-EN03	Gravity Main	15	1287	180.0	168.0	173.4	165.7	0.180	1.8	0.9	50	0.5
3212-EN01	3213-EN01	Gravity Main	15	1694	172.0	161.7	169.0	158.6	0.180	1.8	1.0	55	0.5
3212-EN02	3212-EN01	Gravity Main	15	1024	170.8	163.6	172.0	161.7	0.180	1.8	1.0	53	0.5
3212-EN03	3212-EN02	Gravity Main	15	1142	173.4	165.7	170.8	163.6	0.180	1.8	0.9	52	0.5
3296-EN02	3296-EN10	Gravity Main	18	727	161.8	143.9	158.0	142.9	0.140	2.6	1.6	64	0.6
3296-EN10	3296-EN03	Gravity Main	24	62	158.0	142.4	158.0	142.3	0.110	4.9	4.4	91	0.5
3295-EN01	3296-EN07	Gravity Main	18	1591	172.0	155.9	162.1	153.7	0.140	2.5	2.0	78	0.7
3296-EN05	3296-EN10	Gravity Main	18	582	159.0	145.7	158.0	144.5	0.190	3.0	2.8	93	0.8
3296-EN06	3296-EN05	Gravity Main	18	719	164.0	148.0	159.0	147.0	0.140	2.5	2.0	78	0.7
3296-EN07	3296-EN06	Gravity Main	18	461	162.1	153.7	164.0	153.0	0.140	2.5	2.0	78	0.7
3551-EN02	3551-EN01	Pump									2.1		
3296-EN03	3296-EN04	Pump									4.4		
3466-EN01	3550-EN02	Gravity Main	18	2852	141.0	116.7	137.0	112.6	0.140	2.6	1.4	53	0.5
312-218-1016	3466-EN01	Gravity Main	18	809	132.0	117.8	141.0	116.7	0.140	2.5	1.4	54	0.5
3550-EN02	3551-EN02	Gravity Main	21	1998	137.0	110.6	131.0	107.7	0.140	3.9	2.1	53	0.5
3549-EN01	3550-EN01	Gravity Main	15	734	151.9	124.9	133.0	116.9	1.090	4.4	1.0	24	0.6
3550-EN01	3634-EN01	Gravity Main	15	724	133.0	116.9	142.2	115.6	0.180	1.8	1.1	63	0.6
3634-EN01	3718-EN04	Gravity Main	15	1967	142.2	115.6	128.1	112.1	0.180	1.8	1.2	67	0.6
3718-EN04	3718_EN03	Gravity Main	15	645	128.1	112.1	127.0	96.9	2.350	6.4	1.3	20	0.6
3718_EN03	3718-EN02	Gravity Main	18	341	127.0	96.6	127.0	96.2	0.140	2.5	1.9	76	0.6
3632-EN01	3717-EN04	Gravity Main	15	436	143.0	122.0	143.0	121.1	0.200	1.9	1.1	56	0.5
3717-EN04	3717-EN03	Gravity Main	15	1197	143.0	121.1	142.0	115.1	0.500	3.0	1.1	37	0.6
3717-EN02	3717-EN01	Gravity Main	18	1006	145.0	113.1	140.0	111.7	0.140	2.6	1.5	59	0.6
3717-EN03	3717-EN02	Gravity Main	18	1049	142.0	115.1	145.0	113.3	0.170	2.8	1.4	52	0.5
3717-EN01	3718-EN06	Gravity Main	18	669	140.0	111.7	140.0	110.5	0.170	2.8	1.6	55	0.6
3718-EN05	3718-EN02	Gravity Main	18	826	138.0	109.6	127.0	96.2	1.620	8.7	1.7	20	0.6
3718-EN06	3718-EN05	Gravity Main	18	865	140.0	110.5	138.0	109.6	0.110	2.3	1.6	69	0.6
3718-EN01	3719-EN01	Gravity Main	24	2006	129.9	94.9	118.0	93.1	0.090	4.4	3.7	86	0.7
3718-EN02	3718-EN01	Gravity Main	24	694	127.0	95.7	129.9	94.9	0.120	5.0	3.7	74	0.7
3719-EN01	3719-EN03	Gravity Main	24	35	118.0	93.1	122.0	92.8	0.780	12.9	3.7	29	0.4
3128-EN01	3045-EN01	Gravity Main	15	1136	189.2	154.8	184.0	152.8	0.180	1.8	1.5	82	0.7
3128-EN02	3128-EN01	Gravity Main	15	1303	193.4	157.2	189.2	154.8	0.180	1.8	1.5	82	0.7
3045-EN01	322-221-1009	Gravity Main	18	1715	184.0	152.5	179.7	150.1	0.140	2.5	1.8	70	0.6
2540-EN01	2541-EN02	Gravity Main	15	2147	175.2	159.4	172.0	155.6	0.180	1.8	1.2	69	0.6

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
2458-EN01	2543-EN01	Gravity Main	18	1431	179.6	148.0	164.6	139.3	0.610	5.3	4.0	76	0.7
2544-EN02	2544-EN01	Gravity Main	18	813	158.2	135.4	136.0	130.0	0.660	5.5	5.4	97	0.8
2541-EN01	2542-EN01	Gravity Main	21	1682	173.8	152.7	173.4	150.7	0.120	3.5	3.3	94	0.9
2541-EN02	2541-EN01	Gravity Main	21	1330	172.0	155.1	173.8	153.5	0.120	3.6	2.7	76	0.7
2542-EN01	2458-EN01	Gravity Main	21	2211	173.4	150.5	179.6	147.9	0.120	3.6	3.7	105	1.0
2460-EN03	2460-INT01	Gravity Main	27	299	124.0	110.1	124.7	109.8	0.100	6.3	5.7	90	0.6
2543-EN01	2544-EN02	Gravity Main	27	3236	164.6	138.6	158.2	135.4	0.100	6.3	5.0	79	0.7
2544-EN01	2460-EN03	Gravity Main	27	2373	136.0	112.4	124.0	110.1	0.100	6.3	5.7	90	0.7
2954-EN03	3131-EN01	Force Main	15	31664	158.0	151.0	168.0	160.0			5.4		1.0
2955-EN02	3131-EN01	Force Main	15	26476	182.4	169.0	168.0	160.0			4.5		1.0
3460-EN03	3131-EN01	Force Main	12	25920	124.0	98.4	168.0	160.0			4.2		1.0
3460-EN05	3131-EN01	Force Main	15	24480	138.0	120.9	168.0	160.0			6.8		1.0
3296-EN03	N47-MH0108A	Force Main	12	8567	158.0	142.6	177.4	167.0			4.4		1.0
2879-EN02	3131-EN01	Force Main	14	6004	146.0	118.0	168.0	160.0			6.7		1.0
3719-EN03	3131-EN01	Force Main	12	16654	116.2	92.8	168.0	160.0			3.7		1.0
3551-EN02	3131-EN01	Force Main	12	11852	131.0	107.7	168.0	160.0			2.1		1.0



SACRAMENTO AREA SEWER DISTRICT

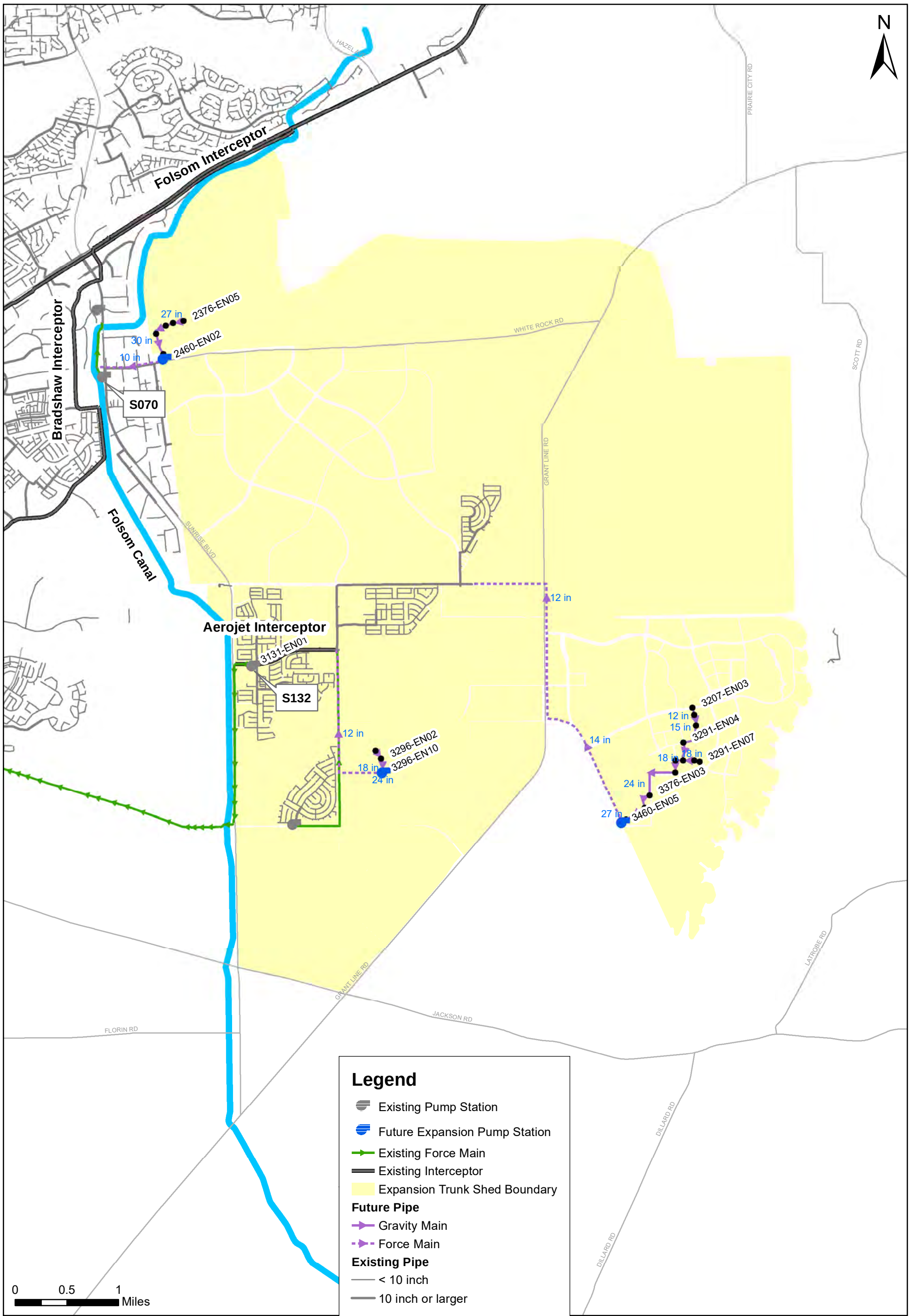
SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

Planned Development Areas

Figure A.3-1

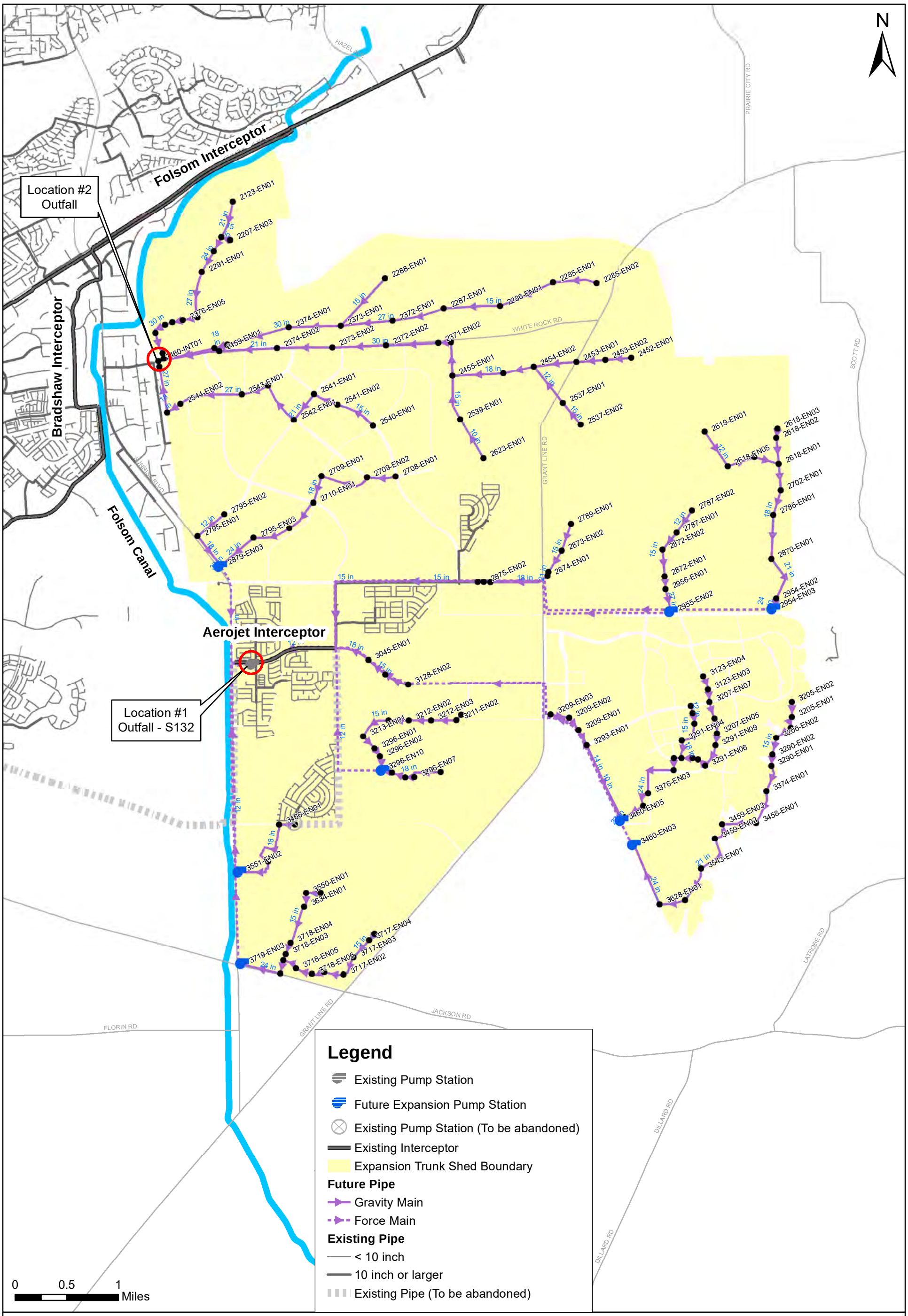
Updated: 3/18/2016



SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE
BR East Rancho
Near-Term Expansion Plan
Figure A.3-2

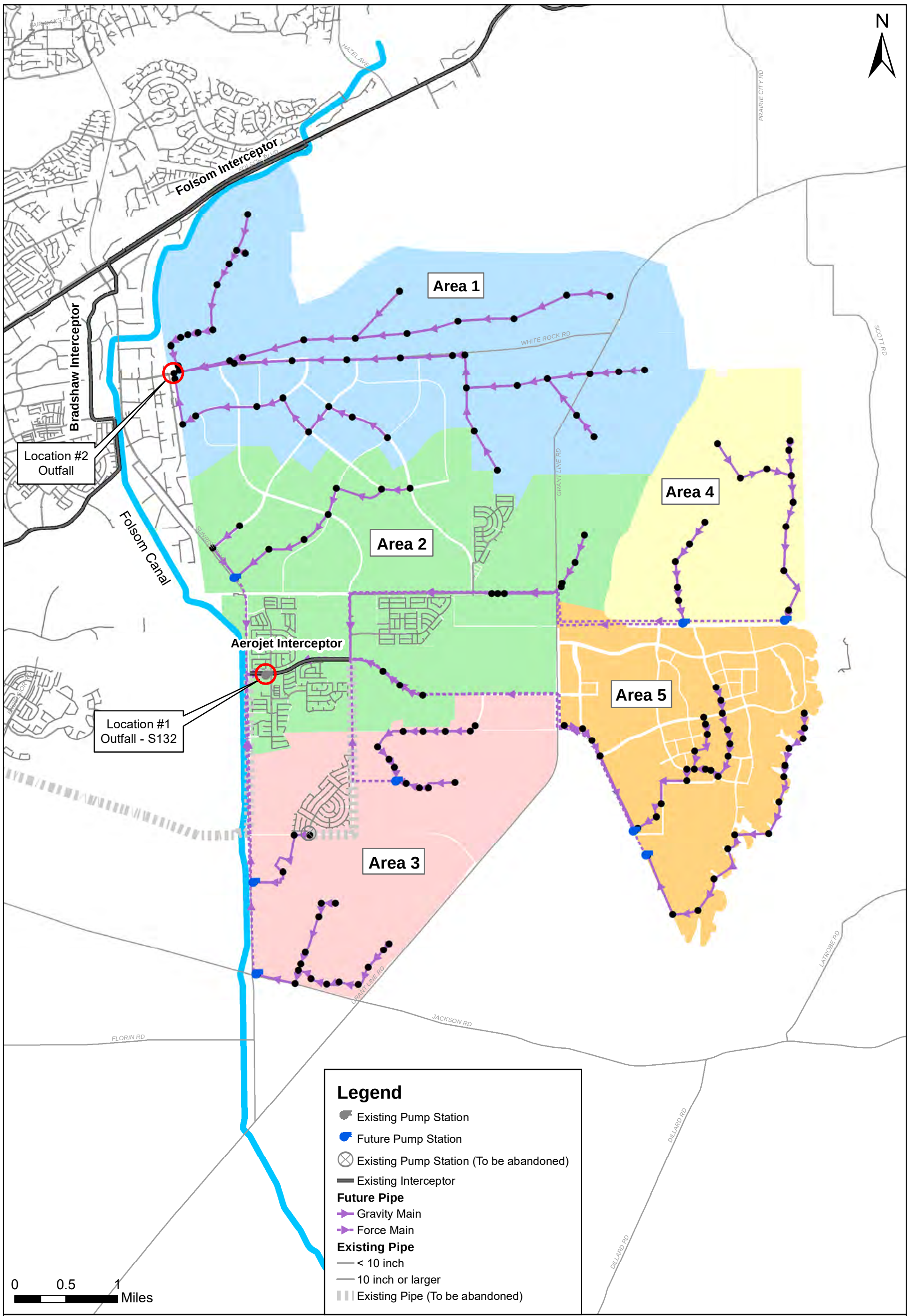
Updated: 8/24/2016



SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE
BR East Rancho
Buildout Expansion Plan
Figure A.3-3

Updated: 3/18/2016



SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

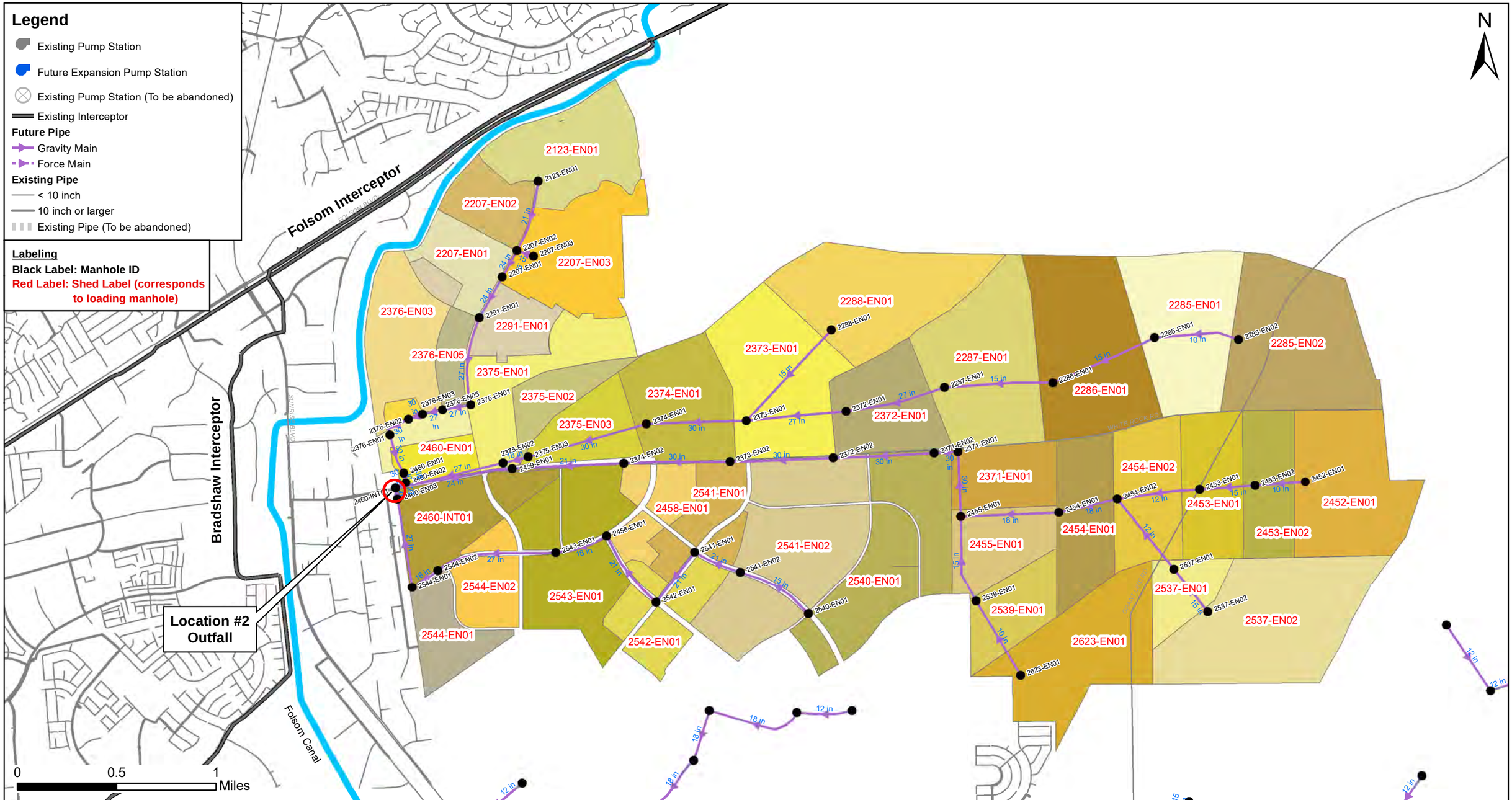
BR East Rancho

Sewer Shed Map (Area 1 - Area 5)

