Initial Study

(Appendix G)

Environmental Checklist Form

NOTE: The following is a sample form and may be tailored to satisfy individual agencies' needs and project circumstances. It may be used to meet the requirements for an initial study when the criteria set forth in CEQA Guidelines have been met. Substantial evidence of potential impacts that are not listed on this form must also be considered. The sample questions in this form are intended to encourage thoughtful assessment of impacts, and do not necessarily represent thresholds of significance.

1. Project title: Villa Crest Apartments

2. Lead agency name and address: City of Ridgecrest
100 W. California Avenue
Ridgecrest, CA 93555

3. Contact person and phone number: Heather Spurlock
(760) 499-5063

4. Project location: East side of South Downs Street and southside of Rader Avenue extending to Bowman Road

5. Project sponsor's name and address: Seton Pacific Company
300 B Street
Turlock, CA 95380

6. General plan designation: RM (Residential Medium-Density) and P (Public Park)

7. Zoning: R-2 (Low-Density Multi-Family Residential District)

8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

The project, commonly called Villa Crest Aprtments, consist of several entitlement applications as described below.

General Plan Amendment (GPA) 22-01

The Land Use Map of the General Plan designate the subject property as RM (Residential Medium- Density) with a density range of 5.1–14.0 dwelling units per acre. The submitted site plan for the project area (21.34 gross acres) indicate that the applicant intend to construct 361 multi-family residential units and a clubhouse with a manager's unit on the property which exceeds the maximum density allowed under the General Plan Land Use Element. Therefore, the applicant is requesting a General Plan Amendment from RM to RH (Residential High-Density, 14.1–29.0 dwelling units per acre) in order to accommodate the proposed development.

Additionally, the General Plan Land Use Diagram indicate a portion of the property as P (Public Park) meaning an area identified for possible outdoor recreation facilities that serve local and regional users. The applicant is also requesting the removal of the P (Public Park) notation from the General Plan Land Use Diagram.

Zone Change 22-01

The applicant is requesting a zone change from current R-2 (Low-Density Multi-Family Residential District) to R-3 (Medium Density Multi-Family Residential District) subject to approval of the requested General Plan Amendment. If approved, new zoning would accommodate the proposed 361 units and the clubhouse building with a manager's unit proposed by the applicant.

Site Plan Review (SPR) 21-06

The undeveloped irregularly shaped parcel of land contains 21.34 gross acres (20.13 net acres). The proposed project consists of 361 multi-family units and a clubhouse building with a manager's unit to be developed in three phases.

Phase 1 of the project is located on the south side of Rader Avenue east of Downs Street on 9.07 acres. The applicant intends to construct 113 units including a clubhouse with manager's unit above, children's play area and 339 parking spaces of which 114 spaces will be in carports.

Phase 2 is located immediately south of Phase 1 and consist of 140 units on 6.59 net acres. 305 parking spaces of which 140 spaces in carports are also proposed with this phase of the proposed development.

Phase 3 contains 5.68 acres of the remainder of the total project area. This phase of the development proposing to add 108 units and 246 parking spaces of which 108 spaces to be located within carports.

All units are proposed with either 2-bedroom unit or 3-bedroom unit. Several types of two-story buildings are distributed throughout the project area. The proposed clubhouse is a two-story structure with facilities, rental office and a two-bedroom manager's unit above.

The following table summarizes key elements of the project proposal.

Phasing & Bldg. Type	# of Bldgs.	# of Units	# of 2-bedroom units	# of 3-bedroom units	Parking	
					# of spaces required	# of spaces provided
Phase 1						
A	4	64	32	32		
B	1	16	16	0		
C	2	24	24	0		
D	1	8	4	4		
E	1*	1	1	0		
Total	9	113	77	36	267	339
* Clubhouse, rental office and 2-bed room manager's unit above						
Phase 2						
A	4	64	32	32		
B	4	64	64	0		
C	1	12	12	0		
Total	9	140	108	32	324	305**
** deficit provided within Phase 1						
Phase 3						
A	1	16	8	8		
B	3	48	48	0		
C	3	36	36	0		
D	1	8	4	4		
Total	8	108	96	12	244	246

All proposed buildings are designed with stucco exterior, wrought iron exterior staircases and contain a concrete tile roof. All buildings are 27-feet 4-inches in height except the clubhouse building which is at a height of 26-feet 9-inches.

Plans indicates landscaping and trash enclosures to be distributed throughout the project area. Project generated drainage flow will be ultimately carried to a bioretention basin located within the Bowman Wash located along the southerly boundary of the project area.

9. Surrounding land uses and setting: Briefly describe the project's surroundings:

North: Single-family residences across Rader Avenue

South: Existing bike path, Bowman Wash and Bowman Road beyond

Southwest: Vacant land approved for a multi-family residential development

East: Vacant land

West: South Downs Street and Existing single-family residences beyond

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

The proposed multi-family project will require review and approval of grading plans, drainage plans, sewer plans, street improvement plans etc. by the City Engineer and Public Works Department and the building plans by the Building and Safety Department. Outside agency review and approval include County Fire Department, Lahontan Regional Water Quality Control Board, and Indian Wells Valley Water District.

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.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology /Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities / Service Systems	☐ Mandatory Findings of significance

DETERMINATION: (To be completed by the Lead Agency)

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.

X 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.

☐ 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.

Document can be viewed online at: https://www.ridgecrest-ca.gov/486/Environmental-Documents

Signature: Heather S

Name: Heather Spurlock, City Planner

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where 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 (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

a) Earlier Analysis Used. Identify and state where they are available for review.

b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

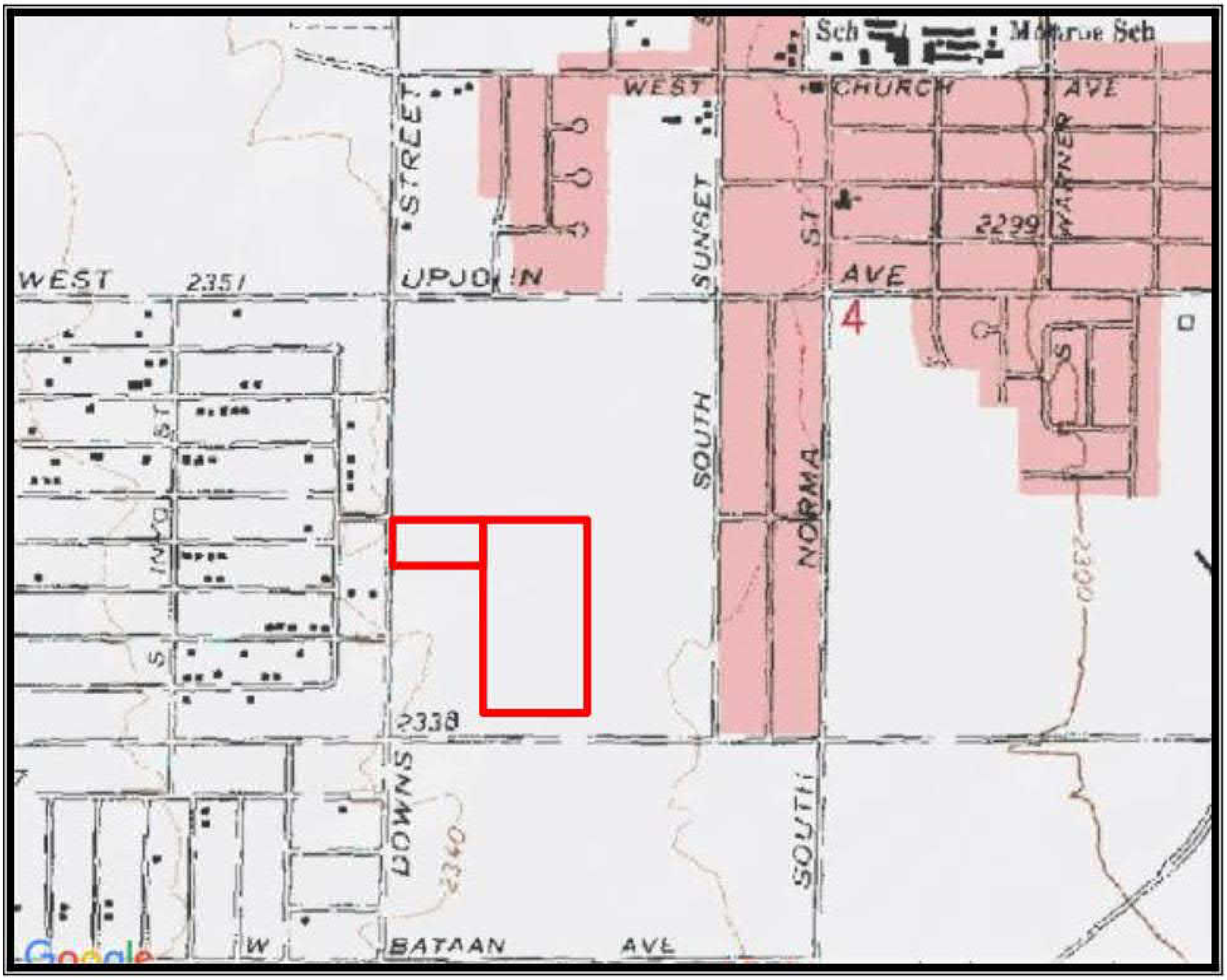
8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