Buildout Expansion Plan

FIGURE A.3-4

Updated: 3/18/2016



SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

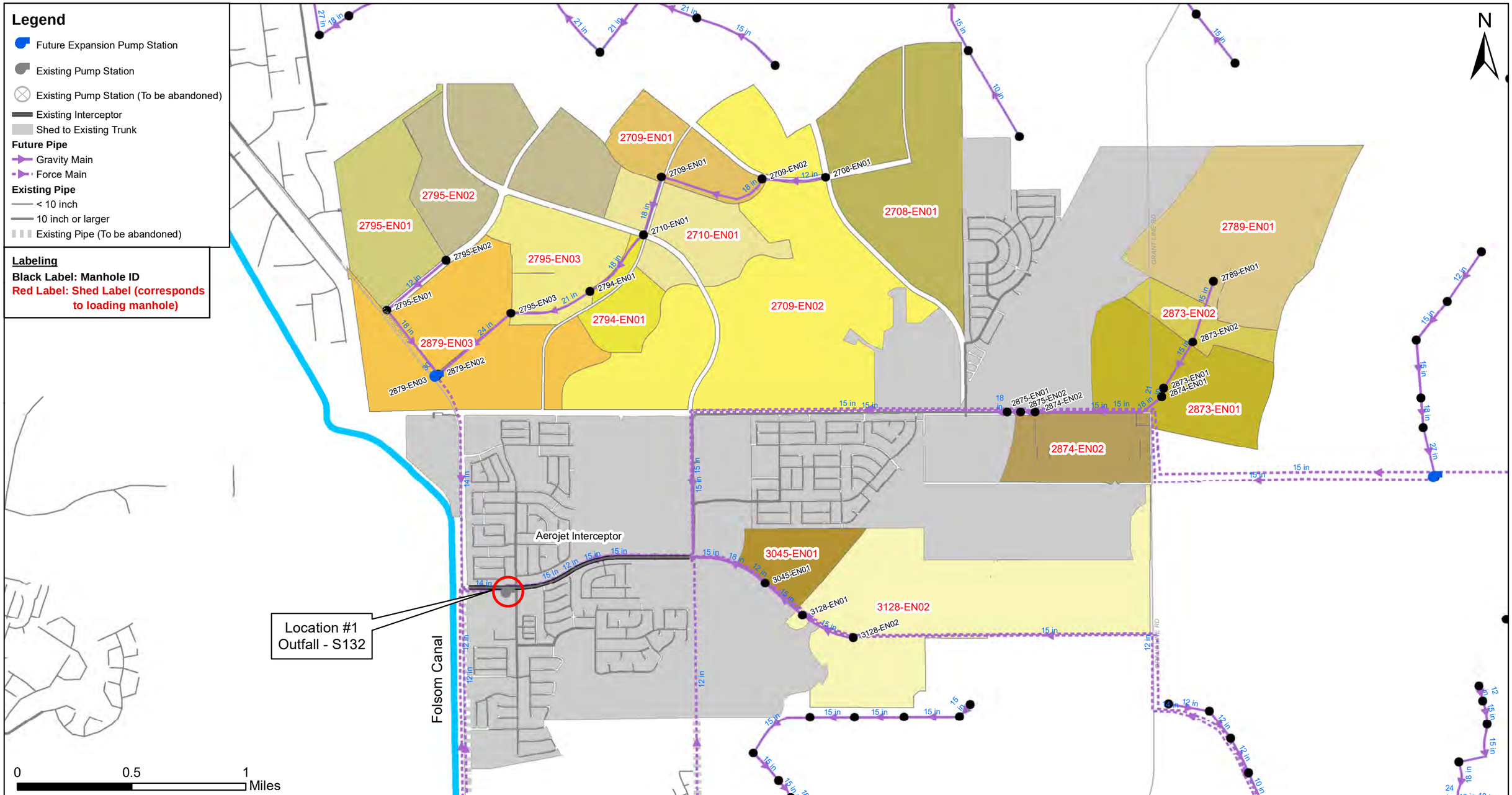
BR East Rancho

Sewer Shed Map - Area 1

Buildout Expansion Plan

FIGURE A.3-5

Updated: 3/18/2016



SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

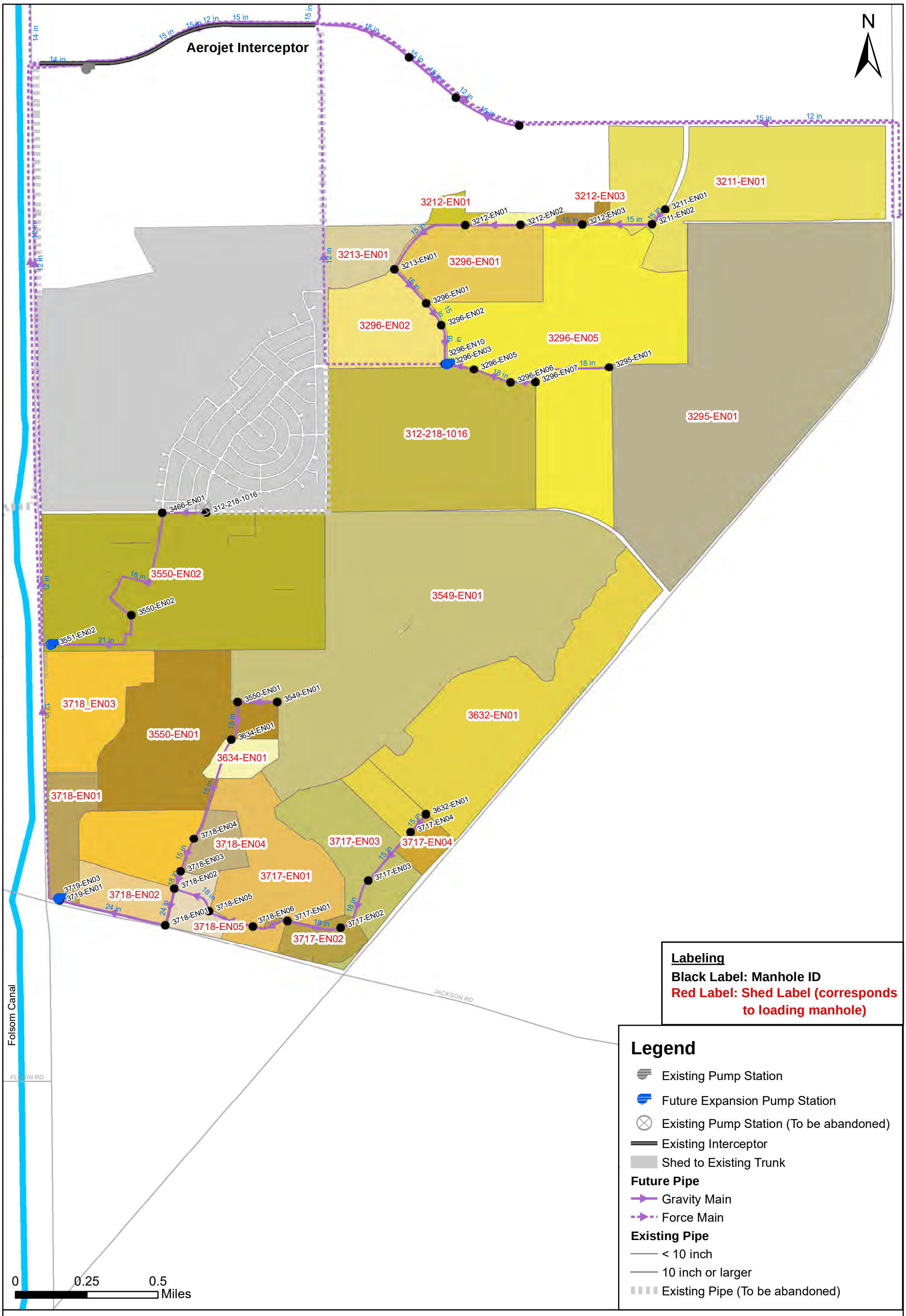
BR East Rancho

Sewer Shed Map - Area 2

Buildout Expansion Plan

FIGURE A.3-6

Updated: 3/18/2016



SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

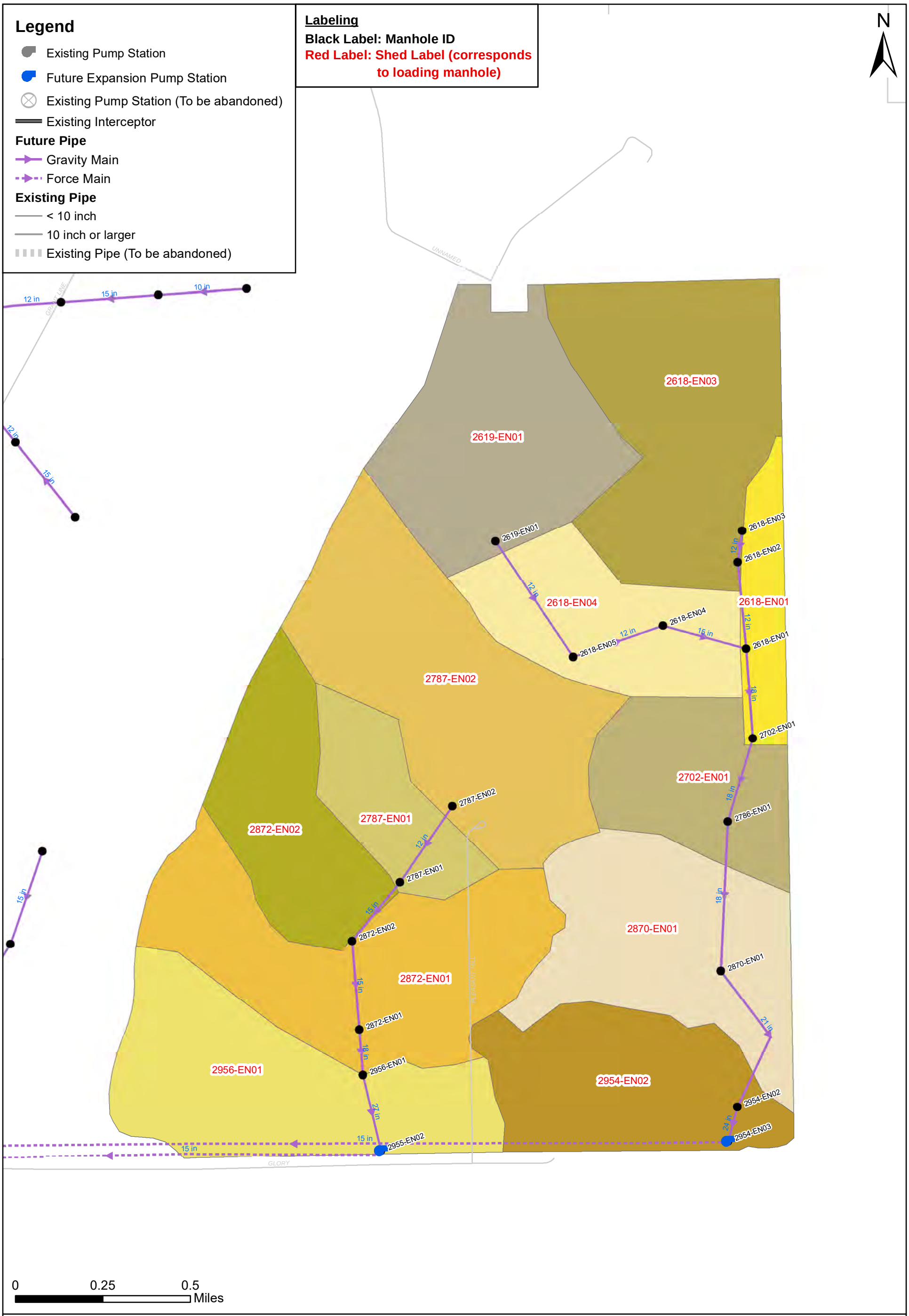
BR East Rancho

Sewer Shed Map - Area 3

Buildout Expansion Plan

FIGURE A.3-7

Updated: 3/18/2016



SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

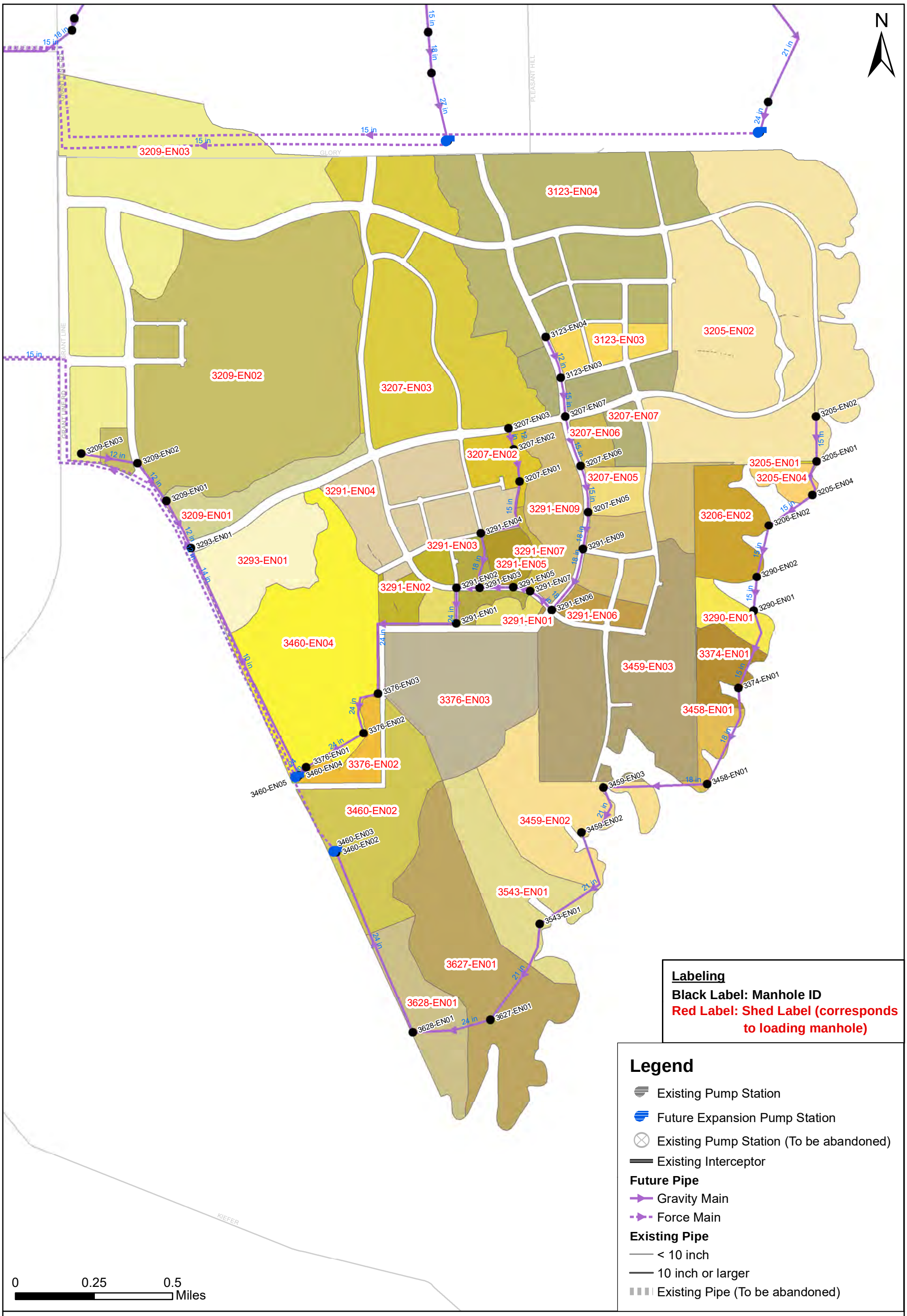
BR East Rancho

Sewer Shed Map - Area 4

Buildout Expansion Plan

FIGURE A.3-8

Updated: 3/18/2016



Labeling

Black Label: Manhole ID

Red Label: Shed Label (corresponds to loading manhole)

Legend

- Existing Pump Station
- Future Expansion Pump Station
- Existing Pump Station (To be abandoned)
- Existing Interceptor

Future Pipe

- Gravity Main
- Force Main

Existing Pipe

- < 10 inch
- 10 inch or larger
- Existing Pipe (To be abandoned)

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

Sewer Shed Map - Area 5

Buildout Expansion Plan

FIGURE A.3-9

SACRAMENTO AREA SEWER DISTRICT

Updated: 3/18/2016

APPENDIX J.3

Level 2 Sewer Study

THE RANCH
LEVEL 2 SEWER STUDY

1st Submittal: September 2018
2nd Submittal: February 2019
3rd Submittal: March 2019
4th Submittal: June 2019
5th Submittal: July 2019

Prepared Under The Direction Of:

REGISTERED PROFESSIONAL ENGINEER
THOMAS ALAN CASSERA
No. 70046
EXP. 6/30/20
CIVIL
STATE OF CALIFORNIA

cta Engineering & Surveying

Civil Engineering ■ Land Surveying ■ Land Planning

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

INTRODUCTION 1

DESIGN 2

SEWER FLOW INFORMATION 2

SEWER ALIGNMENTS AND FACILITIES 2

CONCLUSIONS 2

APPENDIX A
- TABLE A-1 SEWER DESIGN SUMMARY SPREADSHEET

ATTACHMENTS
- LOCATION MAP
- LOCATION MAP WITH TOPOGRAPHY
- SITE PLAN
- SMALL LOT TENTATIVE MAP
- PRELIMINARY GRADING AND DRAINAGE PLAN
- SEWER SHED MAP
- SRCSD SERVICE AREA
- SASD SERVICE AREA
- AJ SUNRISE DOUGLAS TRUNK SHED
- FIGURE 6-1 - TRUNK SHEDS MAP - 2010 SASD SYSTEM CAPACITY PLAN
- BR EAST RANCH TRUNK SHED – 2015 AMENDMENT
- EMAIL EXCHANGE WITH SASD

EXECUTIVE SUMMARY

The purpose of this Level 2 Sewer Study is to identify trunk main sewer facilities for proposed "The Ranch" Special Planning Area project. This study will demonstrate the ability of the proposed gravity sewers to serve The Ranch (Project) and offsite areas from the east.

The Project SPA encompasses 530.06 acres in the City of Rancho Cordova. The Project is situated at eastern terminus of Chrysanthy Blvd. on the easterly side of Rancho Cordova Parkway, and approximately one half mile to the south of Douglas Blvd.. The proposed SPA development consists of mixed land uses and densities. There are proposed lots of low and medium density residential, multi-family, private and public parks, private recreation center, private and public landscape lots, open spaces, public protected areas, and water quality/detention basins. Protected areas and a portion of roadway adjacent to protected areas, not subject to future development, account for 229.16 acres of the gross project area. The net developable area is 300.9 acres. The project is planned to be constructed in several phases.

Proposed sewer system improvements will serve the Project needs, as well as the proposed Arista Del Sol and Cordova Hills Phase 1 to the east. Development of the Project will result in 1,967.6 ESDs resulting in PWWF of 1.613 mgd. The upstream project to the east, Arista Del Sol, is 137.2 acres. ADS will result in 899.1 ESD's and 0.697 mgd. An additional upstream project to the east is Cordova Hills, Phase 1 is approximately 342.0 acres. CHP1 will result in 3290 ESD's and 2.50 mgd (per Cordova Hills Pump Station and Force Main Design Report, Page 7-Table 2). Therefore, the total ESD's and PWWF are 6156.7 ESD's and 4.8101 mgd exiting the site at Rancho Cordova Parkway.

The proposed trunk main will exit into existing 24" sewer line stubbed at the intersection of Rancho Cordova Parkway and Chrysanthy Blvd.. The existing 24" sewer line discharges into Aerojet Interceptor 1B (36" trunk main) flowing westerly into SASD facility S-132 lift station. The SASD system capacity plan shows The Ranch will sewer to the west.

Interim facilities or pump station are not expected to be required for the proposed trunk main in Chrysanthy Boulevard or in-tract development for the Project SPA. However, SASD will require the Project SPA project provide appropriate upgrades to SASD facility S-132 lift station. The project scope and timing of S-132 lift station upgrades will be determined by SASD in the near future.

INTRODUCTION

Level of Study - The Project sewer study is a Level 2 report which focuses on the design of Major Trunk and sewer facilities serving The Ranch SPA and potential upstream sewer sheds.

Location - The Project is located in Rancho Cordova, east of Rancho Cordova Parkway, between Douglas Blvd., Kiefer Road, and Grant Line Road. See the Vicinity Map, Figure 1.

Topography – Lower Morrison Creek South traverses the Project, generally along a southwesterly flow path, joined by lesser tributary channels entering the site on the northern and eastern boundaries. Existing site topography is undulating, ranging from approximately 168.5 feet to 200 feet in elevation (NGVD 1929). Adjacent property to north and west are developed residential while the properties to the south and east are similar rolling agricultural land uses. Adjacent offsite area may drain into the natural channel network.

Project Description - The Project is a proposed residential subdivision consisting of 1,472 single family lots, commercial/multi-family (253 units), neighborhood park sites, and open space lots. Proposed site grading enables gravity sewer service throughout the project. The proposed in-tract collection system will discharge at a single point into off-site sewer in Rancho Cordova Parkway at the location shown on the Sewer Study Map.

Land Use and Zoning – The current land use is vacant, agricultural grazing land. The existing zoning is AG-80. Proposed zoning is Special Planning Area Current zoning consisting of General Plan uses (LDR, MDR, RMU, CMU, P/QP, P/OS, and NR). The gross project area is 530.06 acres; protected areas/adjacent roadway comprises of 229.16 acres.

DESIGN

Assumptions – The Project sewer study is premised upon the following assumptions:

- Property east of the project will sewer to the west through future Chrysanthy Blvd. Property south of the project will sewer to the south. Adjacent parcels north and west of The Ranch are already sewered or will remain as open space.
- There is adequate capacity in existing, downstream sewer facilities. Please see the copy of a September 17, 2018 e-mail from Yadira Lewis, included with the attachments, there is sufficient capacity in the Aerojet Interceptor under existing conditions. Assuming the S132 pump station will be replaced by a Regional San facility that will not cause back-ups to the Aerojet Interceptor, the model predicts minor surcharging in the Aerojet Interceptor under buildout conditions.
- Groundwater will be confirmed through future Geotechnical studies for the project. Recent information from monitoring wells in the area suggests groundwater is 140 below ground surface.
- "Protected Areas" will be preserved in perpetuity per South Sacramento HCP requirements, and granted to a third party. Since Protected Areas will not be developed, ESD's have not been assigned to these lands as it is not practical to demonstrate capacity in the downstream sewer collection systems for these areas.

Approach – Design of the proposed Project sewer system followed the sequence described as follows.

- Sewer sheds reflect project layout shown on the accompanying Sewer Shed Map.
- Design flows, summarized in Table A-1, Appendix A, adhere to SASD Design Standards, dated March 29, 2019.
- Pipe sizes and slopes meet applicable design criteria.

Design Criteria - Design of the proposed Project sewer system is based on the following criteria.

- Sewer flow is calculated on the basis of 6 ESD (Equivalent Single-Family Dwelling) per acre, or the actual count within a shed, whichever is greater. Multifamily sewer flow is calculated at 75% per ESD unit.
- Commercial and Park areas use a design flow of 6 ESD per acre.
- Design flows are computed using formulas from Section 201.2.2 of SASD standards and specifications:
    - PWWF (mgd) = ADWF *PF +I/I
    - ADWF (mgd) = (310 GPD/ESD)*(ESD/ac)*(ac)/1,000,000
    - PF = 3.5 - 1.8*Q^0.05, where Q=ADWF, PF= 1.2 minimum
    - I/I = 1,400 gpd/ac (new pipeline)
- Design of gravity sewers adheres to the following, from Section 202 of SASD standards and specifications:
    - The minimum pipe size (diameter) is 8 inches.
    - The minimum velocity is 2 fps when the pipe is ½ full (collector) or full (trunk).
    - The 'n' value is 0.013.
    - The minimum slope for a collector serving fewer than 6 ESDs is 0.007.
    - The minimum slope for an 8" sewer is 0.0035.

SEWER FLOW INFORMATION

On-site flow from The Ranch SPA totals 1,967.6 ESDs, resulting in PWWF of 1.613 mgd. There would be off-site contribution from proposed Arista Del Sol project of approximately 899.1 ESD's and 0.697 mgd (12" gravity trunk main, and Cordova Hills Phase 1 project of approximately 3290 ESD's and 2.50 mgd (20" FM),

SEWER ALIGNMENT & FACILITIES

- No interim facilities are required for the Project. All pipes are sized for ultimate PWWF.
- Ultimate facilities consist of the following:
  - 8-inch in-tract gravity sewer pipe
  - 12-inch to 21-inch trunk main sewer pipe in Chrysanthy Blvd.
  - 24-inch offsite gravity sewer located in Rancho Cordova Parkway, west from the project entry to the existing manhole in Rancho Cordova Parkway as shown.

CONCLUSIONS

The Level 2 Sewer Study for the Project demonstrates the ability of the proposed gravity system to serve the project. System components are sized for ultimate conditions. According to SASD staff, capacity upgrades will be required at SASD facility S-132 pump station. However, the cost, scope, and timing of the necessary upgrades are not determined as of this date.

APPENDIX A

TABLE A-1 SEWER DESIGN SUMMARY SPREADSHEET

TABLE A-1

THE RANCH SEWER DESIGN SUMMARY

START NODE	STOP NODE	LAND USE	LAND USE AREA (AC)	LAND USE ESDs @ 6 ESD/AC	LAND USE ESD by Lot Count	LAND USE MAX ESDs	TOTALS AREA (AC)	TOTALS CUM ESDs	I/I[1/] (mgd)	ADWF[2/] (mgd)	PF[3/]	PDWF[4/] (mgd)	PWWF[5/] (mgd)	Project PWWF[5/] (cfs)	Total PWWF[5/] (mgd)	Total PWWF[5/] (cfs)	PIPE DATA DIA (in)	PIPE DATA S (ft/ft)	PIPE DATA Capacity @ S (cfs)	Capacity @ S (mgd)	US MAN HOLE DEPTH (FT)	V @ PWWF[6/] (fps)
CHP1	ADS1	R	-	-	-	-	-	-	-	-	-	-	-	-	2.5000	3.8681	20	FM	n/a	n/a	13.7	n/a
ADS1	A	R	-	-	-	-	-	-	-	-	-	-	0.6970	1.0784	3.1970	4.9465	12	0.0255	5.69	3.68	13.7	7.79
A	A1	R	66.6	399.6	385	399.6	66.6	399.6	0.0932	0.1239	1.88	0.2327	0.3259	0.5043	3.5229	5.4508	21	0.0020	7.09	4.58	23.1	3.10
A1	A2	R	0.0	0.0	0	0.0	0.0	0.0	0	0	0	0	0	0.0000	0	0.0000	21	0.0020	7.09	4.58	26.3	3.42
A2	B	R	0.0	0.0	0	0.0	0.0	0.0	0	0	0	0	0	0.0000	0	0.0000	21	0.0020	7.09	4.58	25.4	3.43
B	B1	R	76.2	457.2	384	457.2	142.8	856.8	0.1999	0.2656	1.82	0.4822	0.6821	1.0554	3.8791	6.0019	21	0.0020	7.09	4.58	26.0	3.15
B1	C	R	0.0	0.0	0	0.0	0.0	0.0	0	0	0	0	0	0.0000	0	0.0000	21	0.0020	7.09	4.58	32.6	3.45
C	C1	R	40.1	240.6	197	240.6	182.9	1097.4	0.2561	0.3402	1.79	0.6105	0.8665	1.3407	4.0635	6.2872	21	0.0020	7.09	4.58	31.4	3.34
C1	C2	R	0.0	0.0	0	0.0	0.0	0.0	0	0	0	0	0	0.0000	0	0.0000	21	0.0020	7.09	4.58	30.7	3.49
C2	D	R	0.0	0.0	0	0.0	0.0	0.0	0	0	0	0	0	0.0000	0	0.0000	21	0.0020	7.09	4.58	30.0	3.49
D	D1	R	43.1	258.6	133	258.6	226.0	1356.0	0.3164	0.4204	1.78	0.7467	1.0631	1.6449	4.2601	6.5913	21	0.0020	7.09	4.58	29.4	3.35
D1	D2	R	0.0	0.0	0	0.0	0.0	0.0	0	0	0	0	0	0.0000	0	0.0000	21	0.0020	7.09	4.58	28.2	3.55
D2	E	R	0.0	0.0	0	0.0	0.0	0.0	0	0	0	0	0	0.0000	0	0.0000	21	0.0020	7.09	4.58	26.8	3.86
E	E1	R	59.2	355.2	402	402.0	285.2	1758.0	0.3993	0.5450	1.75	0.9558	1.3551	2.0966	4.5521	7.0431	21	0.0025	7.92	5.12	25.8	4.95
E1	F	MF	8.0	48.0	161	161.0	293.2	1919.0	0.4105	0.5949	1.75	1.0388	1.4492	2.2423	4.6462	7.1888	21	0.012	18.07	11.68	23.9	7.04
F	POC	COMM	8.1	48.6	48.6	48.6	301.3	1967.6	0.4218	0.6872	1.73	1.1913	1.6131	2.4958	4.8101	7.4423	24	0.002	7.84	5.07	23.7	4.88
			301.3	1807.8	1710.9	1967.6	301.3		0.4218													

[1/] 1400 gpd/ac

[2/] 310 gpd/ESD * ESD/ac * A

[3/] 3.5-1.8*(Q^0.05) where Q is ADWF

[4/] ADWF * PF

[5/] ADWF * PF + I/I

[6/] see Flowmaster computations

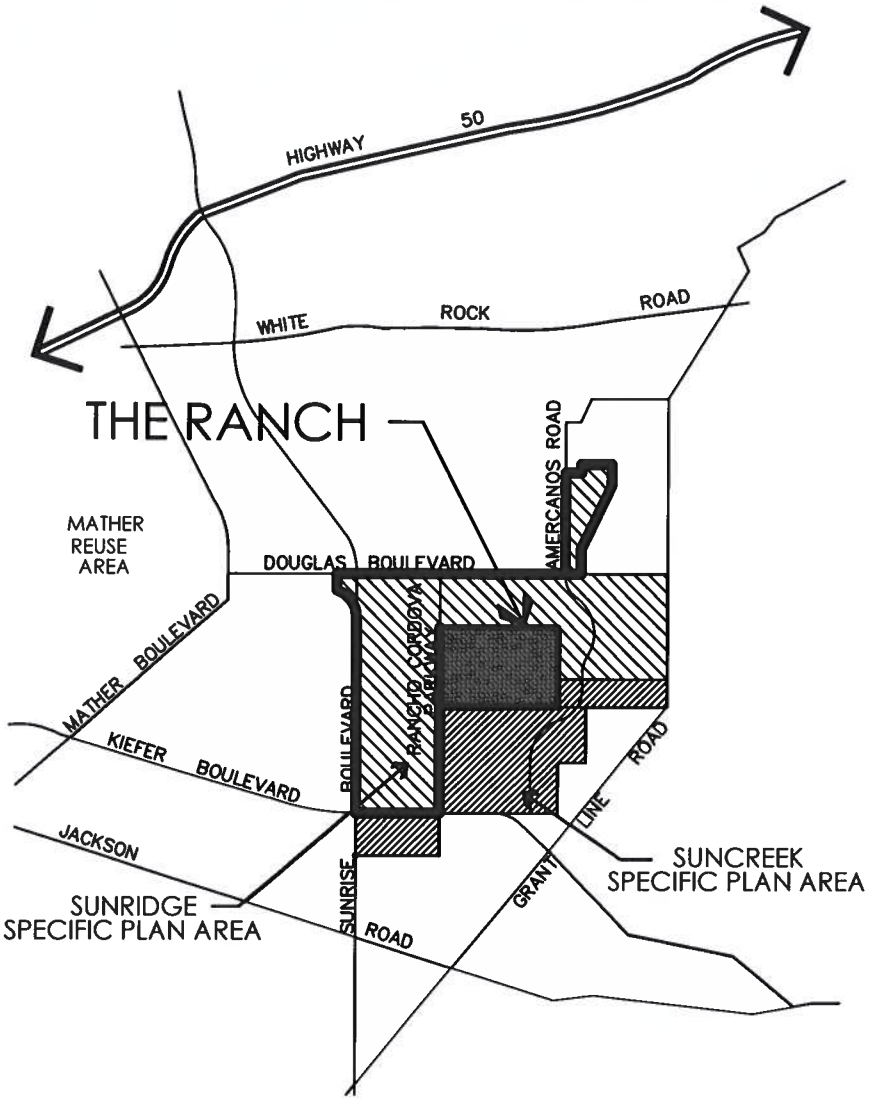
[7/] Multifamily (MF) is 75% ESD, 233 gpd/ESD

8/ COMMERCIAL (COMM) is 6 ESD/AC, 1900 gpd/ESD

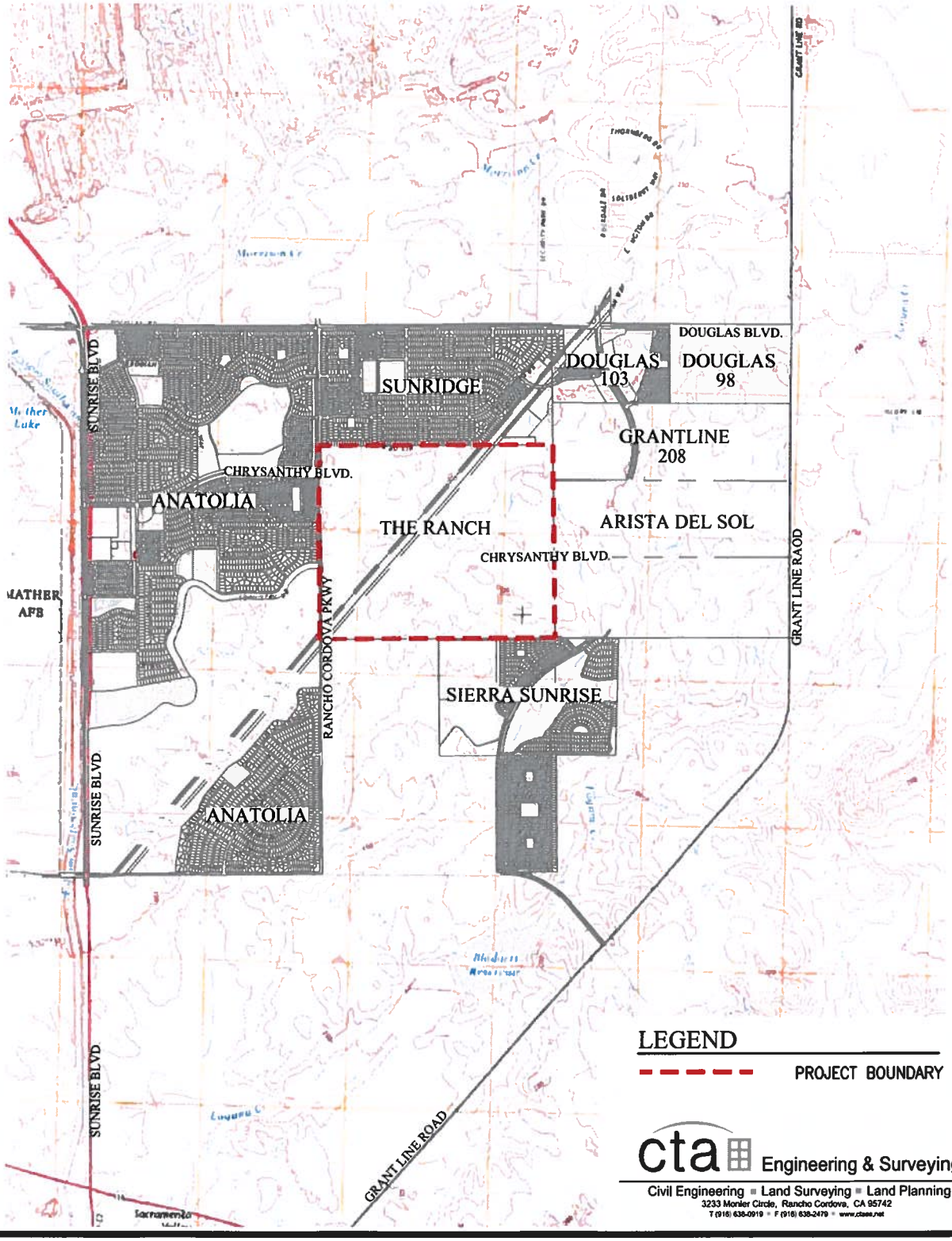
ATTACHMENTS

LOCATION MAP
LOCATION MAP WITH TOPOGRAPHY
SITE PLAN
SMALL LOT TENTATIVE MAP
PRELIMINARY GRADING AND DRAINAGE PLAN
SEWER SHED MAP
SRCSD SERVICE AREA
SASD SERVICE AREA
AJ SUNRISE DOUGLAS TRUNK SHED
FIGURE 6-1 - TRUNK SHEDS MAP - 2010 SASD SYSTEM CAPACITY PLAN
BR EAST RANCH TRUNK SHED – 2015 AMENDMENT
EMAIL EXCHANGE WITH SASD