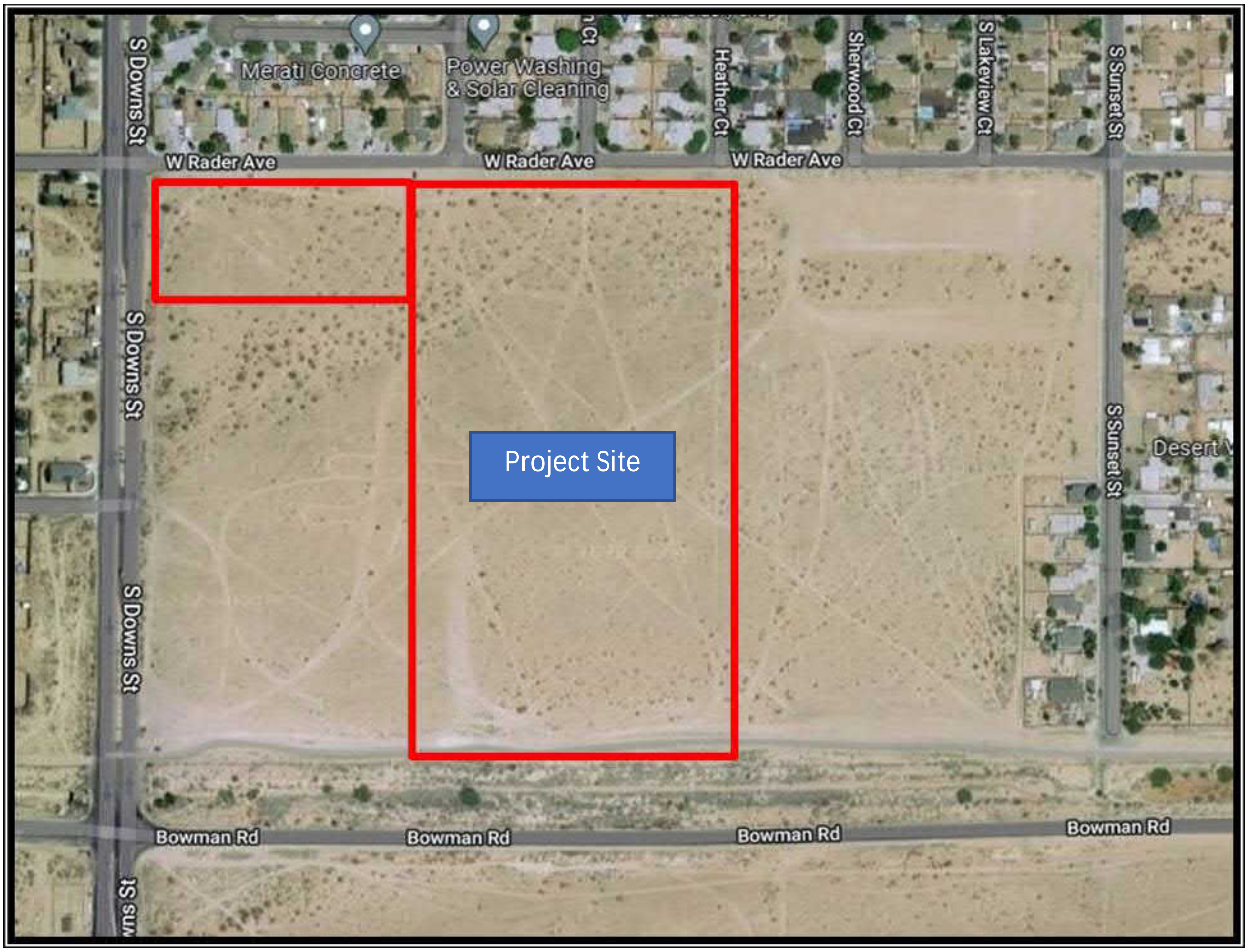
a) the significance criteria or threshold, if any, used to evaluate each question; and

b) the mitigation measure identified, if any, to reduce the impact to less than significance.

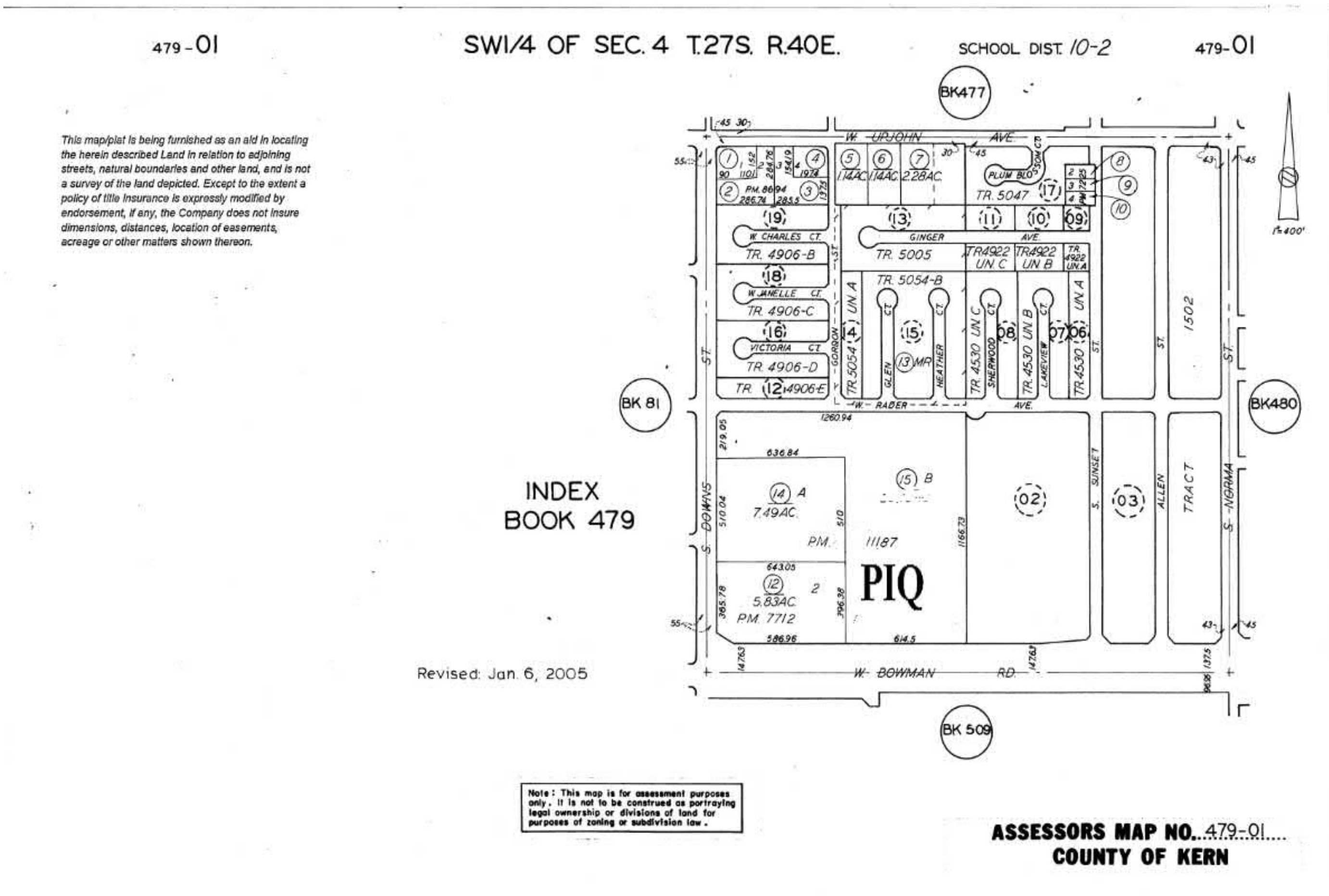