LOCATION MAP

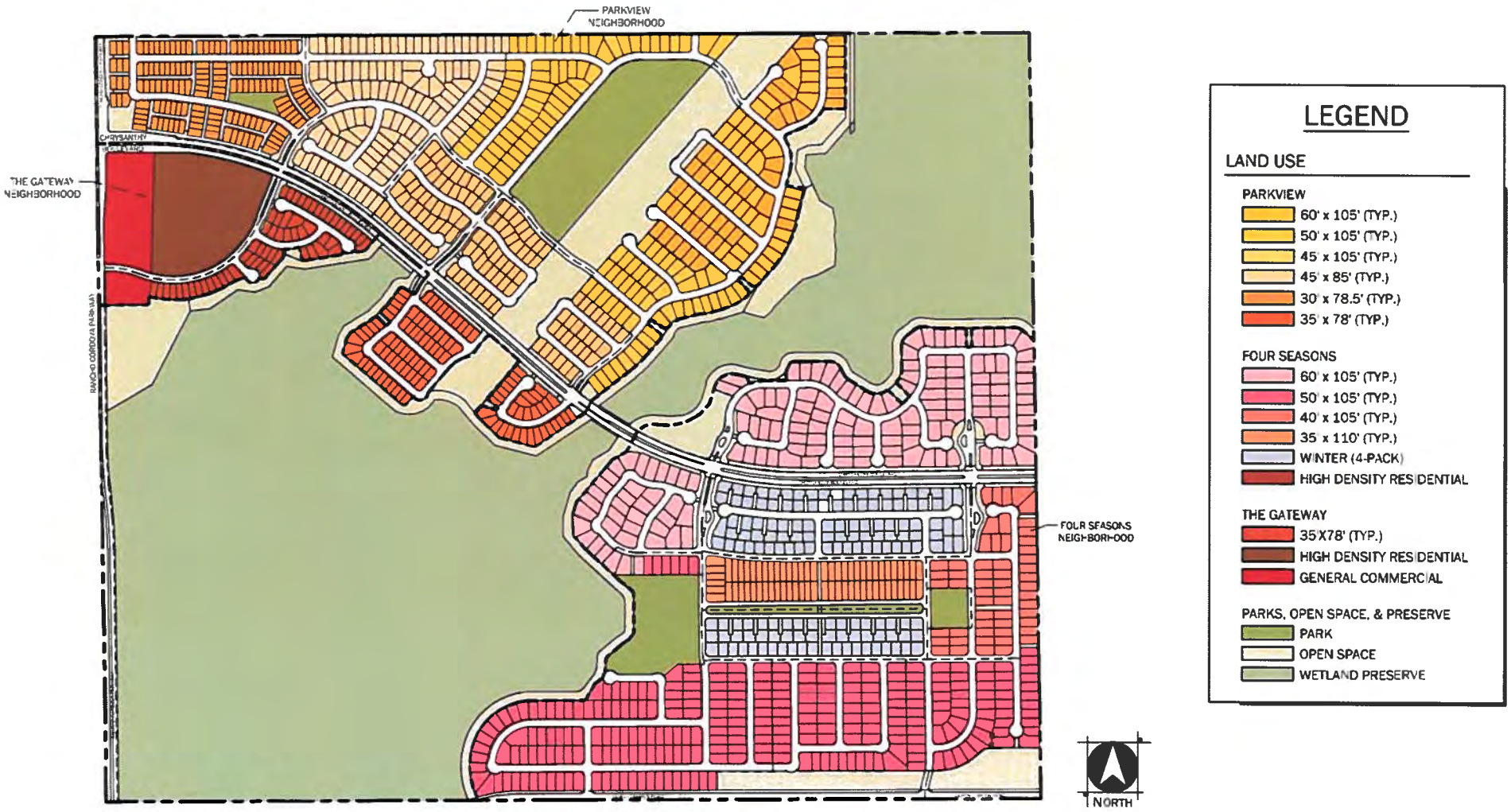


THE RANCH
LOCATION MAP
RANCHO CORDOVA, CALIFORNIA
NOT TO SCALE AUGUST, 2018



cta Engineering & Surveying
Civil Engineering ▪ Land Surveying ▪ Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742
T (916) 638-0919 ▪ F (916) 638-2479 ▪ www.ctaae.net

Exhibit 3: Land Use Plan (Proposed Zoning Districts)



SMALL LOT TENTATIVE SUBDIVISION MAP

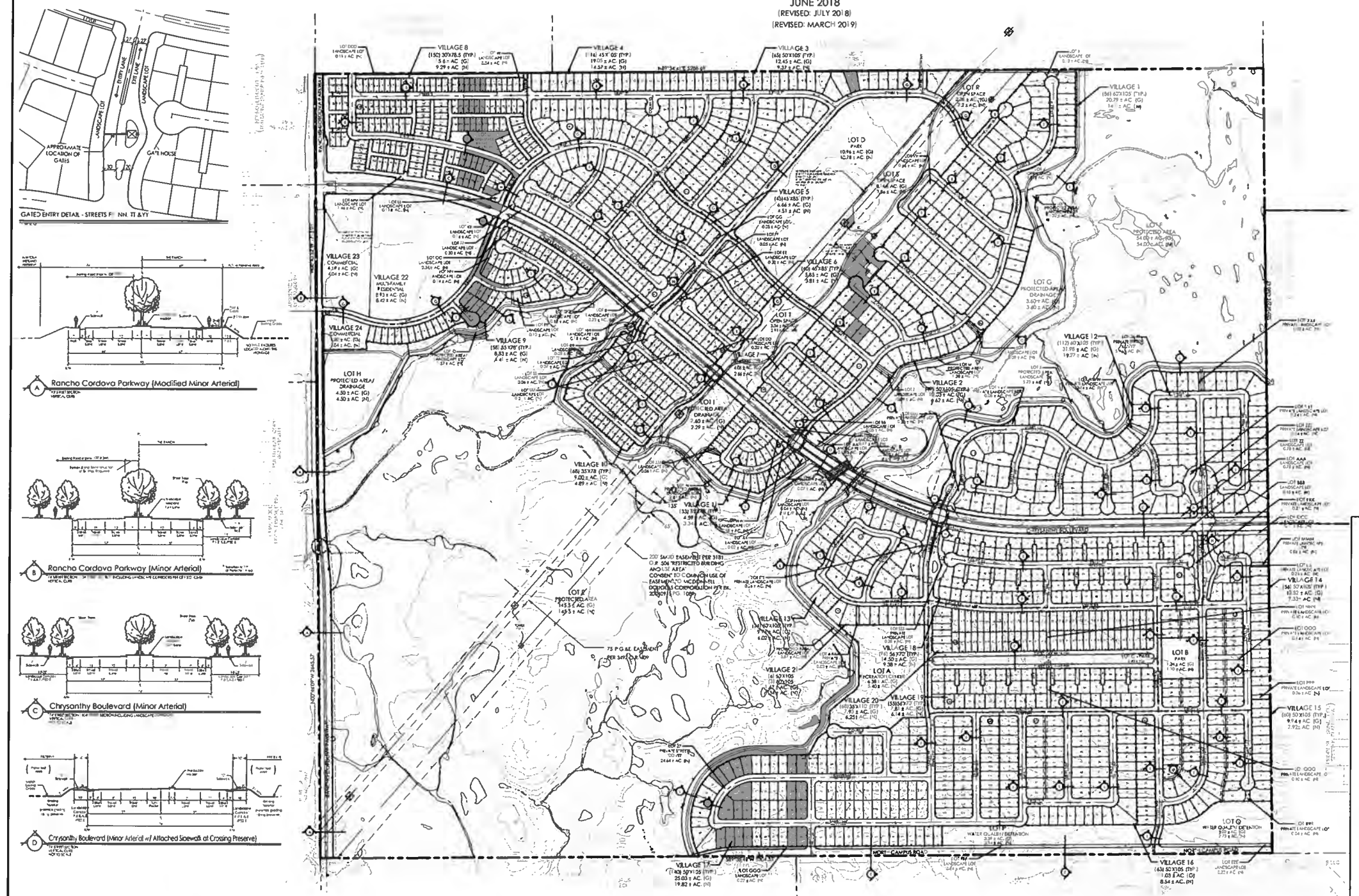
THE RANCH

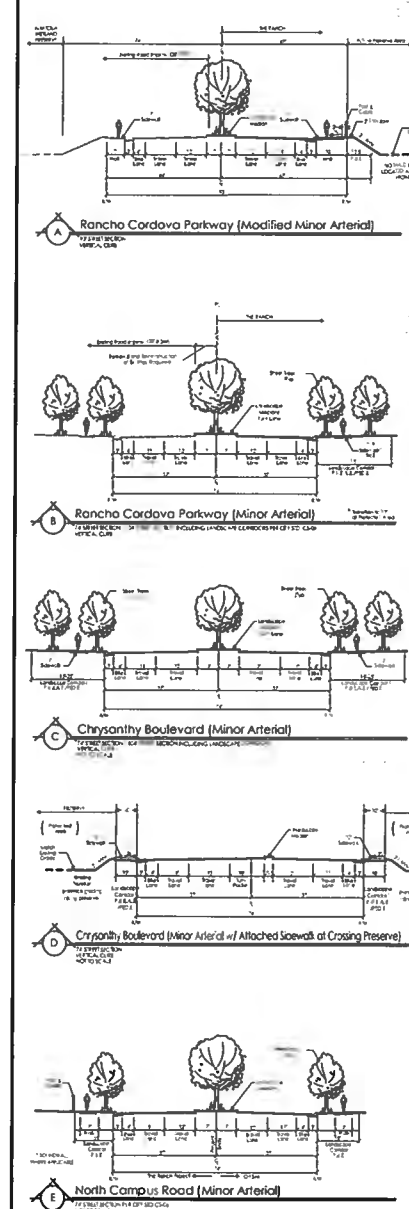
CITY OF RANCHO CORDOVA, CALIFORNIA

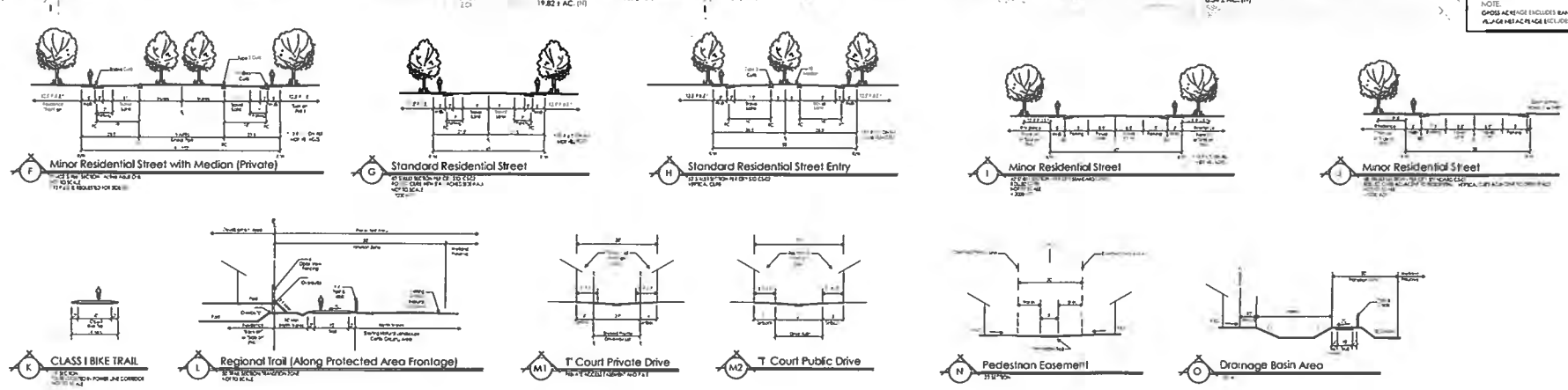
JUNE 2018

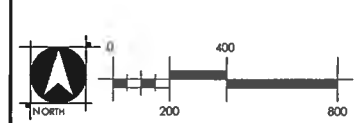
(REVISED: JULY 2018)

(REVISED: MARCH 2019)

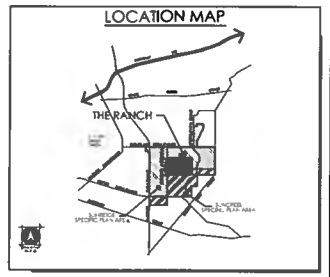








LOCATION MAP



PROJECT NOTES

OWNER/APPLICANT
E. HOVNANIAN/MIDWEST HOMES, INC.
3911 DOUGLAS BOULEVARD SUITE 130
ROSEVILLE, CA 95661
CONTACT: OLGA SCHOFIELD
PHONE: (916) 780-5362

PLANNER
WOOD RODGERS INC.
3301 "C" STREET, BLDG. 100-B
SACRAMENTO, CA 95816
CONTACT: PAUL MEDER
PHONE: (916) 341-7760

ENGINEER/SURVEYOR
CFTA ENGINEERING AND SURVEYING
8570 HOWER DRIVE
RANCHO CORDOVA, CA 95670
CONTACT: TONY CASEERA
PHONE: (916) 638-0119

ASSESSOR'S PARCEL NUMBERS
067-0060-008

AREA
530.1±, ACRES GROSS

PUBLIC SERVICES & FACILITY PROVIDERS

APPROVAL/ENTITY	CITY OF RANCHO CORDOVA
WATER	SACRAMENTO COUNTY WATER
SEWER	SACRAMENTO SANITATION DISTRICT
DRAINAGE	CITY OF RANCHO CORDOVA
ELECTRICITY	SMUD
GAS	PACIFIC GAS & ELECTRIC
TELEPHONE	AT&T
SCHOOL DISTRICT	ELK GROVE UNIFIED SCHOOL DISTRICT
FIRE DISTRICT	SACRAMENTO METROPOLITAN FIRE DISTRICT
PARK DISTRICT	CORDOVA RECREATION & PARK DISTRICT

NUMBER OF LOTS/PARCELS

1,401	SINGLE FAMILY LOTS	
7	GENERAL COMMERCIAL LOTS	
1	RECREATION CENTER LOT	
3	PARK LOTS	
2	PROTECTED AREA LOTS	
9	PROTECTED AREA/LANDSCAPE LOTS	
2	WATER QUALITY DETENTION BASIN LOTS	
3	OPEN SPACE LOTS	
60	PUBLIC LANDSCAPE LOTS	
8	PRIVATE LANDSCAPE LOTS	
25	PRIVATE STREET LOTS	
3	PRIVATE STREET LOTS	

EXISTING USE
VACANT

EXISTING GENERAL PLAN
URBAN DEVELOPMENT (UD)

PROPOSED GENERAL PLAN
LDR, MDR, MHP, CMU, P/OP, P/OS, NR

EXISTING ZONING
AG-80

PROPOSED ZONING
SPECIAL PLANNING AREA

NOTES:

1. SUBDIVISIONS: RESERVES THE RIGHT TO FILE MULTIPLE MAPS PURSUANT TO SECTION 66456.1 OF THE SUBDIVISION MAP ACT.
2. THIS IS AN APPLICATION FOR A DEVELOPMENT PLAN.
3. A 10 FOOT PUBLIC UTILITY EASEMENT WILL BE LOCATED ADJACENT TO ALL PROPERTY LINE WHICH FRONTS ON A PUBLIC STREET AS APPROVED BY THE CITY ENGINEER. THIS APPLICATION REQUESTS 1 STORY SETBACKS FOR 7 COLOR HOMES AND 10 FEET FOR 1 AND 2 STORIES.
4. PARCELS, SUPPLEMENTAL HUMBERING & FOR DEVELOPMENT PURPOSES ONLY AND DOES NOT DESCRIBE THE PHASING OBTAIN OF DEVELOPMENT. ULTIMATE DEVELOPMENT PHASING SHALL BE DEFINED AND WILL BE DETERMINED AT FINAL MAP AND/OR IMPROVEMENT PLAN STAGE.
5. THIS APPLICATION ALSO SERVES AS GENERAL PLAN AMENDMENT, REZONE, AND SPECIAL DEVELOPMENT PLAN.
6. ALL EXISTING STRUCTURES TO BE REMOVED AND ALL EXISTING WELLS TO BE ABANDONED UNDER SEPARATE OTHER AND/OR PRIOR TO
7. THE AERIAL TOPOGRAPHY SHOWN HEREON WAS FLOWN IN NOVEMBER 2005.
8. THIS EXHIBIT IS FOR TENTATIVE MAP PURPOSES ONLY. ALL SITE AREAS TO BE VERIFIED PRIOR TO FINAL MAP.
9. PARK RESERVE LOTS AND LOTS WILL BE DETERMINED UNDER ACTUAL SITE DEVELOPMENT PLAN.
10. HOMEOWNERS ASSOCIATION (HOA) OWNERSHIP PARKING ALONG PROPOSED ROADWAYS.
11. A 12.5' PUE WILL BE PROVIDED ADJACENT TO RIGHT-OF-WAY. A 10' PUE WILL BE PROVIDED ADJACENT TO RIGHT-OF-WAY TO VILLAGES DESIGNATED AS NOR.

LAND USE SUMMARY

PARCEL/LOT NUMBER	GENERAL PLAN DESIGNATION	ZONING	LAND USE (SUBTYPE)	GROSS ACRES	NET ACRES	DWELLING UNITS	GROSS DENSITY
TRADITIONAL SINGLE-FAMILY RESIDENTIAL							
VILLAGE 1	LDR	R-1	SINGLE FAMILY RESIDENTIAL (50' LOTS)	20.79	14.1	81	3.9
VILLAGE 2	LDR	R-1	SINGLE FAMILY RESIDENTIAL (50' LOTS)	10.02	6.68	41	4.1
VILLAGE 3	LDR	R-1	SINGLE FAMILY RESIDENTIAL (50' LOTS)	12.45	9.27	49	3.9
VILLAGE 4	LDR	R-1	SINGLE FAMILY RESIDENTIAL (50' LOTS)	19.05	14.57	74	3.9
VILLAGE 5	MDR	R-1	SINGLE FAMILY RESIDENTIAL (45' LOTS)	6.66	5.03	27	4.1
VILLAGE 6	MDR	R-1	SINGLE FAMILY RESIDENTIAL (45' LOTS)	5.88	3.83	21	3.6
VILLAGE 8	MDR	R-1	SINGLE FAMILY RESIDENTIAL (45' LOTS)	9.29	6.04	33	3.6
VILLAGE 9	MDR	R-1	SINGLE FAMILY RESIDENTIAL (45' LOTS)	8.33	5.41	29	3.5
VILLAGE 12	MDR	R-1	SINGLE FAMILY RESIDENTIAL (45' LOTS)	19.77	12.85	70	3.5
VILLAGE 14	MDR	R-1	SINGLE FAMILY RESIDENTIAL (45' LOTS)	7.33	4.77	26	3.5
VILLAGE 15	MDR	R-1	SINGLE FAMILY RESIDENTIAL (45' LOTS)	9.46	7.32	40	4.2
VILLAGE 16	MDR	R-1	SINGLE FAMILY RESIDENTIAL (45' LOTS)	3.92	2.55	14	3.6
SUB TOTAL				116.41	77.57	398	
ACTIVE ADULT SINGLE FAMILY RESIDENTIAL							
VILLAGE 17	MDR	A-1	ACTIVE ADULT SINGLE FAMILY RESIDENTIAL	27.98	19.27	111	4.0
VILLAGE 18	LDR	A-1	ACTIVE ADULT SINGLE FAMILY RESIDENTIAL	9.74	6.70	39	4.0
VILLAGE 19	LDR	A-1	ACTIVE ADULT SINGLE FAMILY RESIDENTIAL	10.52	7.23	42	4.0
VILLAGE 20	MDR	A-1	ACTIVE ADULT SINGLE FAMILY RESIDENTIAL	9.94	7.72	44	4.4
VILLAGE 21	MDR	A-1	ACTIVE ADULT SINGLE FAMILY RESIDENTIAL	11.00	8.54	49	4.4
VILLAGE 22	MDR	A-1	ACTIVE ADULT SINGLE FAMILY RESIDENTIAL	22.00	19.02	109	4.9
VILLAGE 23	MDR	A-1	ACTIVE ADULT SINGLE FAMILY RESIDENTIAL	14.39	9.28	53	3.7
VILLAGE 24	MDR	A-1	ACTIVE ADULT SINGLE FAMILY RESIDENTIAL	7.81	6.14	35	4.5
VILLAGE 29	MDR	A-1	ACTIVE ADULT SINGLE FAMILY RESIDENTIAL	7.93	6.23	35	4.4
VILLAGE 30	MDR	A-1	ACTIVE ADULT SINGLE FAMILY RESIDENTIAL	1.67	1.24	7	4.2
SUB TOTAL				130.10	92.11	493	
VILLAGE 22	MDR	MU-T	MIXED USE	8.93	8.42		
SUB TOTAL				8.93	8.42		
VILLAGE 29	[illegible]	[illegible]	GENERAL COMMERCIAL	4.19	4.00		
VILLAGE 30	[illegible]	[illegible]	GENERAL COMMERCIAL	1.20	1.00		
SUB TOTAL				5.39	5.00		
LOT [illegible]	MDR	[illegible]	[illegible]	6.20	5.40		
LOT [illegible]	[illegible]	[illegible]	PARK (PR)	1.34	1.10		
LOT [illegible]	[illegible]	[illegible]	PARK (PR)	1.40	1.40		
LOT [illegible]	[illegible]	[illegible]	PARK (PR)	10.94	10.20		
LOT [illegible]	[illegible]	[illegible]	PROTECTED AREA	146.00	146.00		
LOT [illegible]	[illegible]	[illegible]	PROTECTED AREA/PARK	64.00	64.00		
LOT [illegible]	[illegible]	[illegible]	PROTECTED AREA/DRAINAGE	10.00	10.00		
LOT [illegible]	[illegible]	[illegible]	PROTECTED AREA/LANDSCAPE		15.00		
LOT [illegible]	[illegible]	[illegible]	[illegible]	4.30	8.42		
LOT H-9	[illegible]	[illegible]	OPEN SPACE/DRAINAGE	14.14	13.00		
LOT V-22	[illegible]	[illegible]	PUBLIC LANDSCAPE		9.42		
LOT XXXX-AAAA	[illegible]	[illegible]	PRIVATE LANDSCAPE		2.00		
LOT [illegible]	MDR	[illegible]	PRIVATE DRIVE		2.10		
LOT [illegible]	LDR/MDR	[illegible]	PRIVATE DRIVE		20.00		
LOT [illegible]	LDR/MDR	[illegible]	PRIVATE DRIVE		21.10		
MAJOR INTERSECTIONS				18.41	8.47		
SUB TOTAL				269.33	347.02		
TOTAL				530.10	530.10	1,471	

NOTE:
GROSS ACREAGE EXCLUDES RANCHO CORDOVA PARKWAY & CHRYSANTHY BOULEVARD ONLY.
AVERAGE NET ACREAGE EXCLUDES PROTECTED AREA, LANDSCAPE LOTS, PRIVATE & PUBLIC LANDSCAPE LOTS, PRIVATE STREET LOTS, AND PRIVATE & PUBLIC DRIVEWAYS.

KHovnanian

WOOD RODGERS
ENGINEERING • MAPPING • PLANNING • SURVEYING
3301 C St, Bldg. 100-B Tel 916.341.7760
Sacramento, CA 95816 Fax 916.341.7767

PRELIMINARY GRADING AND DRAINAGE PLAN
THE RANCH

cta Engineering & Surveying
Civil Engineering • Land Surveying • Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742

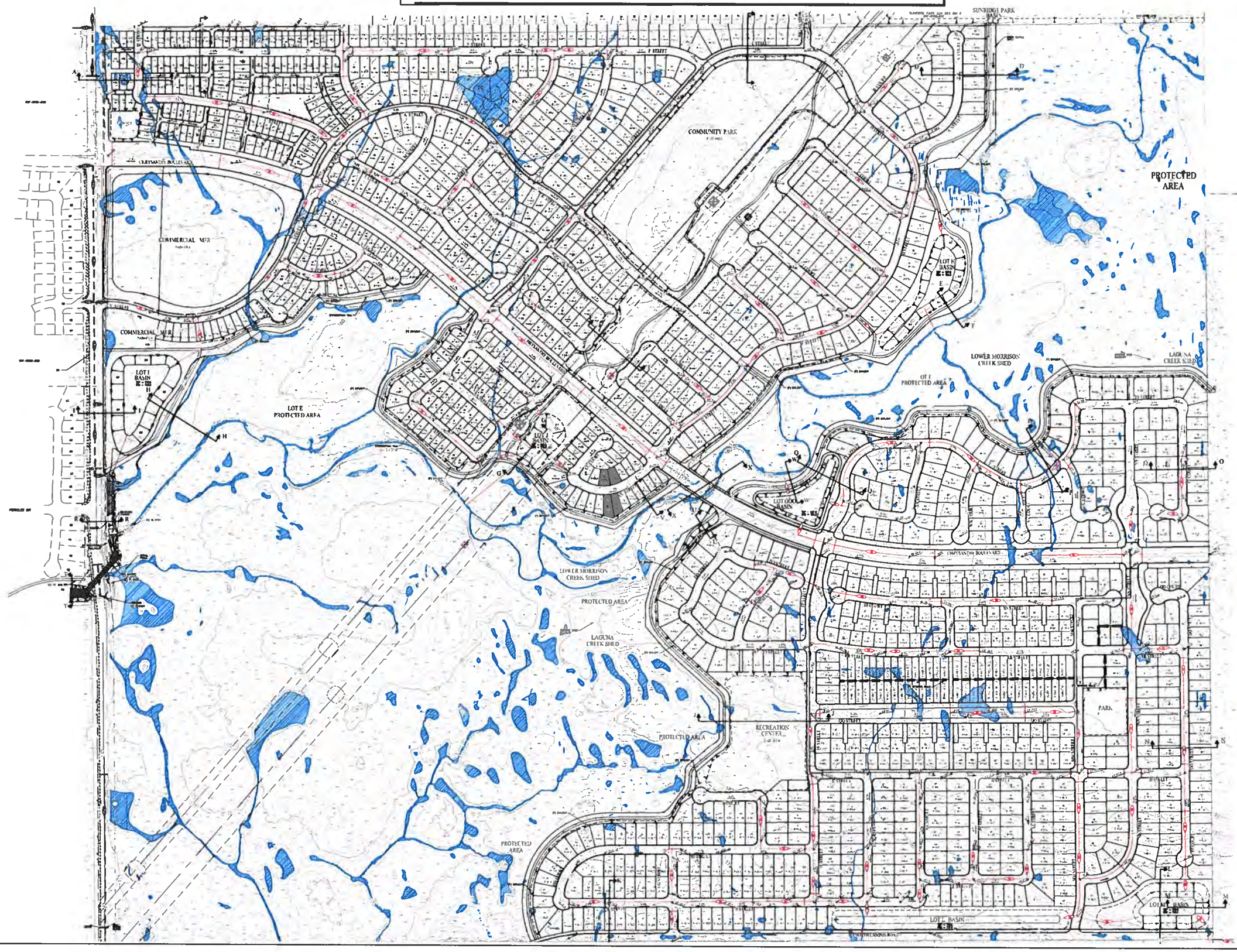
CITY OF RANCHO CORDOVA | FEBRUARY, 2019 | STATE OF CALIFORNIA

LEGEND

400	PROPOSED CONTOUR		PROPOSED RETAINING WALL		DRAINAGE SHED BOUNDARY
400	EXISTING CONTOUR	2:1 UNLESS OTHERWISE NOTED	PROPOSED SLOPE BANK	OUTFALL	PROPOSED DRAINAGE SYSTEM
P=1022.0	PROPOSED PAD ELEVATION		PROPOSED DAYLIGHT LINE		PROPOSED PEDESTRIAN TRAIL

WETLAND
100 YR. WATER SURFACE ELEVATION

SCALE: 1" = 150'



GRADING PLAN TENTATIVE SUBDIVISION MAP

THE RANCH - NORTH
SEWER SHED MAP
CITY OF RANCHO CORDOVA, CALIFORNIA

SCALE: 1"=100' JULY, 2019

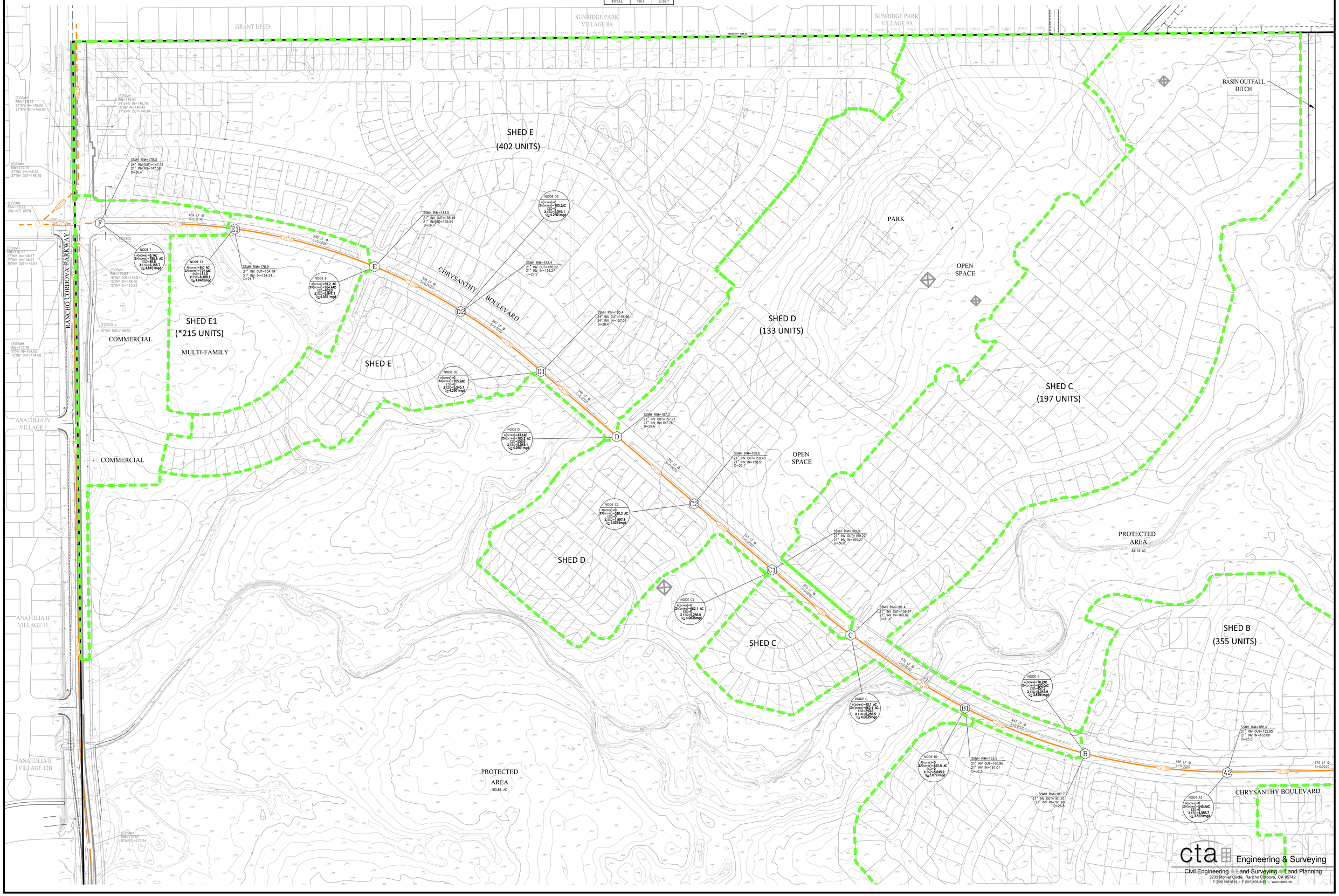
LEGEND

EXISTING SEWER
PROPOSED SEWER
SEWER SHED BOUNDARY
NODE POINT
BOUNDARY LINE
PROPERTY LINE

SHED TABLE		
NODE	ACREAGE	MAX ESD
CHP1	342.0	3,290
ADS1	137.2	899.1
A	66.6	399.6
B	76.2	457.2
C	40.1	240.6
D	43.1	258.6
E	59.2	402.0
E1	8.0	*161.0
F	8.1	48.6
TOTAL	780.5	6,156.7

*MAX ESD IS 75% OF PRELIMINARY MF UNIT COUNT.

0 50' 100' 200'
SCALE: 1" = 100'



M:\17-129-001\PLANNING\EXHIBITS\190708-SEWER STUDY EXHIBIT.dwg, 7/16/2019 4:17:13 PM, athomas, 1:1

THE RANCH - SOUTH

SEWER SHED MAP

CITY OF RANCHO CORDOVA, CALIFORNIA

SCALE: 1"=100'

JULY, 2019

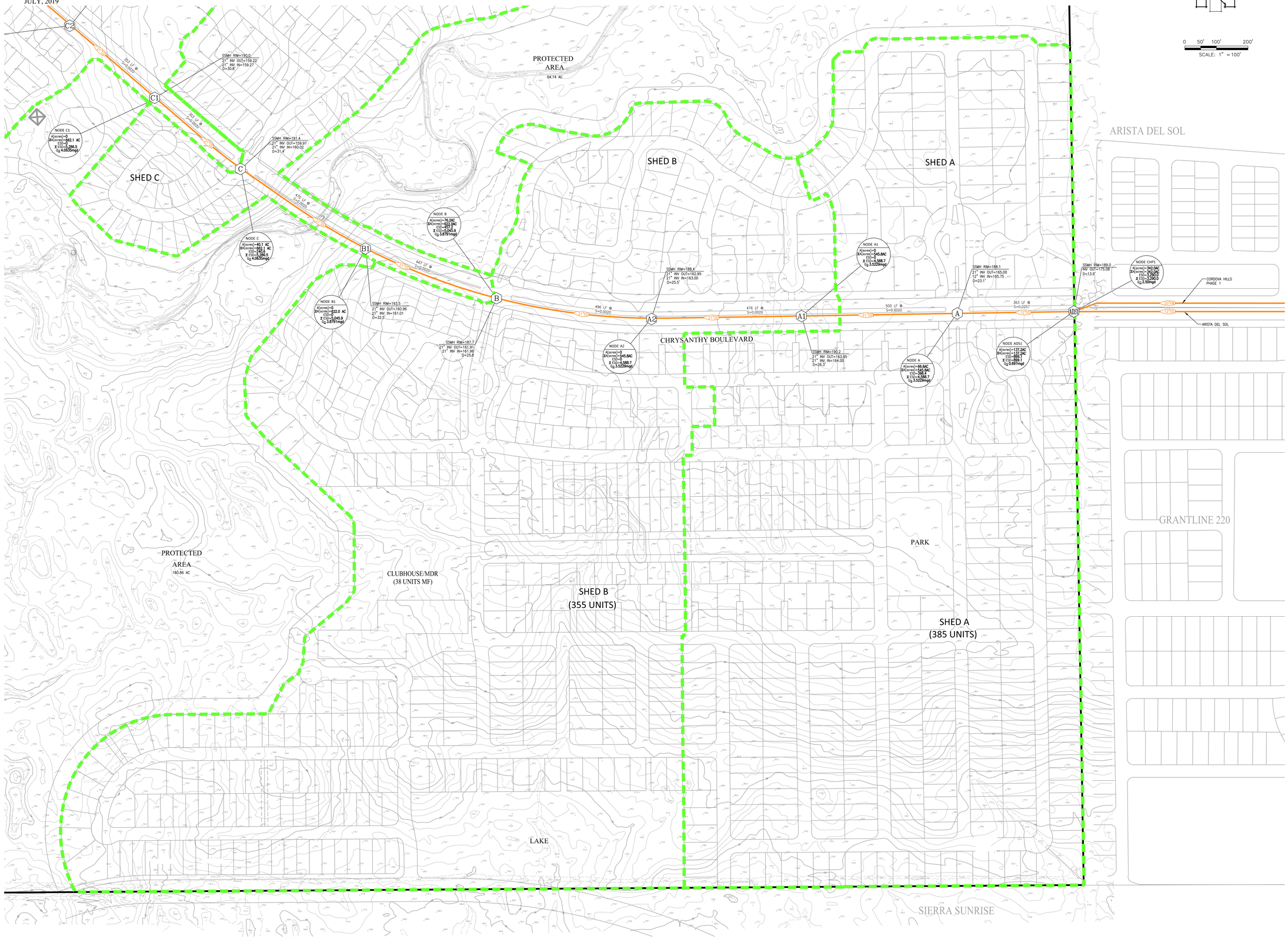
LEGEND

- EXISTING SEWER
- PROPOSED SEWER
- SEWER SHED BOUNDARY
- NODE POINT
- BOUNDARY LINE
- PROPERTY LINE

SHED TABLE

NODE	ACREAGE	MAX ESD
CHP1	342.0	3,290
ADS1	137.2	899.1
A	66.6	399.6
B	76.2	457.2
C	40.1	240.6
D	43.1	258.6
E	59.2	402.0
E1	8.0	*161.0
F	8.1	48.6
TOTAL	780.5	6,156.7

*MAX ESD IS 75% OF PRELIMINARY MF UNIT COUNT.



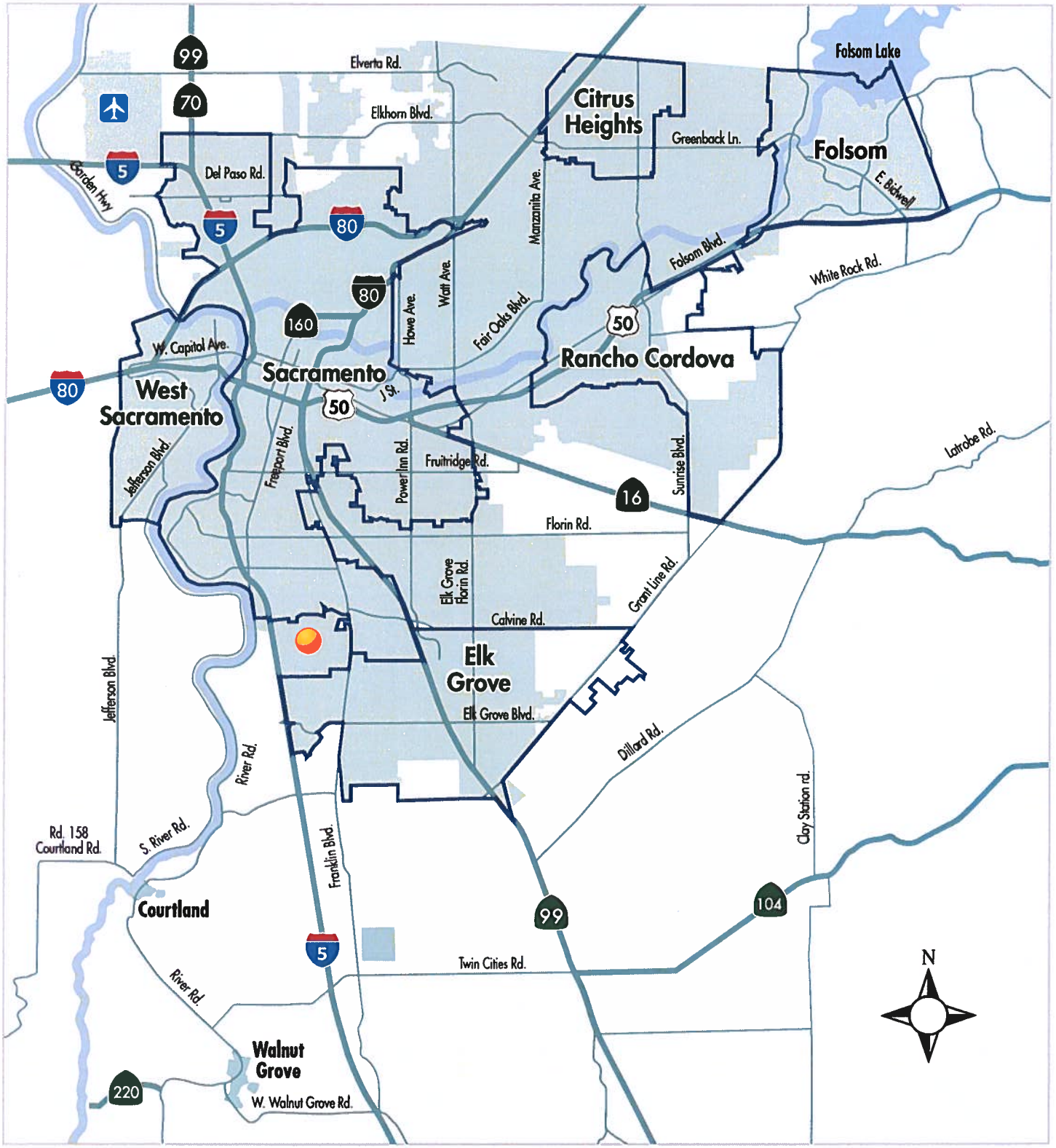
cta Engineering & Surveying

Civil Engineering ■ Land Surveying ■ Land Planning

3233 Monier Circle, Rancho Cordova, CA 95742

T (916) 638-0919 ▫ F (916) 638-2479 ▫ www.ctaes.net

SRCSD SERVICE AREA



LEGEND

- SRCSD Service Area
- City Boundaries
- Rivers
- Sacramento Regional Wastewater Treatment Plant
- Highways
- Main Roads

Exhibit G

SASD SERVICE AREA

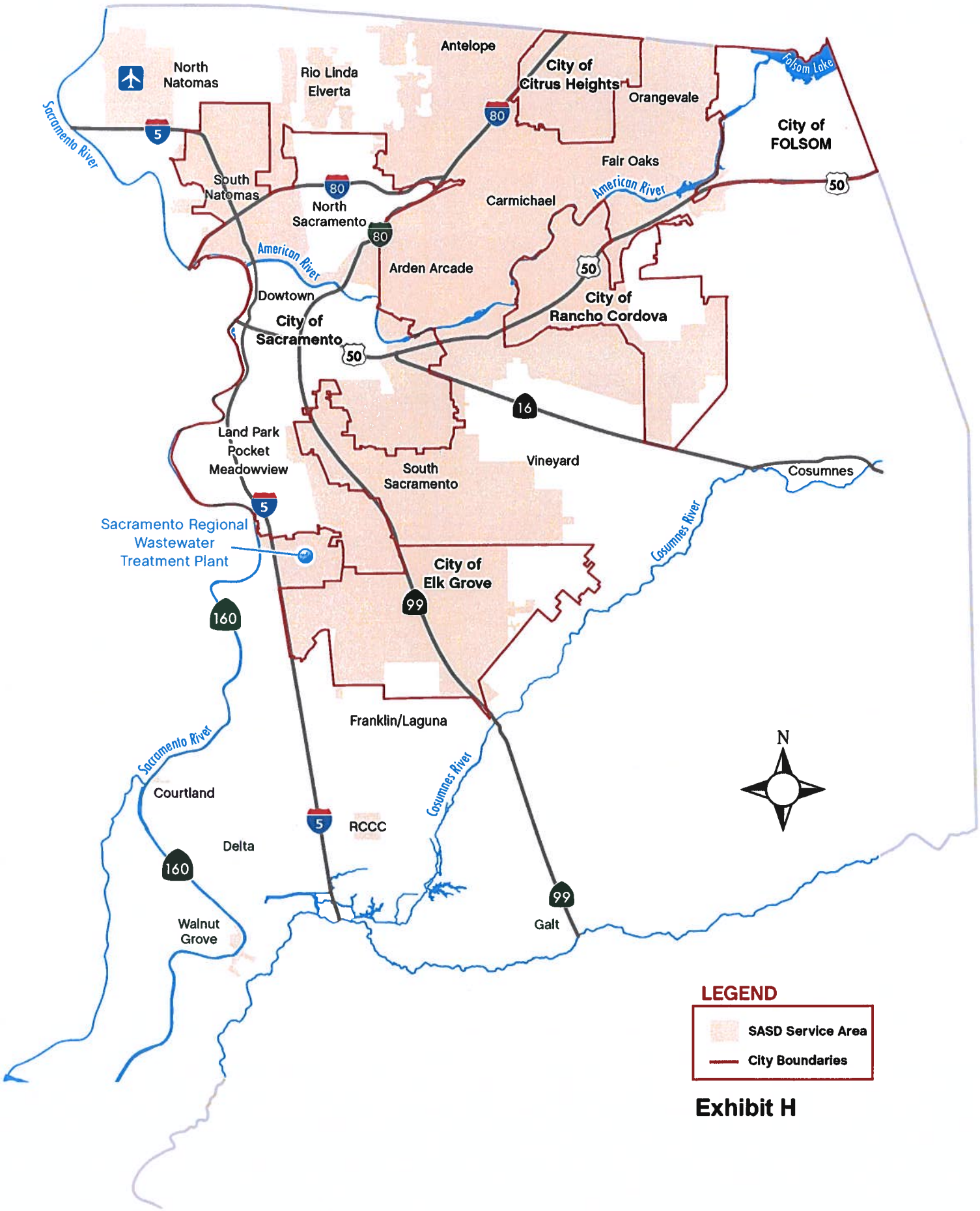
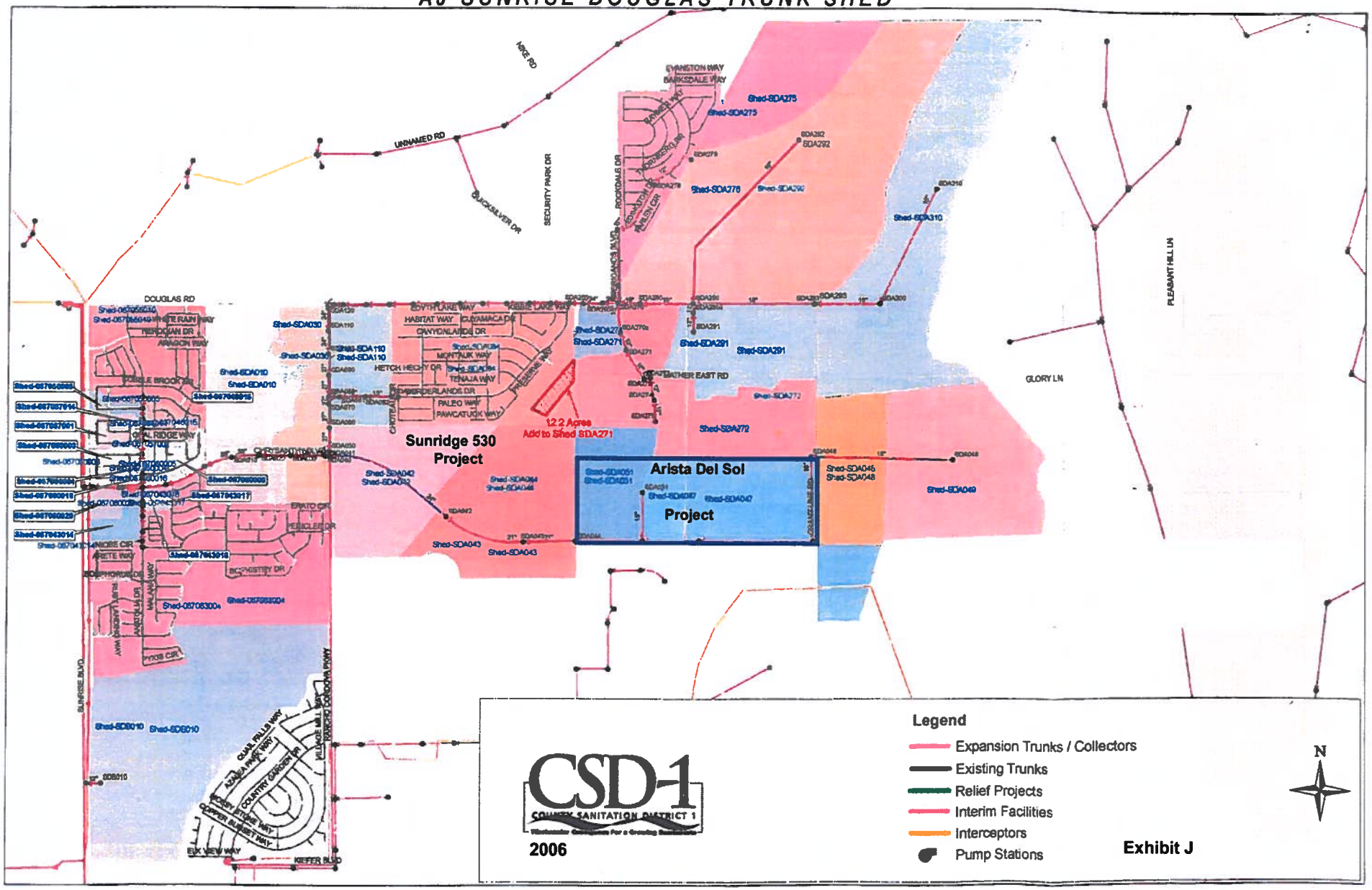
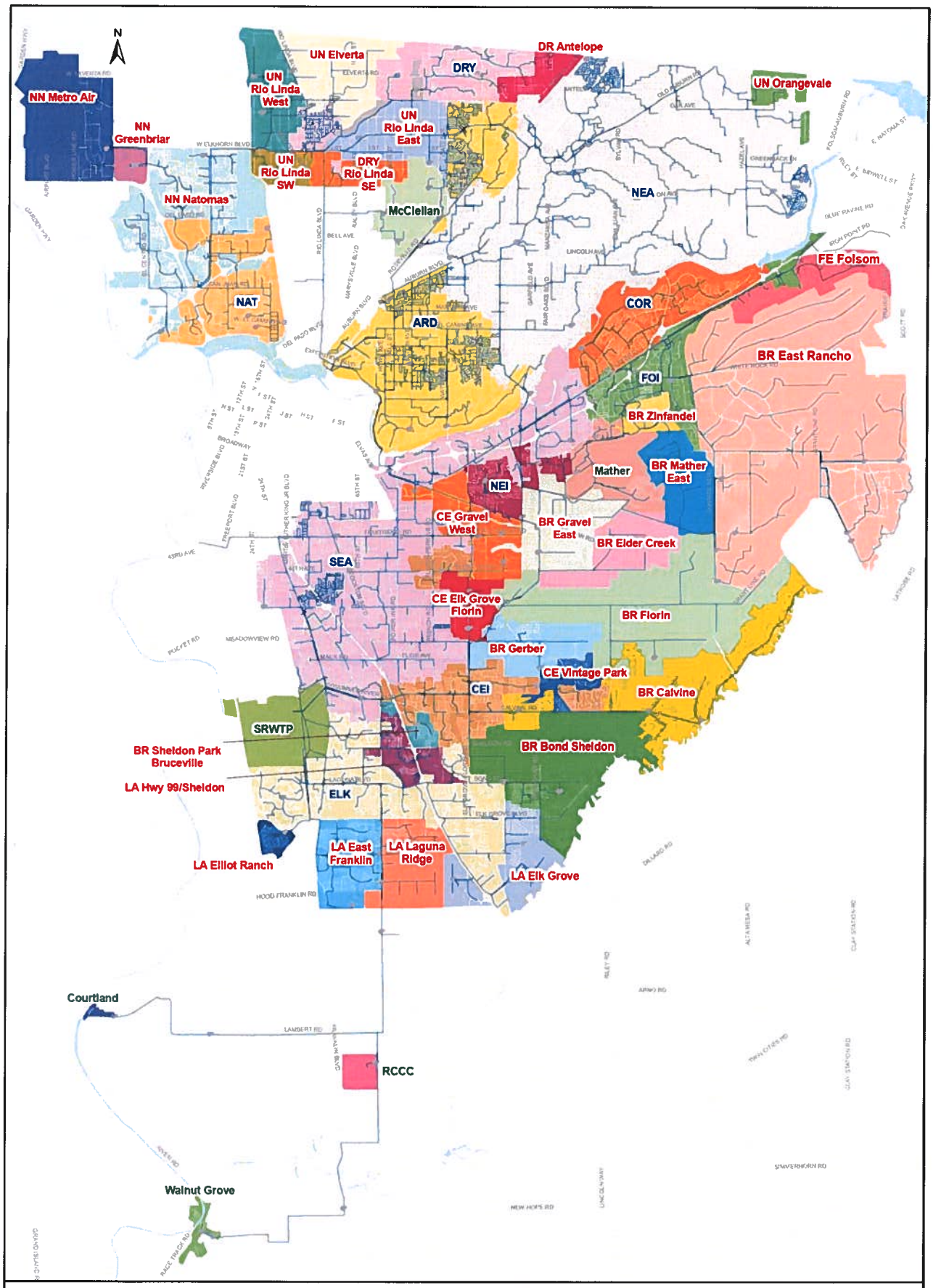


Exhibit H

AJ SUNRISE DOUGLAS TRUNK SHED





Legend

Blue Label: Relief Area Shed
Red Label: Expansion Area Shed
Green Label: To be Determined

SACRAMENTO AREA SEWER DISTRICT

2010 SASD SYSTEM CAPACITY PLAN

Trunk Sheds Map

FIGURE 6-1

Date last revised: 9/6/2011

SASD 2010 SYSTEM CAPACITY PLAN EXPANSION TRUNK SHEDS

BR EAST RANCHO TRUNK SHED – *2015 AMENDMENT*

Introduction

This amendment summarizes the new BR East Rancho near-term and buildout expansion trunk shed plans. Due to recent development activity, SASD has proceeded with an update to the BR East Rancho Expansion Trunk Shed Plan, ahead of the scheduled 2020 System Capacity Plan (SCP) update.

The information in the 2010 SCP BR East Rancho Expansion Trunk Shed Plan was used as a starting reference for this 2015 update. The latest approved sewer study information was included in the update, along with the most recent land use information from the City of Rancho Cordova and Sacramento County. Significant changes to the 2010 SCP were made in areas that were previously planned to be served by future interceptors.

Area Description

The BR East Rancho Trunk Shed encompasses a large area located in the eastern part of Sacramento County, south of Folsom Boulevard. The western half of the shed lies in the City of Rancho Cordova, east of Sunrise Boulevard. The shed extends east to the Urban Services Boundary. The southern boundary includes Grant Line Road and the Urban Services Boundary.

Trunk System Facilities

The BR East Rancho **buildout** expansion trunks are planned to drain to either of two locations which are referred to as Location #1 Outfall and Location #2 Outfall. Location #1 Outfall is located at the S132 Chrysanthy Pump Station (PS), and it will serve the developments in the southern portion of the BR East Rancho shed. Location #2 Outfall is located adjacent to White Rock Road, approximately one-half mile east of Sunrise Boulevard, and it will serve the developments in the northern portion of the BR East Rancho shed. Flows at the two outfall locations are planned to be conveyed by future Regional interceptor facilities.

For the **near-term** conditions, initial flows from the developments in the northern portion of BR East Rancho (Rio Del Oro and Westborough) will drain to the S070 Sunrise White Rock PS system on the interim basis. Ultimately these developments will discharge to Location #2 Outfall. Flows from the developments in the southern portion of BR East Rancho (Anatolia, Arista Del Sol, Cordova Hills, Montelena, North Douglas, Sunridge Lot J, Sunridge Park, and SunCreek) will be conveyed to the S132 Chrysanthy PS.

The BR East Rancho Trunk Shed near-term expansion trunk facilities will be presented first, followed by the buildout summary. The planning trunk facilities are summarized for each of the development areas. The development areas are defined by the sewer studies names, and the areas without sewer studies have been given a name in most cases.

Please refer to the **BR East Rancho Planned Development Areas** map (**Figure A.3-1)** when reviewing the trunk shed plan descriptions below.

A. BR East Rancho Near-Term Expansion Trunk Facilities (Figure A.3-2)

Anatolia, Montelena, Sunridge Lot J, Sunridge Park, and North Douglas – These sheds discharge to the existing trunk system. Their flows are conveyed to S132 PS.

Arista Del Sol – The shed is served by an interim PS. The interim force main will convey flow northward and connect to the existing Douglas Trunk.

Cordova Hills – Phase 1 development will be served by a new permanent PS. Its force main will convey flow northward and connect to the existing Douglas Trunk on an interim basis. The upstream portion of the force main between the PS wet well and Chrysanthy Boulevard will be permanent. The downstream portion of the force main from Chrysanthy Boulevard to the existing Douglas Trunk will be interim until the permanent force main is extended west along Chrysanthy Boulevard and discharges to the Location #1 Outfall.

SunCreek – The Phase 1 development will be served by a new permanent PS. Its force main will convey flow northward and connect to the existing Aerojet Interceptor 1 on Chrysanthy Boulevard.

Rio Del Oro – The Phase 1 development will discharge to existing collectors on White Rock Road, and its flow will be conveyed to S070.

Westborough – The Phase 1 development will be served by an interim pump station. The interim force main will convey flow west along White Rock Road and discharge into the existing 10-inch S070 force main.

B. BR East Rancho Buildout Expansion Trunk Facilities (Figure A.3-3)

Aerojet Lands – This area currently does not have an approved sewer study. The proposed sewer system of the northern portion of this area has been redirected to drain to the Folsom East Interceptor; therefore, it is no longer a part of the BR East Rancho Trunk Shed. The southern portion of the Aerojet Lands area is planned to be served by a trunk that discharges to the Location #2 Outfall.

Anatolia – The trunk system that serves this area has been constructed, and no new trunks are required.

Arboretum – This area is planned to be served by a pump station and two trunk branches. The pump station will be located near the intersection of Jackson Highway and Sunrise Boulevard. The force main will convey flow to the north along Sunrise Boulevard and discharge to the Location #1 Outfall.

Arista Del Sol – Arista Del Sol is planned to be served by a trunk that will be constructed across The Ranch development. The connection point to this future trunk is located in the southwest corner of the development, near the shared boundary with The Ranch development.

Cordova Hills – Cordova Hills will be served by two trunk pump stations situated near each other in the southwest portion of the development. The north pump station will have two contributing trunks while the south pump station will have one contributing trunk. The south pump station will also serve significant areas that lie outside of the Cordova Hills development, known as South Cordova Hills. The pump station force mains convey flow northward to Chrysanthy Boulevard where they follow the right of way west and discharge to the Location #1 Outfall.

Douglas 98 – This area will drain to a future trunk extension of the existing Douglas Trunk.

Douglas 103 – This area requires no additional trunk facilities. Local collectors will discharge to the existing Douglas Trunk.

Grantline 208 – This area requires no additional trunk facilities. Local collectors will discharge to the existing Douglas Trunk.

Montelena – The trunk system that serves this development has been constructed. No additional trunk facilities are required.

North Cordova Hills – North Cordova Hills and the area located to the west currently have no sewer studies. The North Cordova Hills area is proposed to be served by two trunk pump stations located on Glory Lane. Both pump stations' force mains convey flow west along Glory Lane and Douglas Road to the Location #1 Outfall. Each pump station is served by a primary trunk and its minor trunk branches. The area to the immediate west of North Cordova Hills will be served by a trunk that discharges to the extension of the existing Douglas Trunk. The area to the northwest of North Cordova Hills and east of Rio Del Oro will be served by a trunk system that conveys flow to the west along White Rock Road and drains to the Location #2 Outfall.

North Douglas – The sewer system that serves this area has been constructed, and no new trunks are required.

Rio Del Oro – Rio Del Oro will be served by several trunks and a pump station. The proposed pump station located in the southwest corner of the development will serve the southern portion of the development. The pump station force main conveys flow south, adjacent to Sunrise Boulevard, to the Location #1 Outfall. The trunks serving the northern portion of Rio Del Oro will drain to the Location #2 Outfall.