PROJECT LOCATION



AERIAL VIEW OF THE PROJECT SITE

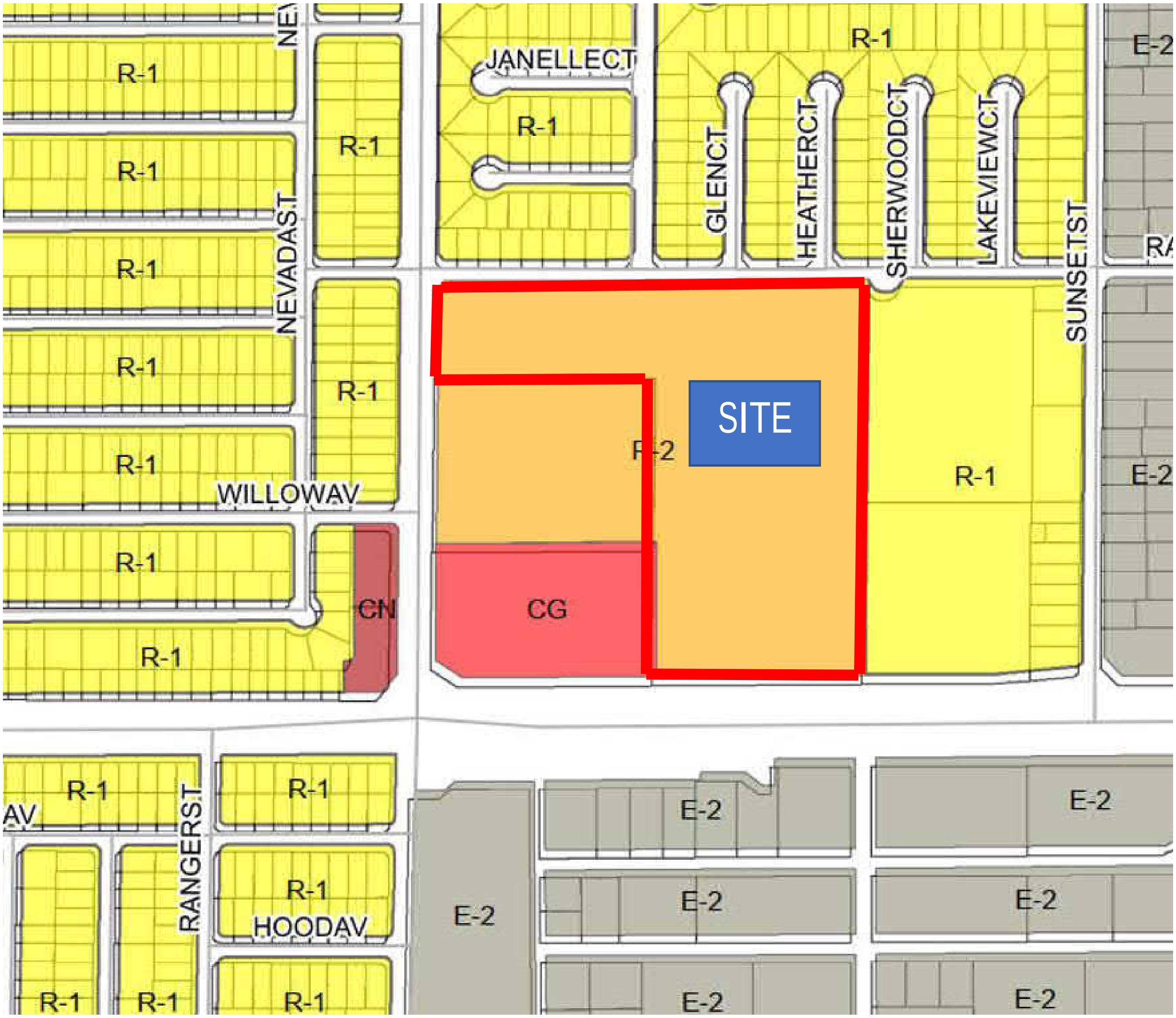


ASSESSOR'S PARCEL MAP



GENERAL PLAN LAND USE MAP OF THE PROJECT SITE

ZONING MAP OF THE PROJECT SITE

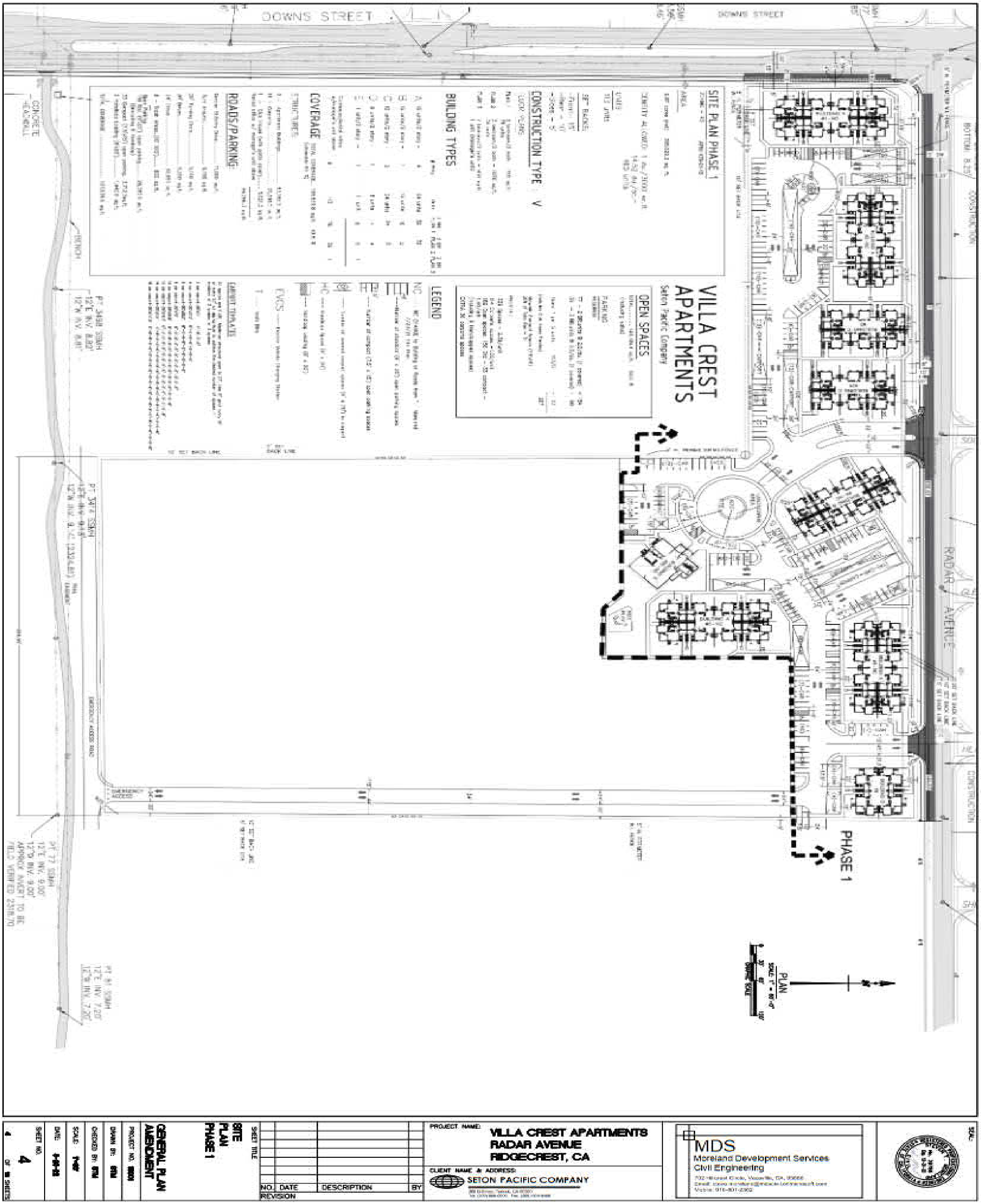