South Cordova Hills – This area is located south of the Cordova Hills development, and it does not have a sewer study. This area is planned to be served by one of the Cordova Hills pump stations.

SunCreek – SunCreek will be served by two trunk pump stations. One proposed pump station is located approximately in the center of the development and will capture flow from the northern portions of the shed area via two trunks. Its force main will convey flow to the north along Rancho Cordova Parkway and discharge to the existing Aerojet Interceptor 1B located in Chrysanthy Boulevard. The second proposed pump station is located in the southwest corner of the development, and it serves the remainder of the shed. This pump station will also provide service to the Anatolia 3 development, which currently is draining to an interim pump station. The ultimate buildout force main of the second proposed pump station will convey flow to the north, along Sunrise Boulevard, and discharge to the Location #1 Outfall.

Sunridge Lot J – The trunk system that serves this development has been constructed. No additional trunk facilities are required.

Sunridge Park – The trunk system that serves this development has been constructed. No additional trunk facilities are required.

The Ranch – The Ranch development is planned to be served by a future trunk that connects to the Aerojet Interceptor 1B located in Chrysanthy Boulevard.

Westborough – The Westborough development will be served by a trunk that discharges to the Location #2 Outfall.

Attribute data and model results for the BR East Rancho **buildout** expansion trunks are presented in the table below. The BR East Rancho Trunk Shed is subdivided into five smaller sub areas as shown in **Figure A.3-4**. **Figures A.3-5** through **A.3-9** display the details of each sub area which include the proposed trunk sewers, modeled manholes, and the contributing area to each manhole.

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
2879-EN02	2879-EN01	Pump									6.7		
2207-EN03	2207-EN02	Gravity Main	15	475	139.0	117.4	138.0	108.9	1.800	5.6	0.9	16	0.8
2123-EN01	2207-EN02	Gravity Main	21	1965	140.5	111.7	138.0	108.9	0.140	3.9	1.0	25	0.5
2207-EN01	2291-EN01	Gravity Main	24	1285	139.0	107.9	134.5	106.1	0.140	5.5	2.6	47	0.5
2207-EN02	2207-EN01	Gravity Main	24	805	138.0	108.9	139.0	107.9	0.120	5.1	2.2	44	0.5
2291-EN01	2375-EN01	Gravity Main	27	2380	134.5	106.1	139.5	103.2	0.120	7.0	3.0	43	0.5
2375-EN01	2376-EN05	Gravity Main	27	740	139.5	103.2	136.5	102.3	0.120	7.0	3.7	53	0.5
2376-EN05	2376-EN03	Gravity Main	27	585	136.5	102.3	134.0	101.4	0.160	8.1	3.9	48	0.6
2376-EN01	2460-EN01	Gravity Main	30	935	130.5	99.9	128.5	98.7	0.120	9.2	4.9	53	0.5
2376-EN02	2376-EN01	Gravity Main	30	795	132.5	100.8	130.5	99.9	0.120	9.2	4.7	51	0.5
2376-EN03	2376-EN02	Gravity Main	30	455	134.0	101.4	132.5	100.8	0.120	9.2	4.6	50	0.5
2460-EN01	2460-EN02	Gravity Main	30	185	128.5	98.7	124.0	98.5	0.120	9.4	5.1	54	0.5
2460-EN02	2460-INT01	Gravity Main	30	311	124.0	98.5	124.7	98.2	0.100	8.4	5.1	60	0.5
2285-EN02	2285-EN01	Gravity Main	10	2269	275.6	261.0	258.0	240.0	0.920	1.4	1.3	93	0.8
2288-EN01	2373-EN01	Gravity Main	15	3313	194.7	173.1	191.1	167.1	0.180	1.8	1.1	62	0.6
2285-EN01	2286-EN01	Gravity Main	15	2961	258.0	233.2	229.7	212.0	0.720	3.5	2.3	64	0.8
2286-EN01	2287-EN01	Gravity Main	15	2884	229.7	212.0	201.7	186.3	0.890	4.0	3.5	89	0.7
2375-EN03	2375-EN02	Gravity Main	18	687	170.6	151.3	138.0	125.6	3.740	13.2	8.5	64	0.6
2287-EN01	2372-EN01	Gravity Main	27	2704	201.7	185.3	193.4	182.6	0.100	6.3	4.7	74	0.6
2372-EN01	2373-EN01	Gravity Main	27	2661	193.4	172.2	191.1	169.6	0.100	6.3	5.3	83	0.7
2375-EN02	2460-INT01	Gravity Main	27	2935	138.0	124.8	124.7	118.0	0.230	9.7	8.7	90	0.8
2373-EN01	2374-EN01	Gravity Main	30	2653	191.1	157.2	180.9	154.5	0.100	8.4	7.4	88	0.8
2374-EN01	2375-EN03	Gravity Main	30	3264	180.9	154.5	170.6	151.3	0.100	8.4	8.1	97	0.8
2452-EN01	2453-EN02	Gravity Main	10	1334	280.0	267.9	273.1	256.8	0.830	1.3	1.0	79	0.7
2453-EN01	2454-EN02	Gravity Main	12	2208	267.1	253.8	232.0	217.8	1.630	2.9	2.1	72	0.7
2537-EN01	2454-EN02	Gravity Main	12	2398	259.9	241.1	232.0	225.0	0.670	1.9	1.7	89	0.7
2453-EN02	2453-EN01	Gravity Main	15	1476	273.1	256.4	267.1	253.8	0.180	1.8	1.5	86	0.7
2537-EN02	2537-EN01	Gravity Main	15	1439	266.0	245.3	259.9	241.1	0.300	2.3	1.4	61	0.6
2454-EN01	2455-EN01	Gravity Main	18	2610	253.3	210.0	204.1	191.9	0.690	5.7	5.0	89	0.7
2454-EN02	2454-EN01	Gravity Main	18	1590	232.0	217.0	253.3	210.0	0.440	4.5	4.5	99	0.9
2623-EN01	2539-EN01	Gravity Main	10	2308	218.0	212.0	192.0	187.4	1.070	1.5	1.0	70	0.6
2539-EN01	2455-EN01	Gravity Main	15	2336	192.0	187.0	204.1	182.8	0.180	1.8	1.4	81	0.7
2374-EN02	2459-EN01	Gravity Main	21	2964	180.9	162.4	142.6	129.9	1.100	10.7	7.3	68	0.6
2459-EN01	2460-INT01	Gravity Main	24	3146	142.6	129.7	124.7	115.0	0.470	10.0	7.3	73	0.6
2371-EN01	2371-EN02	Gravity Main	30	638	240.0	179.8	191.4	179.2	0.100	8.4	7.4	88	0.7
2372-EN02	2373-EN02	Gravity Main	30	2751	190.1	168.0	180.2	165.3	0.100	8.4	7.4	88	0.7
2373-EN02	2374-EN02	Gravity Main	30	2825	180.2	165.3	180.9	162.4	0.100	8.4	7.3	87	0.7
2371-EN02	2372-EN02	Gravity Main	30	2683	191.4	179.2	190.1	176.5	0.100	8.4	7.4	88	0.7
2455-EN01	2371-EN01	Gravity Main	30	1719	204.1	181.5	240.0	179.8	0.100	8.4	6.9	83	0.8
2618-EN02	2618-EN01	Gravity Main	12	1316	222.1	204.5	202.0	193.0	0.870	2.2	1.2	54	0.5
2618-EN03	2618-EN02	Gravity Main	12	476	227.7	208.6	222.1	204.5	0.870	2.2	1.2	54	0.5
2618-EN01	2702-EN01	Gravity Main	18	1362	202.0	187.0	198.0	183.5	0.260	3.5	3.1	88	0.8
2786-EN01	2870-EN01	Gravity Main	18	2264	208.9	178.5	180.4	169.9	0.380	4.2	3.7	87	0.7
2702-EN01	2786-EN01	Gravity Main	18	1303	198.0	183.5	208.9	178.5	0.380	4.2	3.7	87	0.7
2870-EN01	2954-EN02	Gravity Main	21	2418	180.4	160.0	192.3	152.0	0.330	5.9	4.6	78	0.7
2954-EN02	2954-EN03	Gravity Main	24	535	192.3	152.0	158.0	150.4	0.310	8.1	5.4	66	0.6
2618-EN05	2618-EN04	Gravity Main	12	1437	224.3	213.0	206.0	193.0	1.390	2.7	1.0	36	0.4
2619-EN01	2618-EN05	Gravity Main	12	2104	254.4	240.8	224.3	213.0	1.320	2.7	1.0	37	0.4
2618-EN04	2618-EN01	Gravity Main	15	1300	206.0	192.6	202.0	187.2	0.410	2.7	1.7	62	0.7
3460-EN05	3460-EN06	Pump									6.8		

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

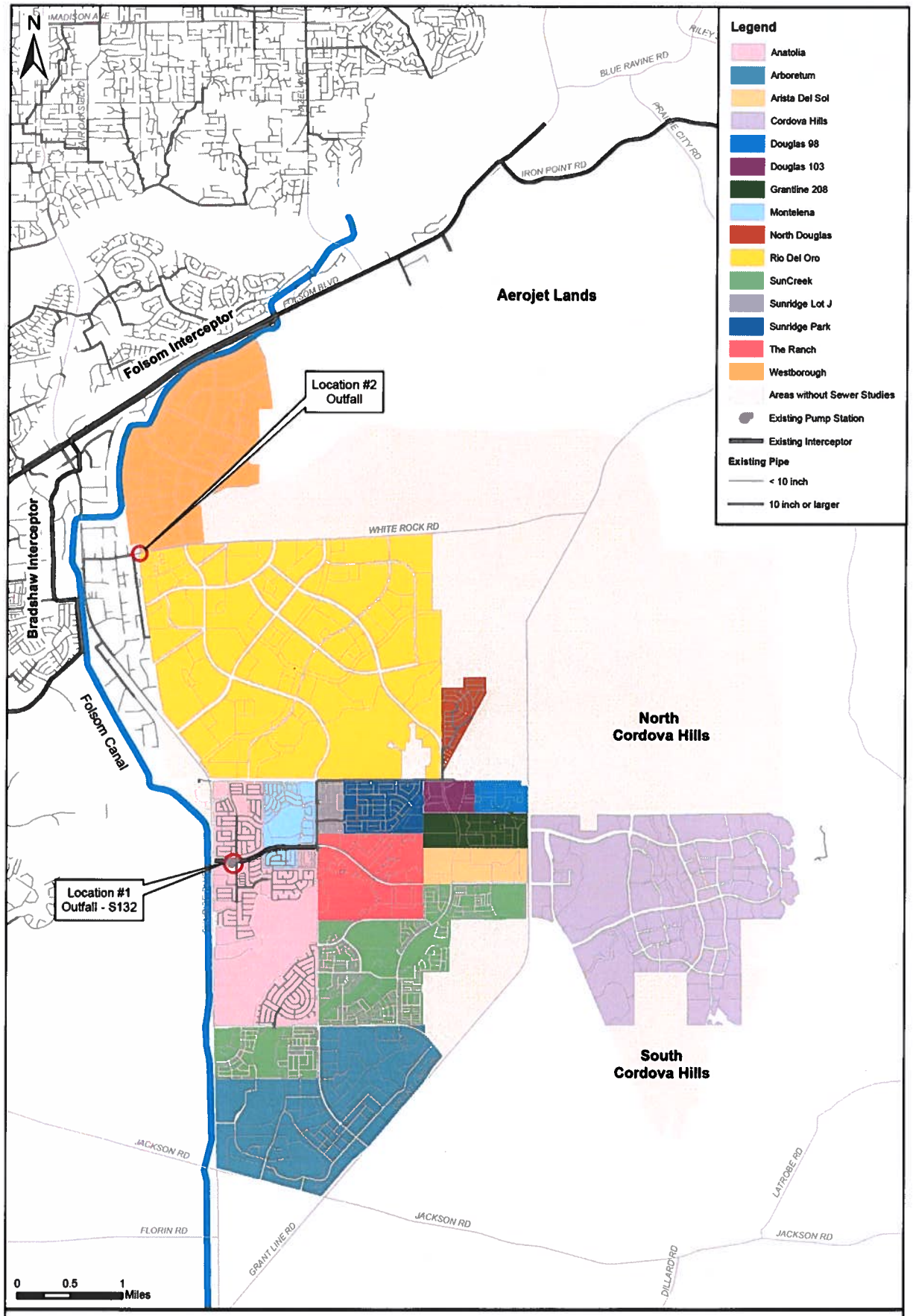
US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
2787-EN02	2787-EN01	Gravity Main	12	1391	224.3	207.0	211.8	200.0	0.500	1.6	1.3	80	0.7
2787-EN01	2872-EN02	Gravity Main	15	1142	211.8	200.0	203.3	190.0	0.880	3.9	1.7	44	0.7
2872-EN02	2872-EN01	Gravity Main	15	1347	203.3	190.0	193.9	180.7	0.690	3.5	2.4	68	0.6
2872-EN01	2956-EN01	Gravity Main	18	687	193.9	180.5	188.1	177.0	0.500	4.8	3.5	73	0.6
2956-EN01	2955-EN02	Gravity Main	27	1171	188.1	171.2	184.0	170.0	0.100	6.3	4.5	72	0.6
2789-EN01	2873-EN02	Gravity Main	15	1479	257.3	231.9	256.0	229.3	0.180	1.8	1.3	76	0.8
2873-EN02	2873-EN01	Gravity Main	15	1263	256.0	229.3	248.0	227.0	0.180	1.8	1.6	90	0.7
2874-EN01	2874-EN02	Gravity Main	18	3042	247.8	220.2	215.4	191.0	0.960	6.7	2.4	37	0.6
2874-EN02	2875-EN02	Gravity Main	18	339	215.4	191.0	210.7	189.2	0.510	4.9	3.1	63	0.6
2875-EN01	326-227-1011	Gravity Main	18	349	208.6	187.5	206.3	185.3	0.630	5.4	3.1	57	0.7
2875-EN02	2875-EN01	Gravity Main	18	311	210.7	189.2	208.6	187.6	0.520	4.9	3.1	62	0.6
2873-EN01	2874-EN01	Gravity Main	21	202	248.0	220.5	247.8	220.2	0.120	3.6	2.4	69	0.6
2708-EN01	2709-EN02	Gravity Main	12	1480	198.3	171.4	172.0	162.0	0.630	1.8	1.2	64	0.6
2709-EN01	2710-EN01	Gravity Main	18	1402	173.7	150.0	164.1	147.4	0.190	2.9	2.2	75	0.9
2709-EN02	2709-EN01	Gravity Main	18	2589	172.0	156.5	173.7	150.3	0.240	3.3	1.8	53	0.5
2710-EN01	2794-EN01	Gravity Main	18	1820	164.1	147.7	150.0	142.3	0.300	3.7	2.9	79	0.7
2794-EN01	2795-EN03	Gravity Main	21	1945	150.0	142.0	152.0	139.7	0.120	3.6	3.2	90	0.7
2795-EN03	2879-EN03	Gravity Main	24	2195	152.0	136.1	146.0	133.7	0.110	4.9	3.8	78	0.7
2879-EN03	2879-EN02	Gravity Main	30	59	146.0	118.5	146.0	118.5	0.100	8.4	6.7	80	0.5
3460-EN03	3460-EN01	Pump									4.2		
2795-EN02	2795-EN01	Gravity Main	12	1788	164.8	128.4	148.0	122.7	0.320	1.3	1.1	86	0.7
2795-EN01	2879-EN03	Gravity Main	18	1904	148.0	122.2	146.0	119.5	0.140	2.5	1.8	70	0.6
2954-EN03	2954-EN01	Pump									5.4		
3205-EN01	3205-EN04	Gravity Main	15	625	155.0	125.9	147.0	124.5	0.230	2.0	1.4	70	0.7
3205-EN02	3205-EN01	Gravity Main	15	757	158.0	133.0	155.0	130.7	0.300	2.3	1.4	61	0.6
3290-EN01	3374-EN01	Gravity Main	15	1398	141.7	120.3	141.0	117.7	0.180	1.8	1.7	97	0.8
3290-EN02	3290-EN01	Gravity Main	15	566	151.6	121.3	141.7	120.3	0.180	1.8	1.7	93	0.8
3205-EN04	3206-EN02	Gravity Main	15	894	147.0	124.5	145.2	122.9	0.180	1.8	1.5	83	0.8
3206-EN02	3290-EN02	Gravity Main	15	892	145.2	122.9	151.6	121.3	0.180	1.8	1.7	93	0.8
3374-EN01	3458-EN01	Gravity Main	18	1743	141.0	117.5	142.1	114.8	0.150	2.7	1.8	68	0.7
3458-EN01	3459-EN03	Gravity Main	18	1743	142.1	114.8	136.0	112.4	0.140	2.5	1.9	74	0.6
3459-EN02	3543-EN01	Gravity Main	21	2126	138.0	110.9	142.7	108.3	0.120	3.6	2.9	81	0.8
3459-EN03	3459-EN02	Gravity Main	21	1051	136.0	112.1	138.0	110.9	0.120	3.6	2.6	72	0.7
3543-EN01	3627-EN01	Gravity Main	21	1861	142.7	108.3	132.1	106.1	0.120	3.6	3.2	90	0.7
3460-EN02	3460-EN03	Gravity Main	24	22	124.0	100.8	124.0	100.7	0.110	4.9	4.2	87	0.5
3627-EN01	3628-EN01	Gravity Main	24	1326	132.1	105.8	135.6	104.4	0.110	4.9	3.8	77	0.7
3628-EN01	3460-EN02	Gravity Main	24	3280	135.6	104.4	124.0	100.8	0.110	4.9	3.9	81	0.7
3123-EN04	3123-EN03	Gravity Main	12	735	185.0	177.6	187.0	175.2	0.330	1.3	0.9	70	0.6
3123-EN03	3207-EN07	Gravity Main	15	650	187.0	175.2	181.0	172.9	0.350	2.5	1.1	44	0.6
3207-EN06	3207-EN05	Gravity Main	15	784	182.0	170.0	177.0	167.5	0.320	2.4	1.5	62	0.6
3207-EN07	3207-EN06	Gravity Main	15	878	181.0	172.9	182.0	170.0	0.330	2.4	1.4	56	0.6
3291-EN05	3291-EN03	Gravity Main	18	567	164.4	154.4	166.5	153.6	0.140	2.6	2.1	81	0.8
3291-EN06	3291-EN07	Gravity Main	18	486	169.0	160.9	165.0	154.8	1.260	7.6	2.0	26	0.7
3291-EN07	3291-EN05	Gravity Main	18	291	165.0	154.8	164.4	154.4	0.140	2.5	2.0	80	0.7
3291-EN09	3291-EN06	Gravity Main	18	1182	172.0	165.0	169.0	160.9	0.350	4.0	1.9	48	0.5
3207-EN05	3291-EN09	Gravity Main	18	633	177.0	167.5	172.0	165.0	0.400	4.3	1.6	37	0.5
2955-EN02	2955-EN01	Pump									4.5		
3207-EN03	3207-EN02	Gravity Main	12	362	176.0	166.4	166.0	163.7	0.750	2.0	1.0	49	0.5
3207-EN01	3291-En04	Gravity Main	15	1385	170.1	159.6	173.8	156.2	0.250	2.1	1.1	53	0.6
3207-EN02	3207-EN01	Gravity Main	15	547	166.0	163.4	170.1	159.6	0.700	3.5	1.1	31	0.5

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
3291-EN04	3291-EN03	Gravity Main	18	936	173.8	156.2	166.5	153.6	0.280	3.6	1.7	48	0.8
3291-EN01	3376-EN03	Gravity Main	24	2503	161.8	148.0	148.0	134.0	0.560	11.0	4.1	37	0.4
3291-EN02	3291-EN01	Gravity Main	24	590	170.0	153.0	161.8	148.1	0.830	13.3	4.0	30	0.4
3376-EN01	3460-EN04	Gravity Main	24	180	142.0	124.2	132.0	120.9	1.840	19.8	4.5	23	0.6
3376-EN02	3376-EN01	Gravity Main	24	1123	138.0	129.0	142.0	124.3	0.420	9.5	4.5	48	0.5
3376-EN03	3376-EN02	Gravity Main	24	918	148.0	133.9	138.0	129.1	0.520	10.6	4.5	42	0.5
3291-EN03	3291-EN02	Gravity Main	24	386	166.5	153.6	170.0	153.0	0.160	5.8	3.9	67	0.6
3460-EN04	3460-EN05	Gravity Main	27	43	132.0	120.9	132.0	120.9	0.100	6.3	6.8	107	0.6
3293-EN01	3460-EN04	Gravity Main	10	4219	237.0	200.0	132.0	122.3	1.840	1.9	1.7	86	0.7
3209-EN01	3293-EN01	Gravity Main	12	899	237.0	206.9	237.0	200.0	0.770	2.0	1.4	69	0.6
3209-EN02	3209-EN01	Gravity Main	12	796	236.0	212.6	237.0	207.0	0.700	1.9	1.3	65	0.6
3209-EN03	3209-EN02	Gravity Main	12	957	238.0	217.4	236.0	212.7	0.490	1.6	0.9	55	0.5
3719-EN03	3719-EN02	Pump									3.7		
3213-EN01	3296-EN01	Gravity Main	15	859	169.0	154.5	162.5	153.0	0.180	1.8	1.0	58	0.6
3296-EN01	3296-EN02	Gravity Main	15	491	162.5	146.2	161.8	145.6	0.130	1.5	1.3	89	0.7
3211-EN01	3211-EN02	Gravity Main	15	373	181.0	168.6	180.0	168.0	0.160	1.7	0.9	54	0.5
3211-EN02	3212-EN03	Gravity Main	15	1287	180.0	168.0	173.4	165.7	0.180	1.8	0.9	50	0.5
3212-EN01	3213-EN01	Gravity Main	15	1694	172.0	161.7	169.0	158.6	0.180	1.8	1.0	55	0.5
3212-EN02	3212-EN01	Gravity Main	15	1024	170.8	163.6	172.0	161.7	0.180	1.8	1.0	53	0.5
3212-EN03	3212-EN02	Gravity Main	15	1142	173.4	165.7	170.8	163.6	0.180	1.8	0.9	52	0.5
3296-EN02	3296-EN10	Gravity Main	18	727	161.8	143.9	158.0	142.9	0.140	2.6	1.6	64	0.6
3296-EN10	3296-EN03	Gravity Main	24	62	158.0	142.4	158.0	142.3	0.110	4.9	4.4	91	0.5
3295-EN01	3296-EN07	Gravity Main	18	1591	172.0	155.9	162.1	153.7	0.140	2.5	2.0	78	0.7
3296-EN05	3296-EN10	Gravity Main	18	582	159.0	145.7	158.0	144.5	0.190	3.0	2.8	93	0.8
3296-EN06	3296-EN05	Gravity Main	18	719	164.0	148.0	159.0	147.0	0.140	2.5	2.0	78	0.7
3296-EN07	3296-EN06	Gravity Main	18	461	162.1	153.7	164.0	153.0	0.140	2.5	2.0	78	0.7
3551-EN02	3551-EN01	Pump									2.1		
3296-EN03	3296-EN04	Pump									4.4		
3466-EN01	3550-EN02	Gravity Main	18	2852	141.0	116.7	137.0	112.6	0.140	2.6	1.4	53	0.5
312-218-1016	3466-EN01	Gravity Main	18	809	132.0	117.8	141.0	116.7	0.140	2.5	1.4	54	0.5
3550-EN02	3551-EN02	Gravity Main	21	1998	137.0	110.6	131.0	107.7	0.140	3.9	2.1	53	0.5
3549-EN01	3550-EN01	Gravity Main	15	734	151.9	124.9	133.0	116.9	1.090	4.4	1.0	24	0.6
3550-EN01	3634-EN01	Gravity Main	15	724	133.0	116.9	142.2	115.6	0.180	1.8	1.1	63	0.6
3634-EN01	3718-EN04	Gravity Main	15	1967	142.2	115.6	128.1	112.1	0.180	1.8	1.2	67	0.6
3718-EN04	3718_EN03	Gravity Main	15	645	128.1	112.1	127.0	96.9	2.350	6.4	1.3	20	0.6
3718_EN03	3718-EN02	Gravity Main	18	341	127.0	96.6	127.0	96.2	0.140	2.5	1.9	76	0.6
3632-EN01	3717-EN04	Gravity Main	15	436	143.0	122.0	143.0	121.1	0.200	1.9	1.1	56	0.5
3717-EN04	3717-EN03	Gravity Main	15	1197	143.0	121.1	142.0	115.1	0.500	3.0	1.1	37	0.6
3717-EN02	3717-EN01	Gravity Main	18	1006	145.0	113.1	140.0	111.7	0.140	2.6	1.5	59	0.6
3717-EN03	3717-EN02	Gravity Main	18	1049	142.0	115.1	145.0	113.3	0.170	2.8	1.4	52	0.5
3717-EN01	3718-EN06	Gravity Main	18	669	140.0	111.7	140.0	110.5	0.170	2.8	1.6	55	0.6
3718-EN05	3718-EN02	Gravity Main	18	826	138.0	109.6	127.0	96.2	1.620	8.7	1.7	20	0.6
3718-EN06	3718-EN05	Gravity Main	18	865	140.0	110.5	138.0	109.6	0.110	2.3	1.6	69	0.6
3718-EN01	3719-EN01	Gravity Main	24	2006	129.9	94.9	118.0	93.1	0.090	4.4	3.7	86	0.7
3718-EN02	3718-EN01	Gravity Main	24	694	127.0	95.7	129.9	94.9	0.120	5.0	3.7	74	0.7
3719-EN01	3719-EN03	Gravity Main	24	35	118.0	93.1	122.0	92.8	0.780	12.9	3.7	29	0.4
3128-EN01	3045-EN01	Gravity Main	15	1136	189.2	154.8	184.0	152.8	0.180	1.8	1.5	82	0.7
3128-EN02	3128-EN01	Gravity Main	15	1303	193.4	157.2	189.2	154.8	0.180	1.8	1.5	82	0.7
3045-EN01	322-221-1009	Gravity Main	18	1715	184.0	152.5	179.7	150.1	0.140	2.5	1.8	70	0.6
2540-EN01	2541-EN02	Gravity Main	15	2147	175.2	159.4	172.0	155.6	0.180	1.8	1.2	69	0.6

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

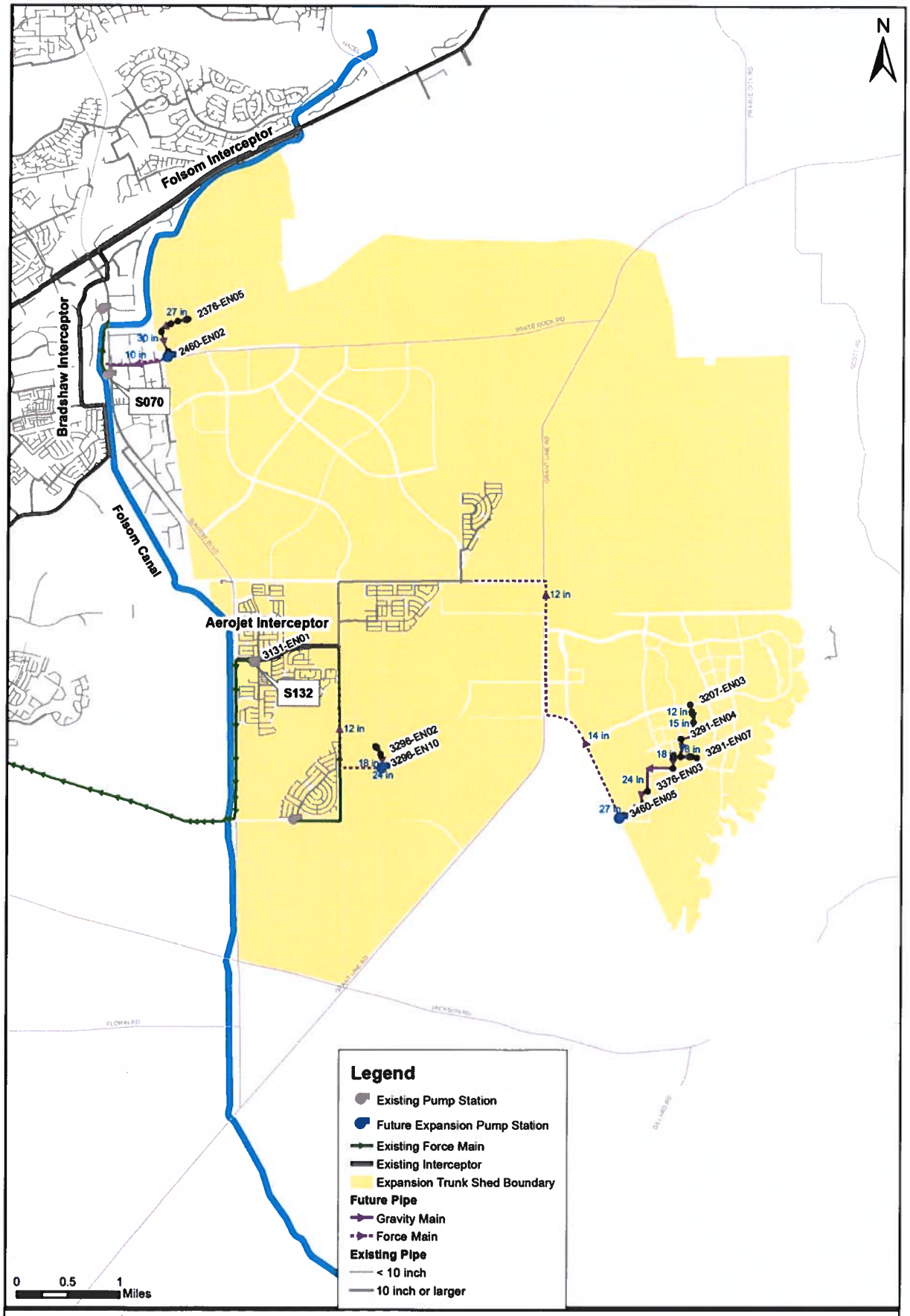
US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
2458-EN01	2543-EN01	Gravity Main	18	1431	179.6	148.0	164.6	139.3	0.610	5.3	4.0	76	0.7
2544-EN02	2544-EN01	Gravity Main	18	813	158.2	135.4	136.0	130.0	0.660	5.5	5.4	97	0.8
2541-EN01	2542-EN01	Gravity Main	21	1682	173.8	152.7	173.4	150.7	0.120	3.5	3.3	94	0.9
2541-EN02	2541-EN01	Gravity Main	21	1330	172.0	155.1	173.8	153.5	0.120	3.6	2.7	76	0.7
2542-EN01	2458-EN01	Gravity Main	21	2211	173.4	150.5	179.6	147.9	0.120	3.6	3.7	105	1.0
2460-EN03	2460-INT01	Gravity Main	27	299	124.0	110.1	124.7	109.8	0.100	6.3	5.7	90	0.6
2543-EN01	2544-EN02	Gravity Main	27	3236	164.6	138.6	158.2	135.4	0.100	6.3	5.0	79	0.7
2544-EN01	2460-EN03	Gravity Main	27	2373	136.0	112.4	124.0	110.1	0.100	6.3	5.7	90	0.7
2954-EN03	3131-EN01	Force Main	15	31664	158.0	151.0	168.0	160.0			5.4		1.0
2955-EN02	3131-EN01	Force Main	15	26476	182.4	169.0	168.0	160.0			4.5		1.0
3460-EN03	3131-EN01	Force Main	12	25920	124.0	98.4	168.0	160.0			4.2		1.0
3460-EN05	3131-EN01	Force Main	15	24480	138.0	120.9	168.0	160.0			6.8		1.0
3296-EN03	N47-MH0108A	Force Main	12	8567	158.0	142.6	177.4	167.0			4.4		1.0
2879-EN02	3131-EN01	Force Main	14	6004	146.0	118.0	168.0	160.0			6.7		1.0
3719-EN03	3131-EN01	Force Main	12	16654	116.2	92.8	168.0	160.0			3.7		1.0
3551-EN02	3131-EN01	Force Main	12	11852	131.0	107.7	168.0	160.0			2.1		1.0