LOOKING NORTHEAST OF THE PROJECT SITE FROM THE BIKE PATH

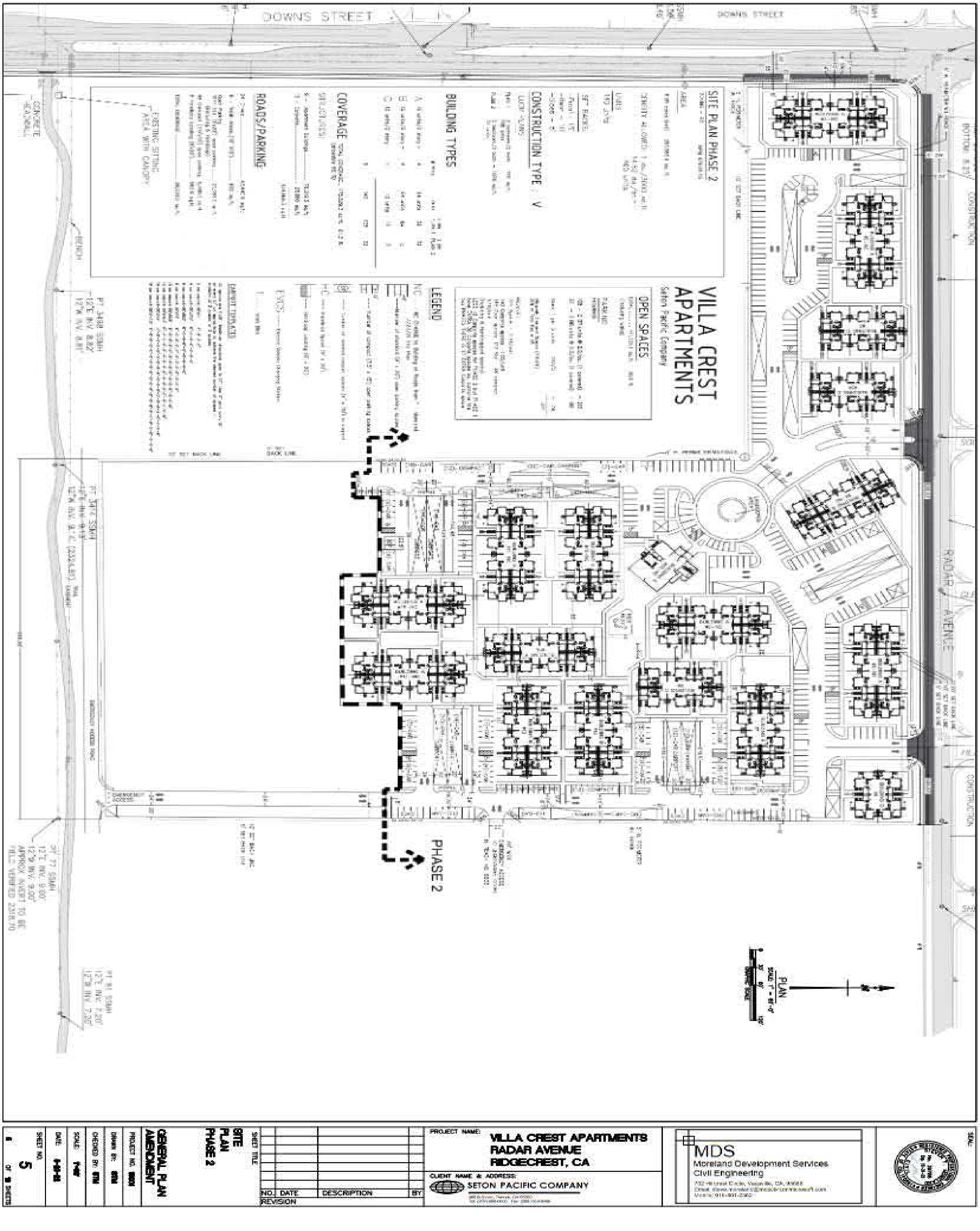
PROJECT SITE LOOKING