SACRAMENTO AREA
SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE
BR East Rancho
Planned Development Areas
Figure A.3-1

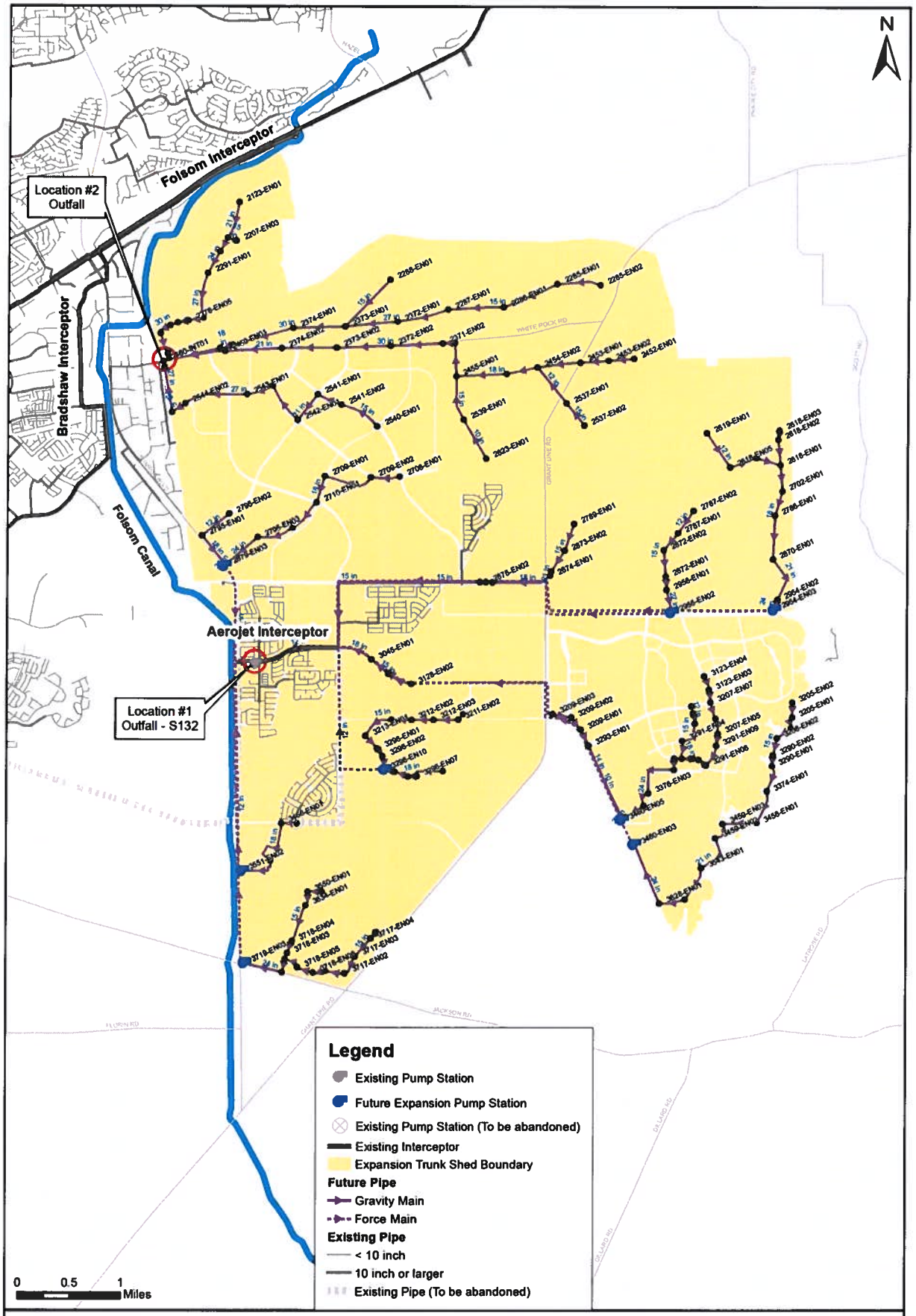
Updated: 3/18/2016



SASD SYSTEM CAPACITY PLAN - 2015 UPDATE
BR East Rancho
Near-Term Expansion Plan
Figure A.3-2

SACRAMENTO AREA
SEWER DISTRICT

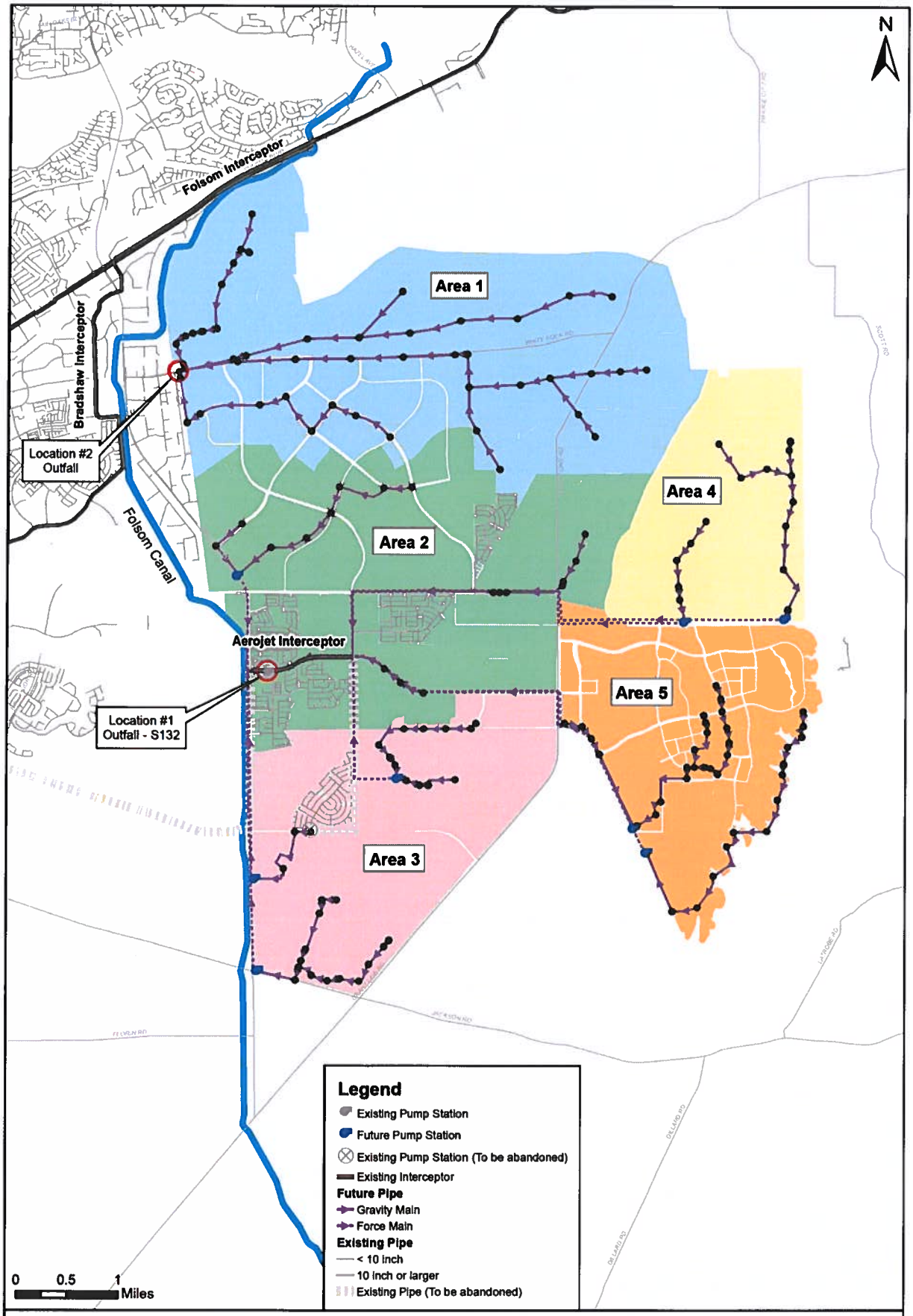
Updated: 8/24/2016



SASD SYSTEM CAPACITY PLAN - 2015 UPDATE
BR East Rancho
Buildout Expansion Plan
Figure A.3-3

SACRAMENTO AREA
SEWER DISTRICT

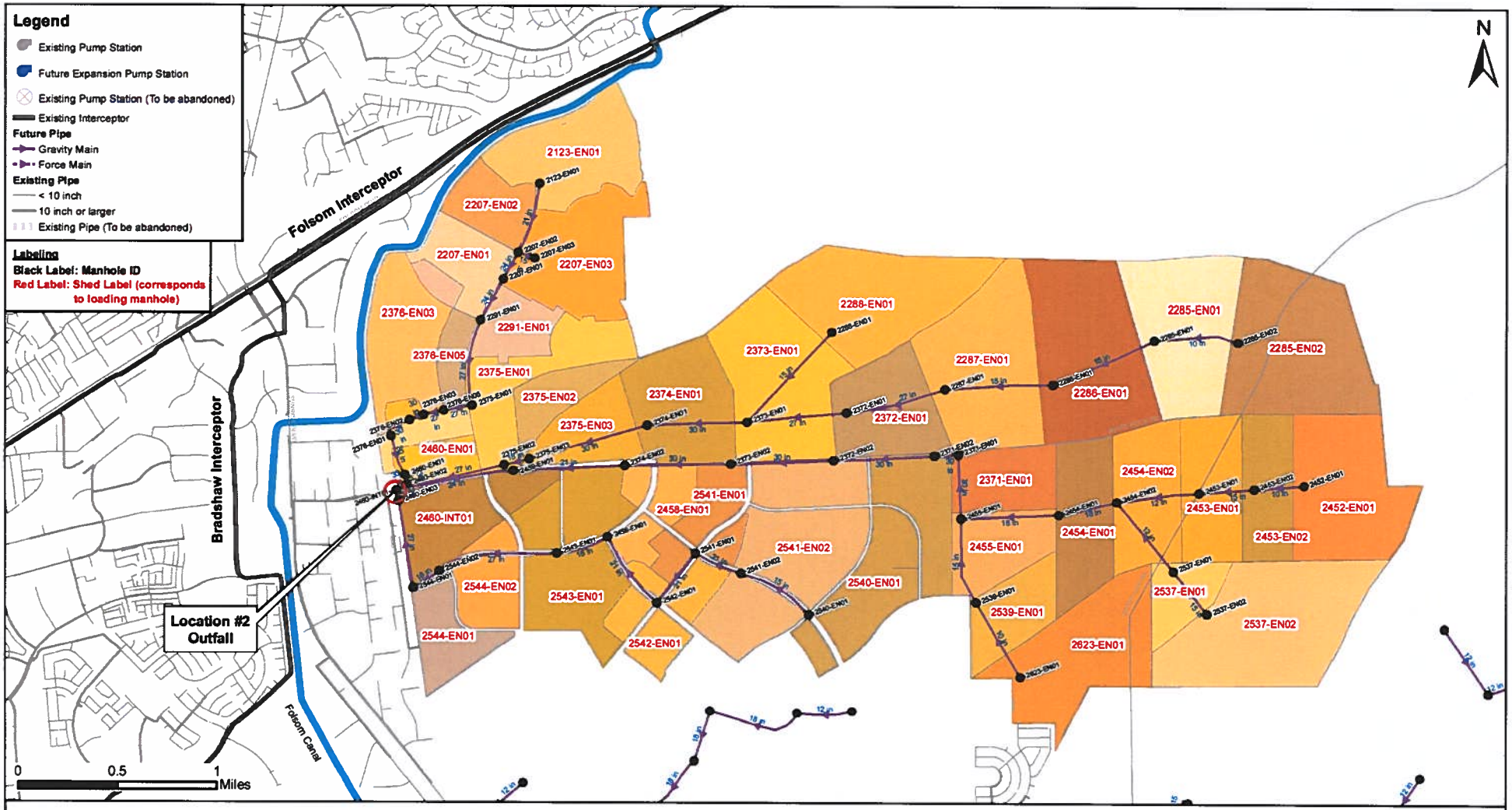
Updated: 3/18/2016



SASD SYSTEM CAPACITY PLAN - 2015 UPDATE
BR East Rancho
Sewer Shed Map (Area 1 - Area 5)
Buildout Expansion Plan
FIGURE A.3-4

SACRAMENTO AREA
SEWER DISTRICT

Updated: 3/18/2016



SACRAMENTO AREA
SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

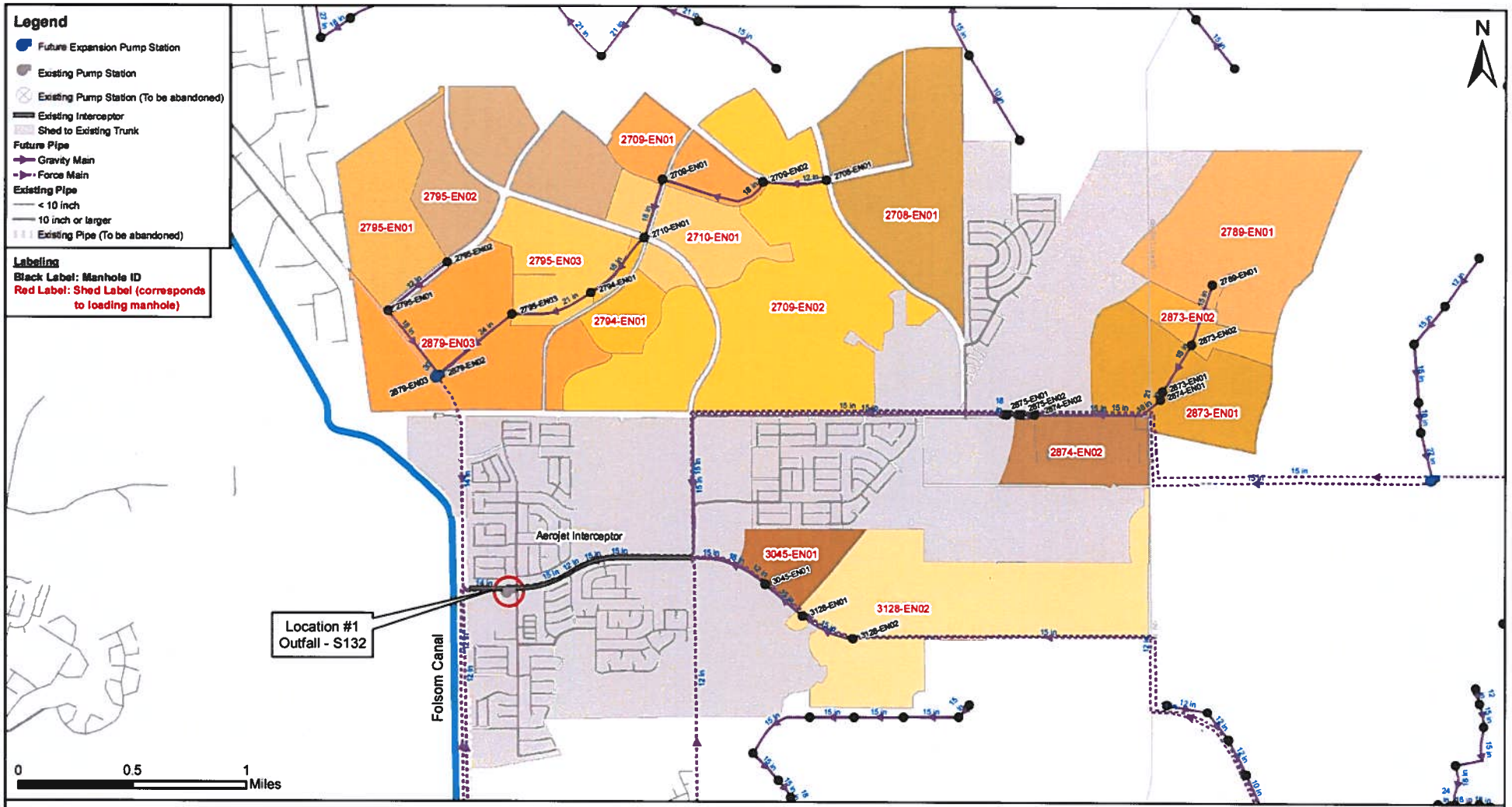
BR East Rancho

Sewer Shed Map - Area 1

Buildout Expansion Plan

FIGURE A.3-5

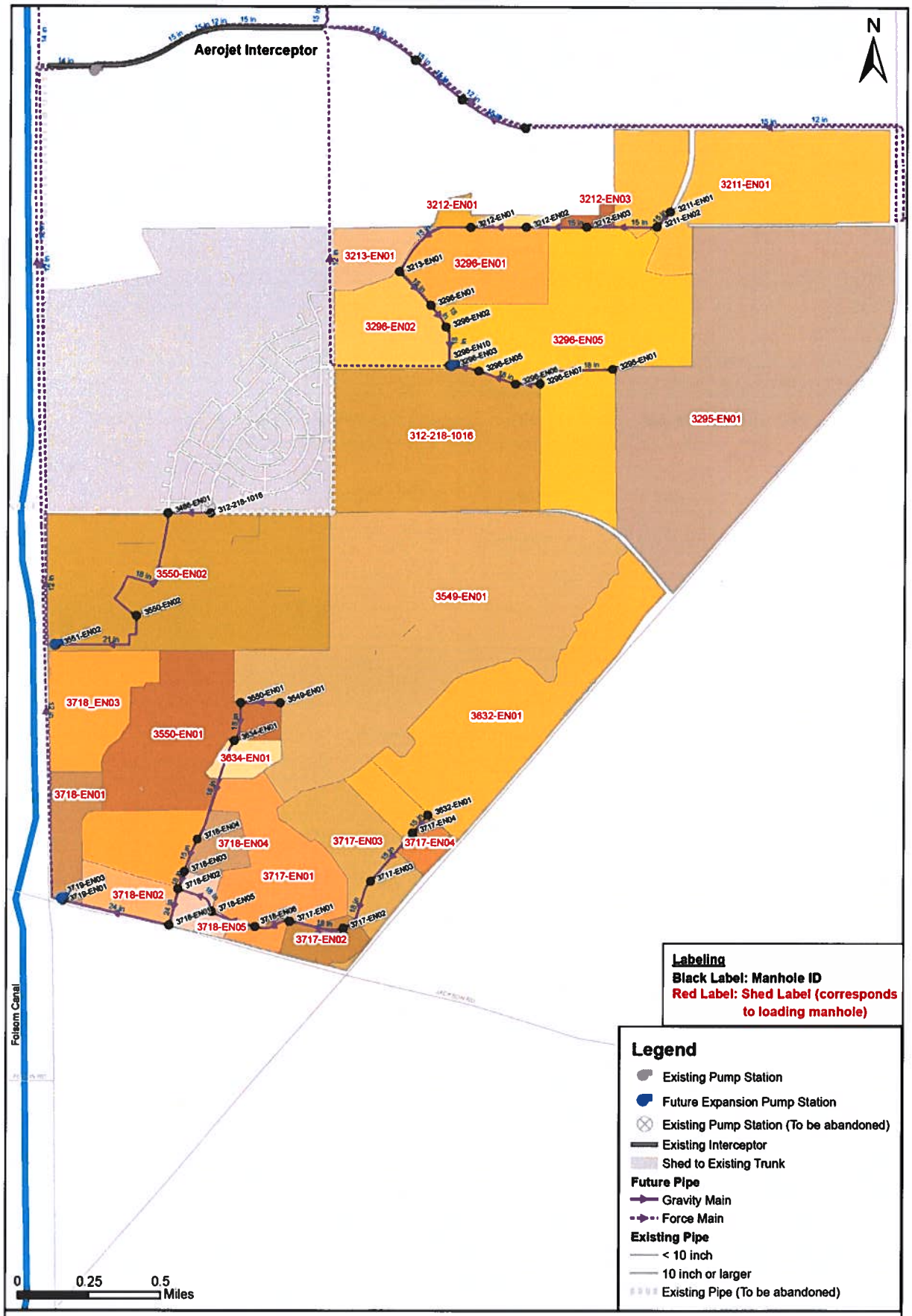
Updated: 3/18/2016



SACRAMENTO AREA
SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE
BR East Rancho
Sewer Shed Map - Area 2
Buildout Expansion Plan
FIGURE A.3-6

Updated: 3/18/2016



SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

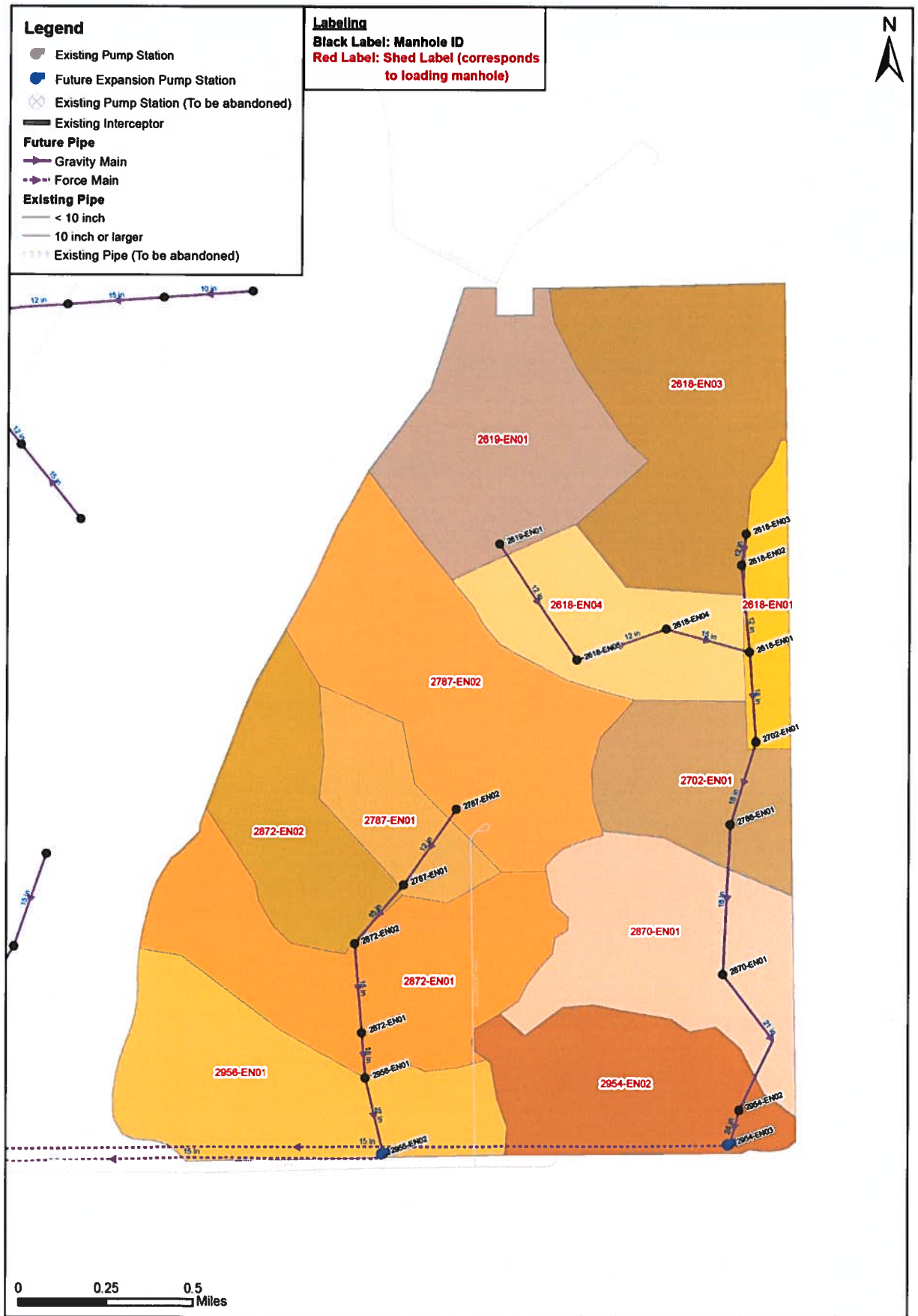
Sewer Shed Map - Area 3

Buildout Expansion Plan

FIGURE A.3-7

SACRAMENTO AREA SEWER DISTRICT

Updated: 3/18/2016



SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

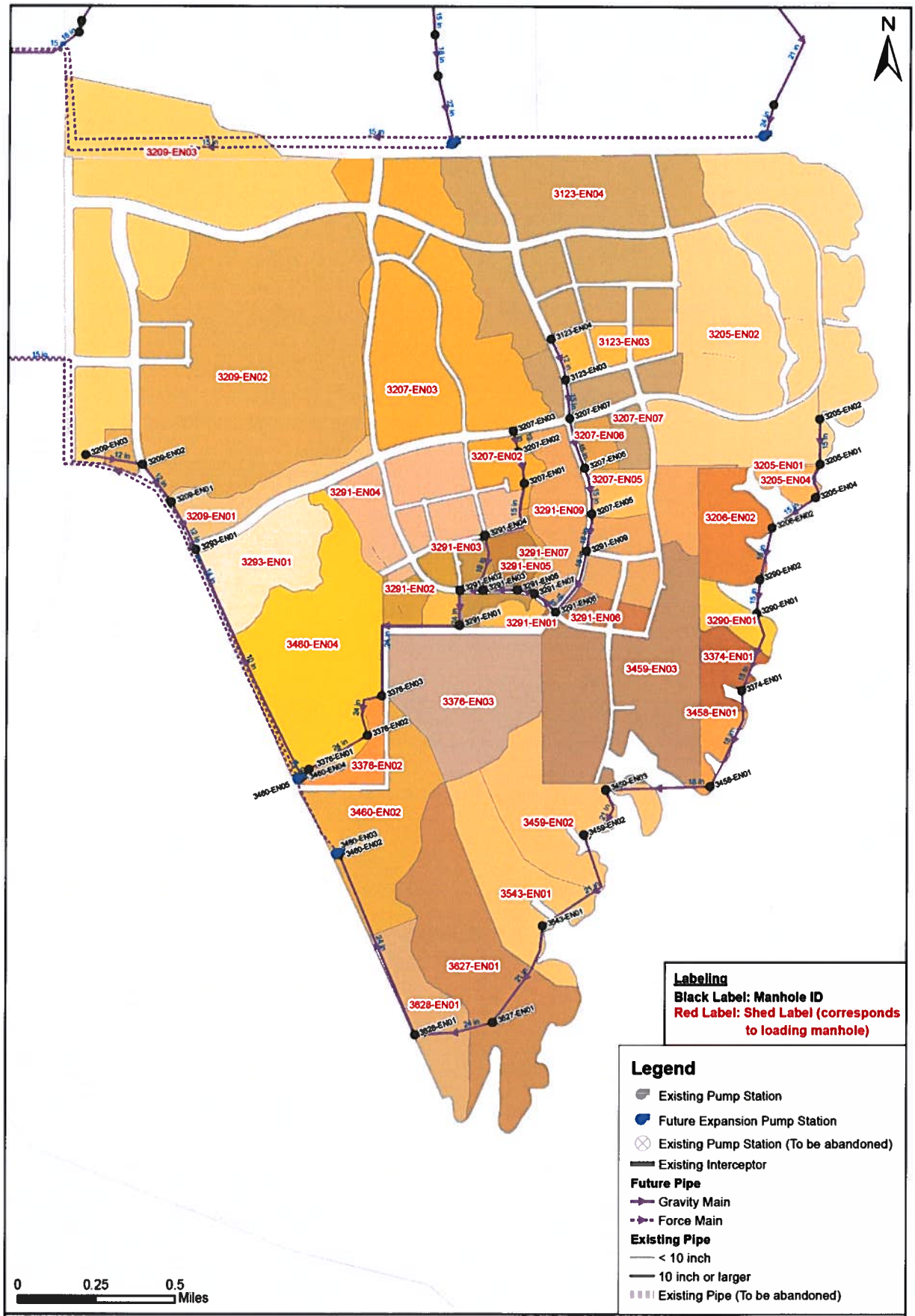
Sewer Shed Map - Area 4

Buildout Expansion Plan

FIGURE A.3-8

SACRAMENTO AREA SEWER DISTRICT

Updated: 3/18/2016



SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

Sewer Shed Map - Area 5

Buildout Expansion Plan

FIGURE A.3-9

SACRAMENTO AREA SEWER DISTRICT

Updated: 3/18/2016

From: Lewis. Yadira [mailto:lewisy@sacsewer.com]
Sent: Friday, August 10, 2018 2:31 PM
To: Tom Cassera <tcassera@ctaes.net>
Cc: Murray. Ken <murrayke@sacsewer.com>
Subject: Sewer Studies

Good afternoon Mr. Cassera,

I have provided a link below to the following sewer studies:

- Montelena
- Cordova Hills
- Arista Del Sol

Please let me know if I can assist you further. Thank you.

Yadira Lewis, P.E.
Assistant Engineer
Sacramento Area Sewer District
10060 Goethe Road
Sacramento, CA 95827
(916) 876-6336
lewisy@sacsewer.com
www.sacsewer.com

SACRAMENTO AREA
SEWER DISTRICT

From: Lewis. Yadira [mailto:lewisy@sacsewer.com]
Sent: Monday, September 17, 2018 3:38 PM
To: Tom Cassera <tcassera@ctaes.net>
Cc: Murray. Ken <murrayke@sacsewer.com>
Subject: RE: The Ranch level 1 - RE: Sewer Studies

Hi Tom,

Thank you for the follow-up email. SASD's modeling section has confirmed there is available capacity in the Aerojet Interceptor under existing conditions. Assuming the S132 pump station will be replaced by a Regional San facility that will not cause back-ups to the Aerojet Interceptor, the model predicts minor surcharging in the Aerojet Interceptor under buildout conditions. Thank you.

-Yadira

From: Lewis. Yadira [mailto:lewisy@sacsewer.com]
Sent: Tuesday, September 04, 2018 6:55 AM
To: Tom Cassera <tcassera@ctaes.net>
Cc: Murray. Ken <murrayke@sacsewer.com>
Subject: RE: The Ranch level 1 - RE: Sewer Studies

Good morning Tom,

Allow me to verify this with SASD's modeling department. I will let you know what they say as soon as possible. Thank you.

-Yadira

From: tcassera@ctaes.net [mailto:tcassera@ctaes.net]
Sent: Friday, August 31, 2018 1:36 PM
To: Lewis. Yadira <lewisy@sacsewer.com>
Cc: Murray. Ken <murrayke@sacsewer.com>
Subject: The Ranch level 1 - RE: Sewer Studies

Hi Yadira,

I working on Level 1 sewer Study for The Ranch.

In review of the reports you forwarded, ADS sewer study based assumptions on "downstream Aerojet 2 Interceptor has capacity without surcharge conditions as verified by SASD and SCRSD".

Is that assumption still valid?

Thanks,

Tom Cassera, PE, QSD
CTA Engineering & Surveying

APPENDIX J.4

Water Supply Assessment

Agenda Date: September 13, 2011

Sacramento County Water Agency

Water Supply Assessment for The Ranch at Sunridge

Prepared by Sacramento County Water Agency
September 2011

TABLE OF CONTENTS

INTRODUCTION 1
BACKGROUND 1
THE PROPOSED DEVELOPMENT PROJECT 1
WATER SUPPLY ASSESSMENT OBJECTIVE 1
OVERVIEW OF THE RANCH AT SUNRIDGE WSA 1
WSA FOR THE RANCH AT SUNRIDGE PROJECT 4
DETERMINE IF PROJECT IS SUBJECT TO CEQA [Section 10910 (a)] 4
IDENTIFY RESPONSIBLE PUBLIC WATER SYSTEM [Section 10910(b)] 4
DETERMINE IF UWMP INCLUDES WATER DEMANDS [Section 10910(c)] 4
IDENTIFY EXISTING WATER SUPPLIES FOR THE PROJECT [Section 10910(d)] 6
SECTION 10910(d)(1) 6
Use of Groundwater 6
Use of Surface Water 7
SECTION 10910(d)(2) 9
Section 10910(d)(2)(A) 9
Section 10910(d)(2)(B) 9
Section 10910(d)(2)(C) 10
Section 10910(d)(2)(D) 11
IDENTIFY PARTIES DEPENDENT UPON PROPOSED SUPPLY [Section 10910(e)] 11
SECTION 10910(e) 11
Section 10910(e) states: 11
Use of Groundwater 12
Use of Surface Water 12
DOES SUPPLY FOR PROJECT INCLUDE GROUNDWATER? [Section 10190(f)] 12
SECTION 10910(f) 12
Section 10910(f)(1) 12
Section 10910(f)(2) 13
Section 10910(f)(3) 17
Section 10910(f)(4) 17
Section 10910(f)(5) 18
DETERMINATION OF SUFFICIENCY 19

List of Figures

Figure 1 The Ranch at Sunridge Location Map 2
Figure 2 The Ranch at Sunridge Project Boundary 3
Figure 3 Spatial Distribution of SCWA's Existing and Future Well Fields 18

List of Tables

Table 1 Proposed Land Use and Water Demands Estimate for the Project 4
Table 2 Water Demand Growth Projection in Five-Year Increments for the Project 4
Table 3 SCWA Zone 40 Water Demands in Five-Year Increments 5
Table 4 Zone 40 Current and Projected Groundwater Pumping in Five-Year Increments 6
Table 5 Water Supply Entitlements, Water Rights, and Water Service Contracts to Meet Zone 40 Build-out Water Demand 8
Table 6 Zone 40 Current and Projected Surface Water Supply in Five-Year Increments 9
Table 7 Historical Groundwater Pumping in Zone 40, 2000 – 2010 17
Table 8 Zone 40 Water Supply in Five-Year Increments (AF/year) 19
Table 9 Zone 40 Water Supply Sufficiency Analysis in Five-Year Increments (AF/year) 20

INTRODUCTION

BACKGROUND

The California Water Code (Water Code) requires coordination between land use lead agencies and public water purveyors. The purpose of this coordination is to ensure that prudent water supply planning has been conducted, and that planned water supplies are adequate to meet both existing demands and demands of planned development.

Water Code Sections 10910 – 10915 (inclusive) require land use lead agencies: 1) to identify the responsible public water purveyor for a proposed development project, and 2) to request a "Water Supply Assessment" (WSA) from the responsible purveyor. The purpose of a WSA is to demonstrate the sufficiency of a purveyor's water supplies to satisfy the water demands of a proposed development project while still meeting the current and projected water demands of existing customers. Water Code Sections 10910 – 10915 delineate the specific information that must be included in a WSA.

THE PROPOSED DEVELOPMENT PROJECT

The Ranch at Sunridge Project (Project) is a 530.2-acre area comprising a portion of the Sunrise Douglas Community Plan located within the City of Rancho Cordova (City). See Figure 1 for project location. The City has identified the Sacramento County Water Agency (SCWA) as the responsible water purveyor for the Project and has requested that SCWA prepare a WSA in accordance with Water Code Sections 10910 – 10915.

WATER SUPPLY ASSESSMENT OBJECTIVE

The objective of the Ranch at Sunridge WSA is to demonstrate that the planned water supplies of SCWA are sufficient to meet the demands of the Project in addition to the existing and projected water supply obligations of SCWA.

OVERVIEW OF THE RANCH AT SUNRIDGE WSA

The Project lies entirely within the boundaries of SCWA's Zone 40. Figure 2 shows the boundaries of the Project. The water demands associated with the Project have been included and addressed in the latest Zone 41 Urban Water Management Plan (UWMP) (SCWA, 2011)[1] and in the development of the Zone 40 "conjunctive use" program[2] as described in the Zone 40 Water Supply Master Plan (WSMP) (SCWA, February 2005)[1].

[1] This document, as well as all other documents referenced in this WSA, are on file at the County of Sacramento, Municipal Services Agency, Department of Water Resources, 827 7th Street, Room 301, and are available for review upon request.

[2] Conjunctive use entails the combined use of groundwater and surface water to meet demand, with the intent of providing 100 percent reliability. In "dry" years, the use of groundwater is maximized (although some surface water is delivered). In "wet" years, surface water diversions are maximized, while groundwater extractions are reduced. Such a program maximizes environmental benefits to surface water streams in "dry" years, while providing an opportunity for the groundwater basin to recover through natural recharge in "wet" years.

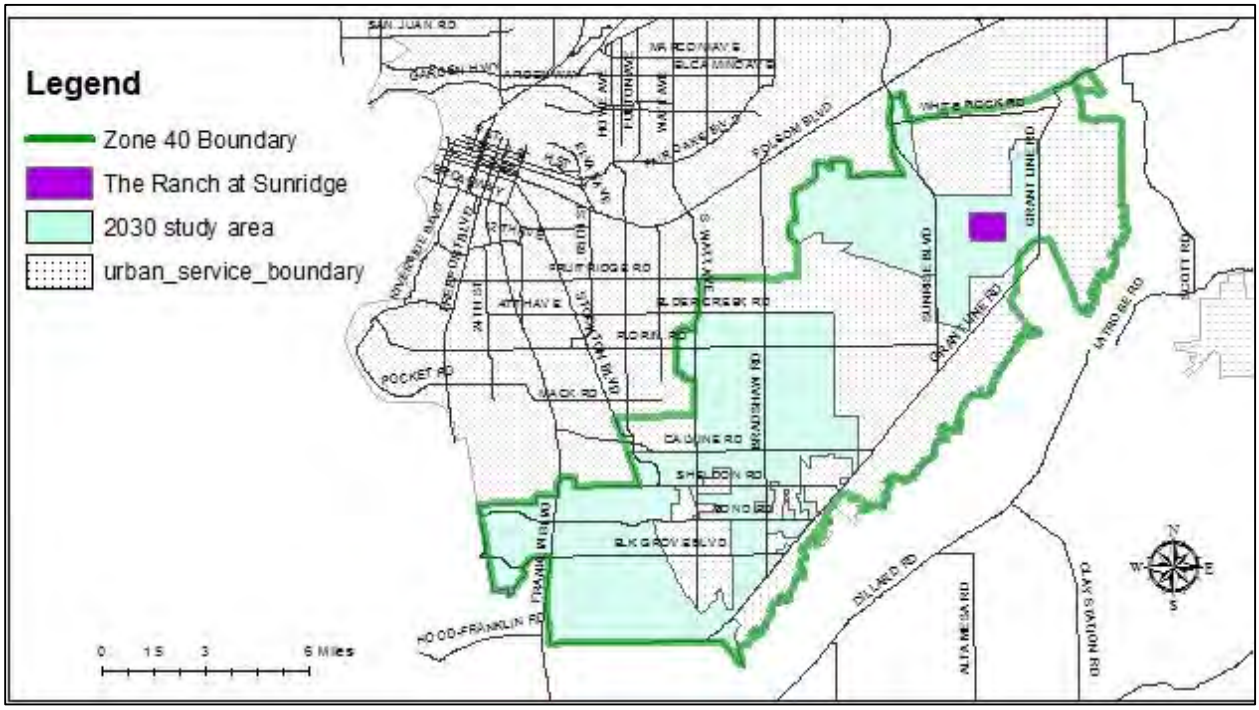


Figure 1 The Ranch at Sunridge Location Map

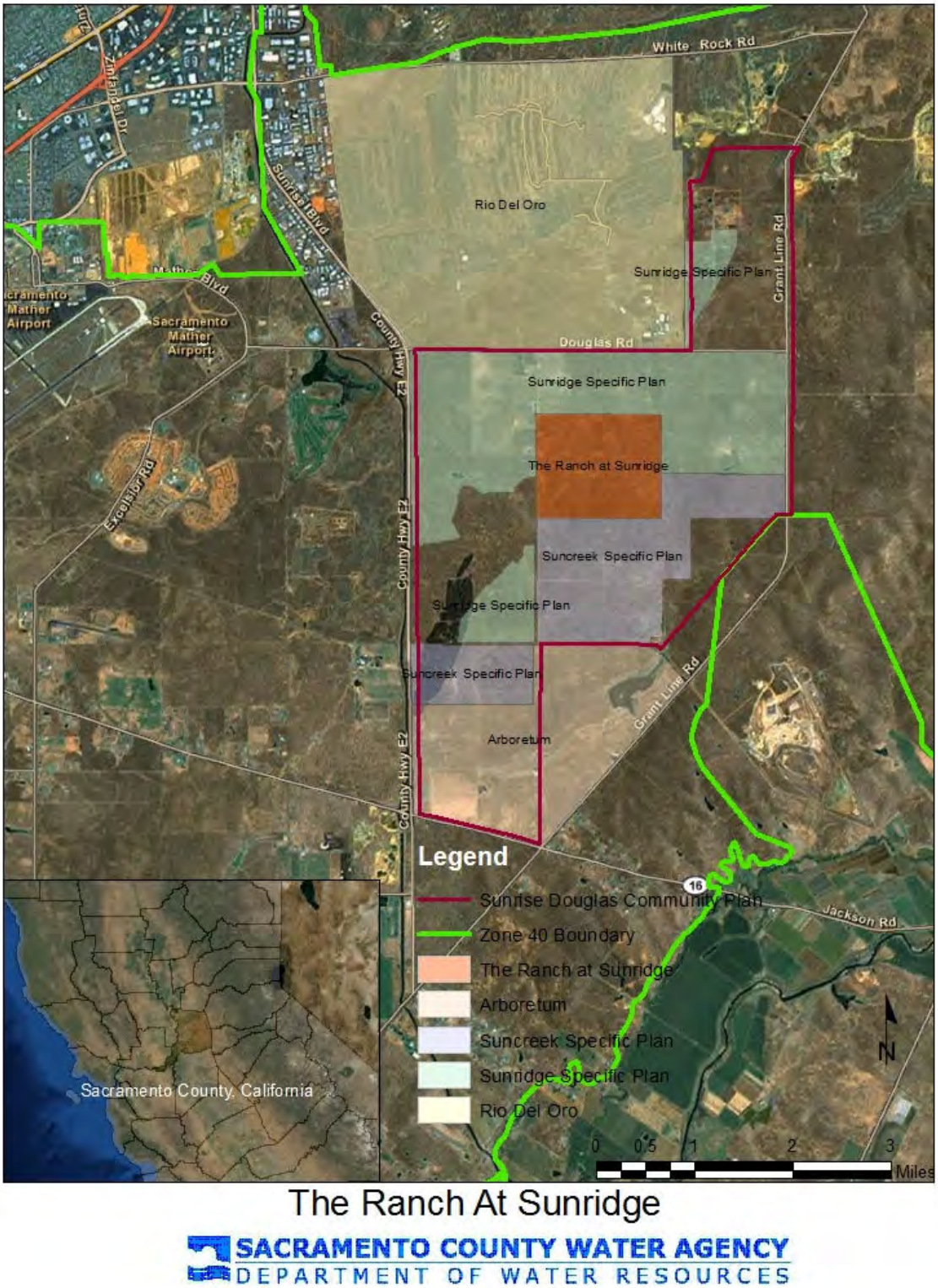
Accordingly, the WSA for the Project contains information derived from the UWMP[1] and other various water supply planning documents prepared in support of the Zone 40 conjunctive use program including:

- The Zone 40 Water Supply Master Plan (WSMP), (SCWA, February 2005)[1];
- The Zone 40 Water System Infrastructure Plan (WSIP), (SCWA, April 2006)[1];
- The Central Sacramento County Groundwater Management Plan (MWH/SCWA, February 2006)[1];
- The Final Environmental Impact Report (FEIR) for 2002 Zone 40 Water Supply Master Plan (EDAW, December 2004)[1];
- The FEIR for the Water Forum Proposal (FEIR – WFA), Sacramento City-County Office of Metropolitan Water Planning, October 1999[1]; and
- The Water Forum Agreement (WFA)[3], Sacramento City-County Office of Metropolitan Water Planning, January 2000[1].

[3] Begun in 1993, the Sacramento-Area Water Forum (Water Forum) is comprised of representatives from the business, environmental, public interest, and water purveyor communities (including the Cooperating Agencies). The co-equal objectives of the group are:

- To provide a reliable and safe water supply for the region's economic health and planned development through year 2030
- To preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River.

After a six-year, consensus-based, stakeholder process, the Water Forum Action Plan (referred to after its adoption as the Water Forum Agreement), which prescribes a regional conjunctive use program for the lower American River and the connected groundwater basin. In addition, the Water Forum completed an Environmental Impact Report (EIR) for the Water Forum Proposal was completed (State of California Clearinghouse Number 95082041). The document was certified by the two lead agencies (the City of Sacramento and the County of Sacramento) in 1999.



The Ranch At Sunridge

SACRAMENTO COUNTY WATER AGENCY
DEPARTMENT OF WATER RESOURCES

Figure 2 The Ranch at Sunridge Project Boundary

WSA FOR THE RANCH AT SUNRIDGE PROJECT

Water Code Sections 10910 – 10915 delineate the specific requirements of a WSA. The WSA for the Project is structured according to those requirements.

DETERMINE IF PROJECT IS SUBJECT TO CEQA [Section 10910 (a)]

The City has made the determination that the Project is subject to CEQA.

IDENTIFY RESPONSIBLE PUBLIC WATER SYSTEM [Section 10910(b)]

The City has identified SCWA as the responsible public water provider for the Project.

DETERMINE IF UWMP INCLUDES WATER DEMANDS [Section 10910(c)]

The total area for the Project is estimated to be 530.2 acres. The projected annual water demand for the project is 1,101.2 acre-feet per year (AF/year), including system losses. The proposed land use and projected water demand for the Project is provided in Table 1. Table 2 shows the water demand projection over the next 20 years in five-year increments.

Table 1 Proposed Land Use and Water Demands Estimate for the Project

Land Use Description	Land Use Classification[1]	Area (acres) [1]	Unit Water Demand Factor[2] (AF/acre/year)	Water Demand (AF/year)
Single Family Low Density	Single Family	142.3	2.89	411.25
Single Family Medium Density	Multi-Family Low Density	105.4	3.70	389.98
Multi Family High Density	Multi-Family High Density	12.2	4.12	50.26
Commercial	Commercial	13.5	2.75	37.13
Parks	Public Recreation	38.0	3.46	131.48
Major Roads	Right-of-Way	20.5	0.21	4.31
Wetland Preserve	Vacant	174.0	0.0	0.0
Detention Basin	Vacant	24.3	0.0	0.0
Subtotal		**530.2**		**1,024.4**
System Losses 7.5%				76.8
Total Demand				**1,101.2**

Note(s): (1) The land use classification and acreage information were provided by the project proponent in May 2011, and (2) The unit water demands provided in this table are consistent with the WSMP.

Table 2 Water Demand Growth Projection in Five-Year Increments for the Project

Year	2010	2015	2020	2025	2030
Water Demand (AF/year)	0	330.4	881.0	1,101.2	1,101.2

Inspection of Figure 1-1 in the WSMP indicates that the Project is located within the 2030 Study Area as defined in the WSMP, and in the SCWA's Service Area as defined in the UWMP.

The projected water demands associated with the Project is contained in the WSMP. During the development of the WSMP, there was no detailed land use information available for the Project except that it was projected to be "mixed land uses". The WSMP uses a unit demand factor of 2.51 AF/year/acre for "mixed land uses" to estimate the water demands for the Project area and other areas with the same land use classification for overall planning purpose.[4] Based on this unit demand factor, the WSMP projected a total water demand for the Project of 1,330.8 AF /year. The projected demand WSMP is greater than the water demand calculated for the currently proposed Project shown in Table 2 above (1,330.8 AFY/year as compared to 1,101.2 AFY/year). Accordingly, the water demands associated with the Project are accounted for in the WSMP.

The projected water demands associated with the Project is also accounted for in the UWMP. The water demands shown in the UWMP through 2035 are an estimated gallons per capita per day (GPCD) target chosen by SCWA and are based on the projected population. Establishing a GPCD target is a new requirement for the UWMP in accordance with Senate Bill (SB) x7-7, adopted in November 2009. Because the population projection for the Project area is included in the total population projection for SCWA, the water demand associated with the Project is considered accounted for in the UWMP. Therefore, it is reasonable to conclude that the data from the UWMP can be relied upon to meet current and projected demands (see Water Code Section 10910 (c)(2)).

The UWMP has identified SCWA's Zone 40 water demand in normal, single dry, and multiple dry years in 5-year increments for the 25-year projection (2010 to 2035), as shown in Tables 7-1, 7-2, and 7-3 of the UWMP. As indicated above, the Project's water demands are included as part of the Zone 40 demands in these tables. A summary of the pertinent data from these tables is presented in Table 3 below.

Table 3 SCWA Zone 40 Water Demands in Five-Year Increments

Water Year	2010	2015	2020	2025	2030	2035
Normal Year (Table 7-1, UWMP) (1)	34,511	44,425	50,662	57,583	67,565	77,712
Single Dry Year (Table 7-2, UWMP) (2)	34,511	44,425	50,662	57,583	67,565	77,712
Multiple Dry Year (3) (Table 7-3, UWMP)	34,511	44,425	50,662	57,583	67,565	77,712
Multiple Dry Year (3) (Table 7-3, UWMP)	34,511	44,425	50,662	57,583	67,565	77,712
Multiple Dry Year (3) (Table 7-3, UWMP)	34,511	44,425	50,662	57,583	67,565	77,712

Notes:
(1) Normal/Average year is a year in the historical sequence that most closely represents median runoff levels and patterns. Average is defined as the median runoff over the previous 30 years or more. By this definition, 1993 is a normal/average year for the Sacramento River watershed.
(2) Single-dry year is generally considered to be the lowest annual runoff for a watershed since the water year beginning in 1903. 1977 is a single-dry year for the Sacramento River watershed.
(3) Multiple-dry year period is generally considered to be the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903. 1989-1992 is a multiple-dry year period for the Sacramento River watershed.

[4] This unit water demand factor represents a weighted average demand for a typical mixed land uses area that includes residential, commercial, recreation, and open space. Without detailed land use information, it is a relatively reliable method for water demand estimation for general water supply planning purposes.

IDENTIFY EXISTING WATER SUPPLIES FOR THE PROJECT [Section 10910(d)]

SECTION 10910(d)(1)

Section 10910(d)(1) requires identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed Project and a description of the quantities of water obtained by SCWA pursuant to these water supply entitlements, water rights, or water service contracts in previous years.

Use of Groundwater

The Project water demands will ultimately be met by a combination of groundwater and surface water. Initial demands for the Project will likely be met by groundwater extracted from the North Vineyard [a.k.a. Excelsior] Well Field (NVWF) south of Mather Field and possibly the Mather Housing wells located at Mather Field. Groundwater from NVWF will be conveyed to and treated at the Anatolia Water Treatment Plant (WTP) located to the northwest of the project area. After treatment, the groundwater will be distributed to the Project area through the existing and future water distribution system. Surface water will not be available to the Project and surrounding areas until the North Service Area (NSA) pipeline and terminal storage tanks are constructed. The NSA pipeline is the transmission pipeline that will convey treated surface water from SCWA's Vineyard Surface Water Treatment Plant (VSWTP) to the NSA.

SCWA currently exercises, and will continue to exercise, its rights as a groundwater appropriator to extract groundwater from the groundwater basin (Central Basin) underlying Zone 40 for delivery to its customers[5]. The UWMP has identified Zone 40 current and projected groundwater pumping in normal, single dry, and multiple dry years in 5-year increments for the 25-year projection (2010 to 2035), as shown in Tables 4-11 through 4-16 of the UWMP. A summary of the pertinent data from these tables is presented in Table 4 below.

Table 4 Zone 40 Current and Projected Groundwater Pumping in Five-Year Increments

Water Year	2010 (Table 4-11, UWMP)	2015 (Table 4-12, UWMP)	2020 (Table 4-13, UWMP)	2025 (Table 4-14, UWMP)	2030 (Table 4-15, UWMP)	2035 (Table 4-16, UWMP)
Normal Year (1)	35,000	20,000	15,000	20,000	25,000	15,000
Single Dry Year (2)	39,930	46,300	48,800	61,300	64,500	68,600
Multiple Dry Year (3)	36,232	32,500	30,500	38,500	37,200	36,800
Multiple Dry Year (3)	37,464	35,000	33,500	42,000	41,200	41,300
Multiple Dry Year (3)	38,080	36,250	35,000	43,750	43,200	43,550

Notes:
(1) Normal/Average year is a year in the historical sequence that most closely represents median runoff levels and patterns. Average is defined as the median runoff over the previous 30 years or more. By this definition, 1993 is a normal/average year for the Sacramento River watershed.
(2) Single-dry year is generally considered to be the lowest annual runoff for a watershed since the water year beginning in 1903. 1977 is a single-dry year for the Sacramento River watershed.
(3) Multiple-dry year period is generally considered to be the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903. 1989-1992 is a multiple-dry year period for the Sacramento River watershed.

[5] The groundwater basin underlying Zone 40 has not been adjudicated.

For the Zone 40 portion of the Central Basin, a long-term average annual yield of 40,900 AF/year has been identified in both the WFA and WSMP. Additionally, as a signatory to the WFA and a member of the Sacramento Central Groundwater Authority (Groundwater Authority), SCWA recognizes the Water Forum-defined long-term sustainable average annual yield of the underlying groundwater basin of 273,000 AF/year.

Use of Surface Water

The SCWA conjunctive use program includes the delivery of surface water within the Zone 40 boundaries as part of a comprehensive program to maintain the long-term, regional balance of the groundwater basin (see WSMP). Currently SCWA has obtained two sources of surface water supplies totaling up to 75,751 AF/year available on a long-term average:

- Appropriative Water

  In February 2008, the State Water Resources Control Board (SWRCB) approved SCWA's appropriative right permit application to divert water from the American and Sacramento Rivers (Permit 21209). Water under this permit is considered "intermittent water" that is typically available during the winter months of normal or wet years. These flows could range up to 71,000 ac-ft/yr. The long-term average availability of this supply is 21,700 AF/year. Note that the long-term availability for appropriative water in WSMP and UWMP is updated.

- CVP Water

  CVP water is described under three different contracts, as follows.

  - SMUD 1 Assignment - 15,000 AF/year of SMUD's CVP contract water has been assigned to SCWA under the terms of an agreement with SMUD. The long-term availability of SMUD1 water is 13,000 AF/year.
  - SMUD 2 Assignment - 15,000 AF/year of SMUD's CVP contract water has been assigned to SCWA under the terms of an agreement with SMUD. The long-term availability of SMUD2 water is 13,000 AF/year.
  - CVP Water Public Law 101-514 ("Fazio" Water)
    SCWA has entered into a contract with the U.S. Bureau of Reclamation (USBR) for 22,000 AF/year of Central Valley Project (CVP) supplies from the American River pursuant to Public Law (PL) 101-514 (often referred to as "Fazio water"). Of this 22,000 AF/year, 7,000 AF/year has been subcontracted to the City of Folsom for diversion from Folsom Lake. The remaining 15,000 AF/year will be diverted by SCWA from the Sacramento River. The long-term average availability of this supply is 13,551 AF/year.

There are two future surface water supplies, POU water and water transfers, planned for in the WSMP to meet build-out water demand. The timing for acquiring these two surface water supplies will be determined by demand growth in Zone 40.

- POU water refers to surface water obtained through a water wholesale agreement with the City of Sacramento (City) whereby the City will sell surface water to SCWA for use in the portion of Zone 40 that lies within the City's American River POU. The amount of water required to serve the POU area is estimated to be 9,300 ac-ft/yr.
- Water transfers refers to surface water obtained through a water purchase and transfer agreement that SCWA would enter into with other entities that currently hold surface water rights upstream of SCWA's points of diversion. According to the WSMP, the amount of water needed is estimated to be 5,200 ac-ft/yr.

Contract documents, agreements, and applications for appropriative water and CVP water supplies are available for review (see footnote 1). Table 5 (or Table 4-3 in UWMP) shows all the surface water entitlements, water rights, and water services contracts to meet the build-out water demand in Zone 40.

Table 5 Water Supply Entitlements, Water Rights, and Water Service Contracts to Meet Zone 40 Build-out Water Demand

Water Supply Sources	Wholesaler Supplied Volume (Yes/No)	Status of Contract, Permit, and Agreement	Availability in Wet Years	Availability in Dry Years	Long-term Average	Reliability
Supplier-produced groundwater to serve Zone 40 [1]	no	Existing	27,300	Up to 69,900	40,900	High
Wholesaler – (City of Sacramento) to serve portion of Zone 40 in City of Sacramento's American river POU[1]	yes	Planned	9,300	9,300	9,300	High
Supplier-produced surface water to Serve Zone 40: U.S. Bureau of Reclamation – CVP Supply (SMUD 1, SMUD 2, and Fazio Water) [1]	yes	Existing	45,000	8,700	38,000	Moderate
Supplier-produced surface water to Serve Zone 40: Appropriative Water – SWRCB Permit 21209 [1]	no	Existing	Up to 71,000	0	21,700	Low
Other Water - Water Transfer [1]	no	Planned	0	9,600	5,200	Moderate to High
Recycled water for Zone 40 [1]	yes	Existing	4,400	4,400	4,400	High
Remediated groundwater to serve Rio del Oro in Zone 40	no	Existing	8,900	8,900	8,900	High
Zone 40 Subtotal			165,900	110,800	128,400	

Notes:

1. *Source: The Zone 40 Water Supply Master Plan. Groundwater pumping rates in wet and dry years are modeling results determined by the build-out demand and the availability of surface water. Groundwater pumping rates can be lower or higher than the numbers identified in the table as long as the long-term average is maintained below 40,900 ac-ft/yr.*

Table 6 presents the quantities of surface water supply pursuant to these water rights and contract entitlements in five-year increments beginning in the year 2010 through 2035 under normal, single dry, and multiple dry years.

Table 6 Zone 40 Current and Projected Surface Water Supply in Five-Year Increments

Water Year	2010 (Table 4-11, UWMP)	2015 (Table 4-12, UWMP)	2020 (Table 4-13, UWMP)	2025 (Table 4-14, UWMP)	2030 (Table 4-15, UWMP)	2035 (Table 4-16, UWMP)
Normal Year (1)	12,320	35,000	42,500	50,000	66,800	81,200
Single Dry Year (2)	7,390	8,700	8,700	8,700	18,000	27,600
Multiple Dry Year (3)	11,088	22,500	27,000	31,500	45,300	59,400
Multiple Dry Year (3)	9,856	20,000	24,000	28,000	41,300	54,900
Multiple Dry Year (3)	9,240	18,750	22,500	26,250	39,300	52,650

Notes:
(1) Normal/Average year is a year in the historical sequence that most closely represents median runoff levels and patterns. Average is defined as the median runoff over the previous 30 years or more. By this definition, 1993 is a normal/average year for the Sacramento River watershed.
(2) Single-dry year is generally considered to be the lowest annual runoff for a watershed since the water year beginning in 1903. 1977 is a single-dry year for the Sacramento River watershed.
(3) Multiple-dry year period is generally considered to be the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903. 1989-1992 is a multiple-dry year period for the Sacramento River watershed.

SECTION 10910(d)(2)

Section 10910(d)(2) requires SCWA to demonstrate that water supplies required to serve the Project actually exist. Section 10910(d)(2) defines what constitutes "proof".

Section 10910(d)(2)(A)

This subsection requires written contracts or other proof of entitlement to the water supplies identified for the Project. The contracts and agreements for the surface water supplies are available for review at the offices of the County of Sacramento, Municipal Services Agency, Department of Water Resources (see footnote 1).

Initial water demands in the Project will likely be met with groundwater. SCWA will exercise its right as a groundwater appropriator to extract groundwater from the basin for delivery to the Project. In the long-term, the water demands of the Project will be met in accordance with the conjunctive use program described in the WSMP.

Section 10910(d)(2)(B)

This subsection requires a copy of the capital outlay program for financing the delivery of the identified water supply to the Project. The documents described below are available for review at the offices of the County of Sacramento, Municipal Services Agency, Department of Water Resources (see footnote 1).

A financing plan for the construction of groundwater and surface water facilities needed to realize the conjunctive use program identified in the WSMP has been approved by SCWA's Board of Directors (Board). The financing plan, as outlined in Chapter 7 of the WSMP, identifies the necessary water facility projects and estimated costs associated with implementation of said conjunctive use program (Capital Improvement Program or CIP).

In addition to the WSMP, the Feasibility Report for Sacramento County Water Financing Authority Series 2007 Revenue Bonds (Sacramento County Water Agency Freeport Project) (MWH, April 2007), and the Sacramento County Water Agency FY 2009/10 Water Rate Study Report (FCS Group) evaluated and updated the total cost and fee requirements of the Zone 40 conjunctive use program incorporating all future Zone 40 expenditures for major capital facilities (i.e., surface water treatment plants, groundwater treatment plants, major transmission mains, etc.) and annual operation and maintenance costs associated therewith. Funding to meet SCWA's capital and annual funding requirements was then implemented by the Board through the issuance of revenue bonds for certain projects and the adoption of user fee and development fee increases over time (most recently in 2009).

SCWA's capital outlay program includes the means for financing facilities to deliver the identified water supply to the Project. Specifically, all facilities needed to serve the Project are included in the CIP that was financed through the above described revenue bonds, user fee and development fee. The development fee and user fee, as described in Titles 3 and 4 of the Sacramento County Water Agency Code, will continue to provide revenue to finance all aspects of the Zone 40 conjunctive use program (including repayment of debt financing). Both fee programs are evaluated annually and adjusted, if necessary, to accommodate changes in the service area, water demands, needed capital projects, and required debt financing.

Section 10910(d)(2)(C)

This subsection requires identification of any federal, state, and local permits required for construction of the facilities identified for delivering the water supply to the Project.

Since adoption of the WSMP, SCWA has made significant progress in the development of its conjunctive use water supply program. SCWA, in cooperation with East Bay Municipal Utility District (EBMUD), has completed the Freeport Regional Water Project (FRWP). SCWA's portion of the project consists of participation in a large diversion facility on the Sacramento River just north of the community of Freeport, and a recently completed transmission pipeline that will convey surface water to:

1. SCWA's new VSWTP that is currently nearing completion at the northeast corner of the intersection of Florin Road and Knox Road for treatment prior to delivery to SCWA's customers, and
2. The Folsom South Canal where EBMUD will discharge their flows for conveyance to their service area in the East Bay.

The VSWTP is anticipated to be on line in late 2011. In order to deliver treated surface water to the Project and other surrounding projects, SCWA will need to construct a major water transmission pipeline, the NSA pipeline. SCWA approved an initial study/mitigated negative

declaration for this project pursuant to CEQA in September 2010. It is SCWA's intent to secure approval of the necessary permits and construction documents for this project so that it can be constructed prior to demand for water within the NSA exceeding the capacity of the groundwater system currently serving customers in this area. The timing of construction of the NSA pipeline cannot be precisely predicted at this time, as it will be dependent on demand growth in the NSA.

The various federal, state, and local permits for the construction of the FRWP and the VSWTP have been obtained. Copies of these permits are available for review at the offices of the County of Sacramento, Municipal Services Agency, Department of Water Resources (see footnote 1). Construction of the NSA pipeline and related facilities required for the delivery of surface water to the Project will also require a variety of permits as necessary. Additional site-specific environmental review and approval may also be needed for water storage tanks and other appurtenances that will be constructed in conjunction with the NSA pipeline. Any additional conveyance pipelines needed to complete the treated water system will be constructed within existing and future public right-of-way and easements. At this time, SCWA does not foresee any regulatory or legal impediments to completing any necessary further environmental review and obtaining those permits when the need arises.

Section 10910(d)(2)(D)

This subsection requires identification of any regulatory approvals required for delivery of the water supply to the Project.

Water production, treatment, and storage facilities will be added to SCWA's public water system permit issued by the California Department of Public Health (DPH) and the design of these facilities will require review and approval by DPH. No other regulatory approvals are anticipated.

IDENTIFY PARTIES DEPENDENT UPON PROPOSED SUPPLY [Section 10910(e)]

SECTION 10910(e)

Section 10910(e) states:

"If no water has been received in prior years by the public water system…, under the existing water supply entitlements, water rights, or water service contracts [identified to serve the proposed project], the public water system,…shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts to the same source of water as the public water system,…, has identified as a source of water supply within its water supply assessments."

The intent of this section is to identify any potential conflicts that may arise from the exercise of a water supply entitlement, water right, or water service contract to serve a proposed project if such water supply entitlement, water right, or water service contract has not been previously exercised.

Use of Groundwater

The water demands of the Project will be met with groundwater and surface water. SCWA has previously exercised its rights as a groundwater appropriator to meet the water demands of its customers and will continue to exercise those rights to provide treated groundwater supplies to the Project.

Use of Surface Water

The surface water supplies associated with SCWA's conjunctive use program fall into four categories:

1) Water supplies available through a current USBR CVP contract.
2) Water supplies available through SWRCB Permit 21209.
3) Water available through the City of Sacramento for use within the American River Place of Use (POU).
4) Surface water transfers identified in the WSMP.

The source of supply for surface water is the USBR CVP and SWRCB Permit 21209. Thus, the parties that could most directly be affected are other CVP contractors. Additionally, until such time as the SWRCB Bay Delta Water Rights Hearings are concluded, other parties that could be affected include: CVP contractors, State Water Project (SWP) contractors, water rights holders subject to Term 91 conditions, and riparian diverters downstream of SCWA's point of diversion. The point of diversion is at a site near the community of Freeport on the Sacramento River.

The source of supply for that portion of SCWA that lies within the POU is the City of Sacramento. Delivery of this water to customers within the POU has been included in the City of Sacramento's long-range plan for perfecting their American River water rights. The diversion location, timing, and volume of delivery are currently under negotiation.

Surface water transfers would require SCWA to enter into purchase and transfer agreements with other entities that currently hold surface water rights upstream of SCWA's points of diversion. According to the WSMP, the amount of water needed is estimated to be 5,200 AF/year. The timing for the acquisition of this water supply is yet to be determined.

DOES SUPPLY FOR PROJECT INCLUDE GROUNDWATER? [Section 10190(f)]

SECTION 10910(f)

The water demands of the Project will partially be met with groundwater extracted from the Central Basin. Consequently, Section 10910(f) requires additional information about groundwater to be presented in this WSA.

Section 10910(f)(1)

Section 10910(f)(1) requires a review of groundwater information contained in the UWMP relevant to the identified water supply for the Project. The appendix section of the UWMP includes a copy of the Central Sacramento County Groundwater Management Plan (CSCGMP, or Central Basin GMP) for the groundwater basin from which SCWA extracts groundwater; the Central Basin GMP was adopted by the Sacramento Central Groundwater Authority

(Groundwater Authority) in November 2006. The Central Basin GMP contains detailed information about the groundwater basin underlying the Central Basin (including Zone 40), groundwater supplies, and basin management objectives.

Section 10910(f)(2)

Section 10910(f)(2) requires a description of the groundwater basin and the efforts being taken to prevent long-term overdraft.

For the Project, SCWA would pump groundwater from the South American Sub-basin as defined by the California Department of Water Resources (DWR) Bulletin 118. According to Bulletin 118, the South American Sub-basin is defined as the area bounded on the west by Interstate 5 and the Sacramento River, on the north by the American River, on the south by the Cosumnes and Mokelumne rivers and on the east by the Sierra Nevada. The Central Basin covers a major portion of this basin.

Groundwater in the Central Basin is generally classified as occurring in a shallow aquifer (Laguna or Modesto Formation) and in a deep aquifer (Mehrten Formation). The Laguna or Modesto Formation consists of older alluvial deposits of loosely to moderately compacted sand, silt, and gravel deposited in alluvial fans. These deposits are moderately permeable and have a thickness of about 100 to 650 feet. The deeper Mehrten Formation is a sequence of fragmented volcanic rocks which crops out in a discontinuous band along the eastern margin of the basin. It is composed of black volcanic sands, stream gravels, silt, and clay inter-bedded with intervals of dense tuff breccia. The sand and gravel intervals are highly permeable and the tuff breccia intervals act as confining layers. The thickness of the Mehrten Formation is between 200 and 1200 feet. Groundwater is located from 20 to 100 feet below the ground surface depending on when and where the measurement is taken. The base of the potable water portion of the deep aquifer is located approximately 1,400 feet below the ground surface.

Intensive use of groundwater over the past 60 years has resulted in a general lowering of groundwater elevations. Over time, isolated groundwater depressions have grown and coalesced into a single cone of depression that is centered in the southwestern portion of the basin, approximately 15 miles southwest of the project site. Groundwater level trends through much of the basin have generally declined consistently from the 1950s and 1960s to about 1980 by 20 to 30 feet. From 1980 through 1983, water levels recovered by about 10 feet and remained stable until the beginning of the 1987-1992 drought; however, wells in the vicinity of Rancho Cordova appear to have recovered less than other wells in the basin since 1995 (generally less than 10 feet). From 1995 to 2003 most groundwater levels recovered to levels that were generally higher than levels prior to the 1987 through 1992 drought. Much of this recovery can be attributed to the increased use of surface water in the Central Basin, and the fallowing of previously irrigated agricultural lands transitioning into new urban development areas. In the central portion of the Central Basin, where the Project site is located, groundwater level trends observed in California Department of Water Resources monitoring wells generally vary between 40 feet above to 40 feet below mean sea level over the period of the 1950's through the 2000's.

Recharge of the aquifer system occurs along active river and stream channels where extensive sand and gravel deposits exist, particularly along the American, Cosumnes, and Sacramento

rivers. Additional recharge occurs along the eastern boundary of Sacramento County at the transition point from the consolidated rocks of the Sierra Nevada to the alluvial-deposited basin sediments. This recharge is classified as subsurface recharge along with underground flow into and out of the basin with adjacent groundwater basins. Other sources of recharge include deep percolation from applied surface water and precipitation.

As mentioned previously, the estimated long term annual sustainable yield of groundwater from the Central Basin is 273,000 AF/year. Currently, groundwater extractions are estimated to be 250,000 acre-feet per year (excluding remediation).

The determination of the sustainable yield of the Central Basin (273,000 acre-feet per year) was negotiated by the Water Forum Groundwater Negotiating Team (GWNT) and involved a complex process that developed the long-term average annual pumping limit of the basin. The long-term average annual pumping limit is described as the hydro-geologic process under which groundwater can be pumped and not exceed average natural recharge over a long-term period of time. Under sustainable conditions, natural recharge is said to be able to make up for variations in the amount of pumping that occurs over the long-term, given wet and dry periods in the hydrologic record.

First, the GWNT developed future land and water use projections. Then the impacts associated with increased water demands, assuming that demand is met solely by groundwater, were described. These results were then compared with 1990 baseline conditions to provide the level of impact that could be expected if groundwater pumping were increased beyond baseline conditions.

Four quantifiable factors were used to determine the level of impact:

- Water quality degradation
- Dewatering of wells
- Higher cost of pumping
- Ground subsidence

Based on these four factors, a series of groundwater model runs quantified each condition in 10-year increments, beginning in 1990 and ending in 2030. Each model run was set up to reflect future land and water use conditions; then 70 years of historical hydrology were applied to each model run to determine how the aquifer might behave under wet and dry conditions.

After comprehensive review and analysis of the resulting data, the GWNT concluded that using 2005 levels of groundwater pumping (interpolated from the 2000 and 2010 modeling results) would provide the highest quantity of groundwater yield from the basin while minimizing impacts associated with the four factors of concern. Accordingly, the GWNT determined the 2005 pumping rates equated to a long-term pumping average annual pumping limit of approximately 273,000 acre-feet per year for the Central Basin.

Section 3.2 and Appendix E of the WSMP provide detailed descriptions of the Zone 40 conjunctive use program (see footnote 1). SCWA's operational approach for preventing overdraft of the groundwater basin underlying Zone 40 and optimizing the use of both

groundwater and surface water is discussed in detail in these sections. The FEIR for 2002 Zone 40 Water Supply Master Plan (see footnote 1) includes an extensive analysis of the effects of the Zone 40 conjunctive use program on the groundwater basin and on various recharge sources. A summary of the conjunctive use program is as follows:

SCWA's conjunctive use program is a coordinated approach to manage surface water and groundwater supplies to maximize the yield of available water resources. The conjunctive use program for SCWA includes the use of groundwater, surface water, remediated water and recycled water supplies. The program also includes the construction of a surface water diversion structure, a surface-water treatment plant, water conveyance pipelines; and groundwater extraction, treatment and distribution facilities.

This conjunctive use program relies on an abundance of surface water in wet years when as much surface water as possible will be diverted, within entitlement limitations, minimizing the use of groundwater. During these years the groundwater aquifer will be allowed to naturally replenish. In dry years, when surface water availability is reduced, SCWA will pump more groundwater from the replenished aquifer. Using surface water and groundwater conjunctively makes it easier for SCWA to meet demands in a single dry year or in multiple dry years. The goal of the conjunctive use program is to meet all demands during wet and dry years.

SCWA has adopted policies to insure systematic, incremental implementation of its conjunctive use program. These policies are also consistent with the terms of the WFA, which is intended to maintain a long-term sustainable groundwater supply. The policies are included in the SCWA's UWMP and WSMP, which include specific action items to assure implementation, specifically, development of additional surface water supply and treatment facilities to provide water during wet years, development of groundwater facilities to provide groundwater during dry years, in-lieu "banking" of groundwater during wet years, development and implementation of demand management and water conservation strategies, development of water reclamation facilities to meet non-potable demands, and development of a financing plan to implement these action items.

As a part of the Groundwater Authority, SCWA has committed to the implementation of the Central Basin GMP. The Central Basin GMP contains five basin management objectives (BMO) designed to maintain a safe, sustainable and high quality groundwater resource within the Central Basin. These BMOs, in conjunction with the program component action items, focus on managing and monitoring the basin to benefit all groundwater users in the basin and are intended to be specific enough to result in numerical criteria for the basin, but also flexible enough to be modified or adapted to new information on groundwater basin behavior over time. The five BMOs are summarized below:

1. Maintain the long-term average groundwater extraction rate at or below 273,000 acre-feet per year.
2. Maintain specific groundwater elevations within all areas of the basin consistent with the Water Forum "solution."
3. Protect against any potential inelastic land surface subsidence by limiting subsidence to no more than 0.007 feet per 1 foot of drawdown in the groundwater basin.

4. Protect against any adverse impacts to surface water flows in the American, Cosumnes and Sacramento rivers.
5. Water quality objectives:
    a. Total dissolved solids (TDS) concentration of less than 1,000 milligrams per liter (mg/l).
    b. Nitrate (NO_3) concentration of less than 45 mg/l.
    c. Volatile organic compounds (VOC).

The Groundwater Authority intends to achieve these objectives by implementing the following program component action items:

1. Stakeholder involvement; including public outreach, involving other agencies inside and adjacent to the basin, developing relationships with state and federal agencies, and pursuing partnership opportunities.
2. Monitoring program; including groundwater elevation monitoring, groundwater quality monitoring, land surface elevation monitoring, surface water/groundwater interaction monitoring, establishing protocols for collection of groundwater data, and establishing a data management system.
3. Groundwater resource protection; including well construction policies, well abandonment and destruction policies, wellhead protection measures, protection of recharge areas, control of the migration and remediation of contaminated groundwater, and control of saline water intrusion.
4. Groundwater sustainability; including demand reduction.
5. Planning integration; including existing integrated planning efforts, urban water management planning, DWSAP program, land use planning, and integrated groundwater and surface water modeling.

The Central Basin GMP also has an implementation plan that defines specific actions or trigger points and associated remedy activities linked with each of the BMOs. Once a trigger point has been reached, the Groundwater Authority must decide on a course of action.

Water quality analysis of the aquifers underling the Central Basin has shown that groundwater quality found in the upper aquifer system is of higher quality than that found in the lower aquifer system. This is principally because the lower aquifer system (specifically the Mehrten Formation) contains higher concentrations of iron and manganese, and higher concentrations of total dissolved solids (TDS). Notwithstanding these findings, the lower aquifer typically meets water quality standards as a potable water source. Water from the upper aquifer (specifically the Laguna Formation) generally does not require treatment (unless high arsenic values are encountered), other than disinfection for public drinking water systems.

The UWMP addresses water supply and demand issues, water supply reliability, water conservation, water shortage contingencies, and recycled-water usage for the areas within Sacramento County where SCWA provides retail water services, including the Project site. Together, the WSMP and UWMP outline a comprehensive conjunctive use program. Many of the facilities required to implement this conjunctive use program are now, or soon will be, complete and operational.

Section 10910(f)(3)

Section 10910(f)(3) requires a description of the volume and geographic distribution of groundwater extractions from the basin for the last five years.

Table 7 identifies past volumes of groundwater extracted by SCWA in Zone 40 between 2000 – 2010.

Through the water supply master planning process, SCWA identified a system of sixteen separate well fields throughout Zone 40. A distributed groundwater extraction strategy was selected because it would minimize drawdown effects of pumping by spreading extraction over a wide geographic area. The spatial distribution of the SCWA's current and future well fields is shown in Figure 3.

Table 7 Historical Groundwater Pumping in Zone 40, 2000 – 2010

Year	(Acre-Feet)
2000	20,022
2001	22,306
2002	22,949
2003	22,745
2004	25,790
2005	29,184
2006	31,162
2007	31,249
2008	34,225
2009	34,249
2010	32,171

Section 10910(f)(4)

Section 10910(f)(4) requires a description of the projected volume and geographic distribution of groundwater extractions from the basin.

Groundwater use is projected to decrease from the current level once the VSWTP comes online, but it will increase over time as water demand continues to grow in Zone 40. In wet and normal years, groundwater pumping will be minimized because surface water becomes the major water supply source. In dry years, groundwater pumping will increase significantly as surface water availability is considerably reduced. Table 4 identifies projected groundwater pumping necessary to meet Zone 40's water demands from 2015-2035 in normal, single dry, and multiple dry years. Reduction in projected pumping in wet/normal years between 2010 and 2035 reflects the phasing and availability of surface water facilities and supplies from the VSWTP. Over time, groundwater production will stabilize as SCWA's conjunctive use program is fully implemented.

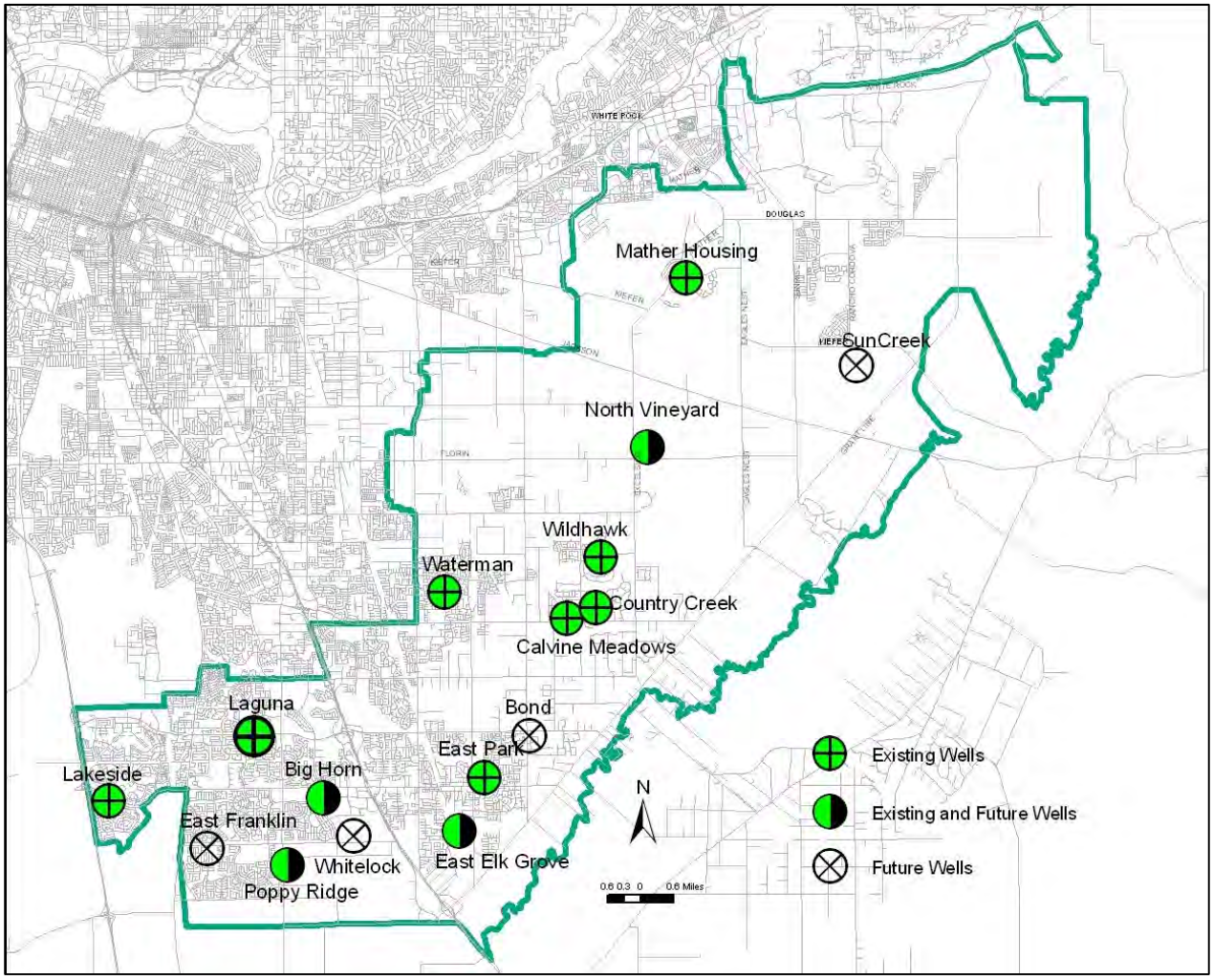


Figure 3 Spatial Distribution of SCWA's Existing and Future Well Fields

Section 10910(f)(5)

Section 10910(f)(5) requires an analysis of the sufficiency of the groundwater basin to meet the demands associated with the Project.

The WFA defined a long-term sustainable average annual yield of 273,000 AF/year for the Central Basin and provided for SCWA's groundwater needs as identified in the WSMP. The WSMP describes a conjunctive use program that identifies and projects a long-term sustainable average annual yield of 40,900 AF/year to meet identified water demands (including the demand associated with the Project).

SCWA's conjunctive use program has been extensively analyzed and documented in the WSMP, the FEIR for 2002 WSMP, certified in February 2006, the FEIR – WFA, certified in 1999, and the WFA (See footnote 1). All referenced documents have been subjected to thorough technical peer review and public scrutiny.

DETERMINATION OF SUFFICIENCY

SCWA determines that it has identified sufficient water supplies to meet the water demands of the Project.

SCWA makes this determination based on the information provided in this WSA and on the following specific facts:

- SCWA's conjunctive use program is a sustainable water supply program that provides a 100-percent reliable water supply while protecting environmental values and stabilizing the groundwater basin underlying Zone 40.
- SCWA's conjunctive use program has been extensively analyzed and documented in the WSMP, the FEIR for 2002 WSMP, certified in February 2006, the FEIR – WFA, certified in 1999, and the WFA (See footnote 1). All referenced documents have been subjected to thorough technical peer review and public scrutiny.
- The Project will be served by water supplies made available through SCWA's conjunctive use program.
- A financing plan for SCWA's conjunctive use program for constructing facilities required for delivering groundwater and surface water to the Project has been approved by the Board through its adoption of the WSMP, Bond Feasibility Reports, and the Sacramento County Water Agency Code.

The UWMP quantifies SCWA's total projected water supplies during normal, single dry, and multiple dry water years over a 25-year projection in five-year intervals. A summary of the pertinent data from these tables as it applies to Zone 40 is presented in Table 8.

Table 8 Zone 40 Water Supply in Five-Year Increments (AF/year)

Water Year	2010	2015	2020	2025	2030	2035
Normal Year (Table 7-1, UWMP)	48,320	58,000	64,400	79,400	103,700	109,500
Single Dry Year (Table 7-2, UWMP)	48,320	58,000	64,400	79,400	103,700	109,500
Multiple Dry Year (1) (Table 7-3, UWMP)	48,320	58,000	64,400	79,400	103,700	109,500
Multiple Dry Year (2) (Table 7-3, UWMP)	48,320	58,000	64,400	79,400	103,700	109,500
Multiple Dry Year (3) (Table 7-3, UWMP)	48,320	58,000	64,400	79,400	103,700	109,500

Notes:
(1) Normal/Average year is a year in the historical sequence that most closely represents median runoff levels and patterns. Average is defined as the median runoff over the previous 30 years or more. By this definition, 1993 is a normal/average year for the Sacramento River watershed.
(2) Single-dry year is generally considered to be the lowest annual runoff for a watershed since the water year beginning in 1903. 1977 is a single-dry year for the Sacramento River watershed.
(3) Multiple-dry year period is generally considered to be the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903. 1989-1992 is a multiple-dry year period for the Sacramento River watershed.

The UWMP demonstrates that the total projected water supplies for Zone 40 under normal, single dry, and multiple dry years meet the proposed water demands (including existing and other projected future demands) over the next 25 years. A summary of the pertinent data from these tables is presented in Table 9.

Table 9 Zone 40 Water Supply Sufficiency Analysis in Five-Year Increments (AF/year)

Water Year	2010	2015	2020	2025	2030	2035
Normal Year						
Total Supply (Table 7-1, UWMP)	48,320	58,000	64,400	79,400	103,700	109,500
Total Demand (Table 7-1, UWMP)	34,511	44,425	50,662	57,583	67,565	77,712
Sufficiency (Supply Minus Demand)	13,809	13,575	13,738	21,817	36,135	31,788
Single Dry Year						
Total Supply (Table 7-2, UWMP)	48,320	58,000	64,400	79,400	103,700	109,500
Total Demand (Table 7-2, UWMP)	34,511	44,425	50,662	57,583	67,565	77,712
Sufficiency (Supply Minus Demand)	13,809	13,575	13,738	21,817	36,135	31,788
Multiple Dry Year (1)						
Total Supply (Table 7-3, UWMP)	48,320	58,000	64,400	79,400	103,700	109,500
Total Demand (Table 7-3, UWMP)	34,511	44,425	50,662	57,583	67,565	77,712
Sufficiency (Supply Minus Demand)	13,809	13,575	13,738	21,817	36,135	31,788
Multiple Dry Year (2)						
Total Supply (Table 7-3, UWMP)	48,320	58,000	64,400	79,400	103,700	109,500
Total Demand (Table 7-3, UWMP)	34,511	44,425	50,662	57,583	67,565	77,712
Sufficiency (Supply Minus Demand)	13,809	13,575	13,738	21,817	36,135	31,788
Multiple Dry Year (3)						
Total Supply (Table 7-3, UWMP)	48,320	58,000	64,400	79,400	103,700	109,500
Total Demand (Table 7-3, UWMP)	34,511	44,425	50,662	57,583	67,565	77,712
Sufficiency (Supply Minus Demand)	13,809	13,575	13,738	21,817	36,135	31,788