NORTH FROM THE SOUTH SIDE

LOOKING NORTHEAST FROM DOWNS STREET

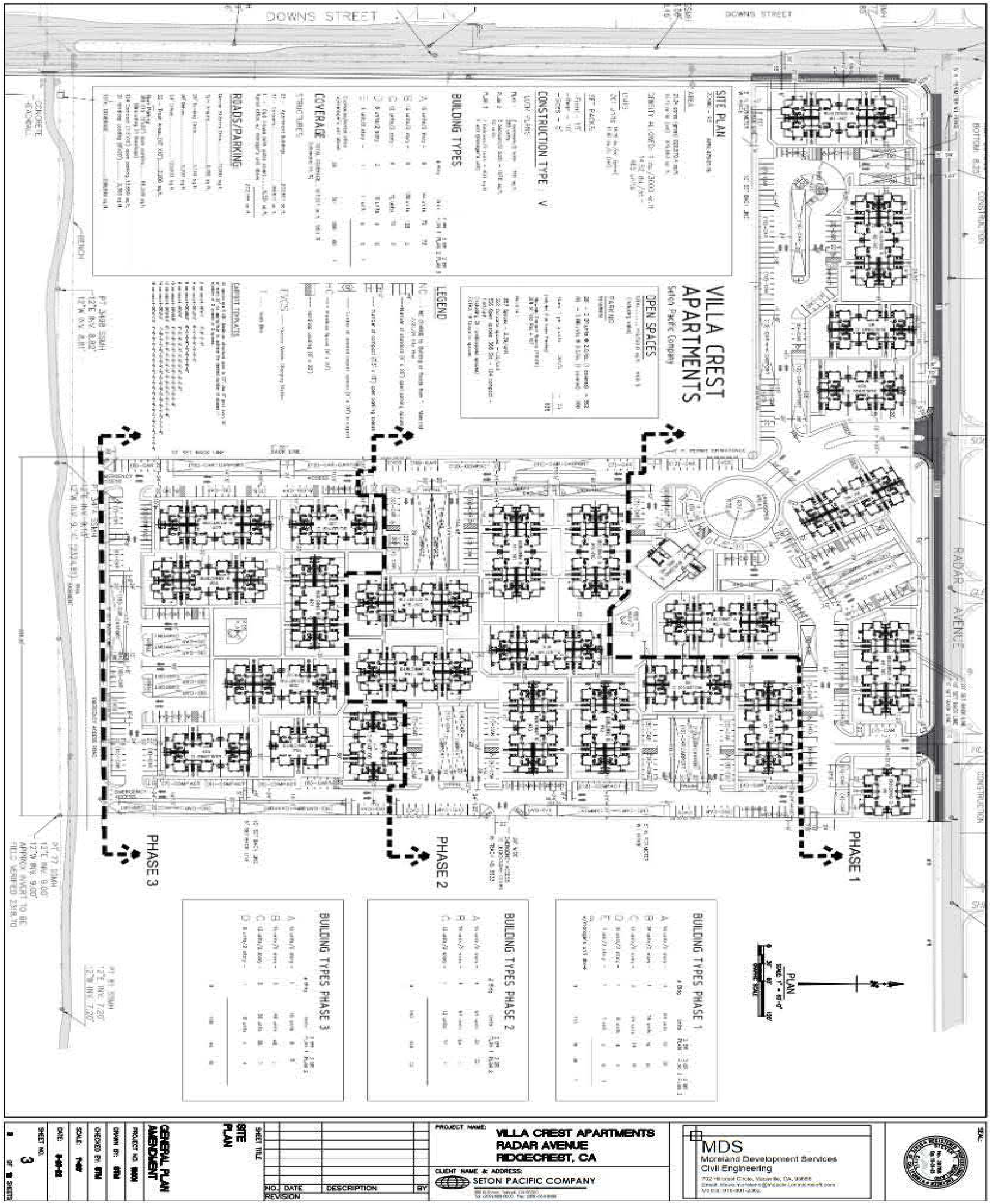
PHASE 1 SITE PLAN



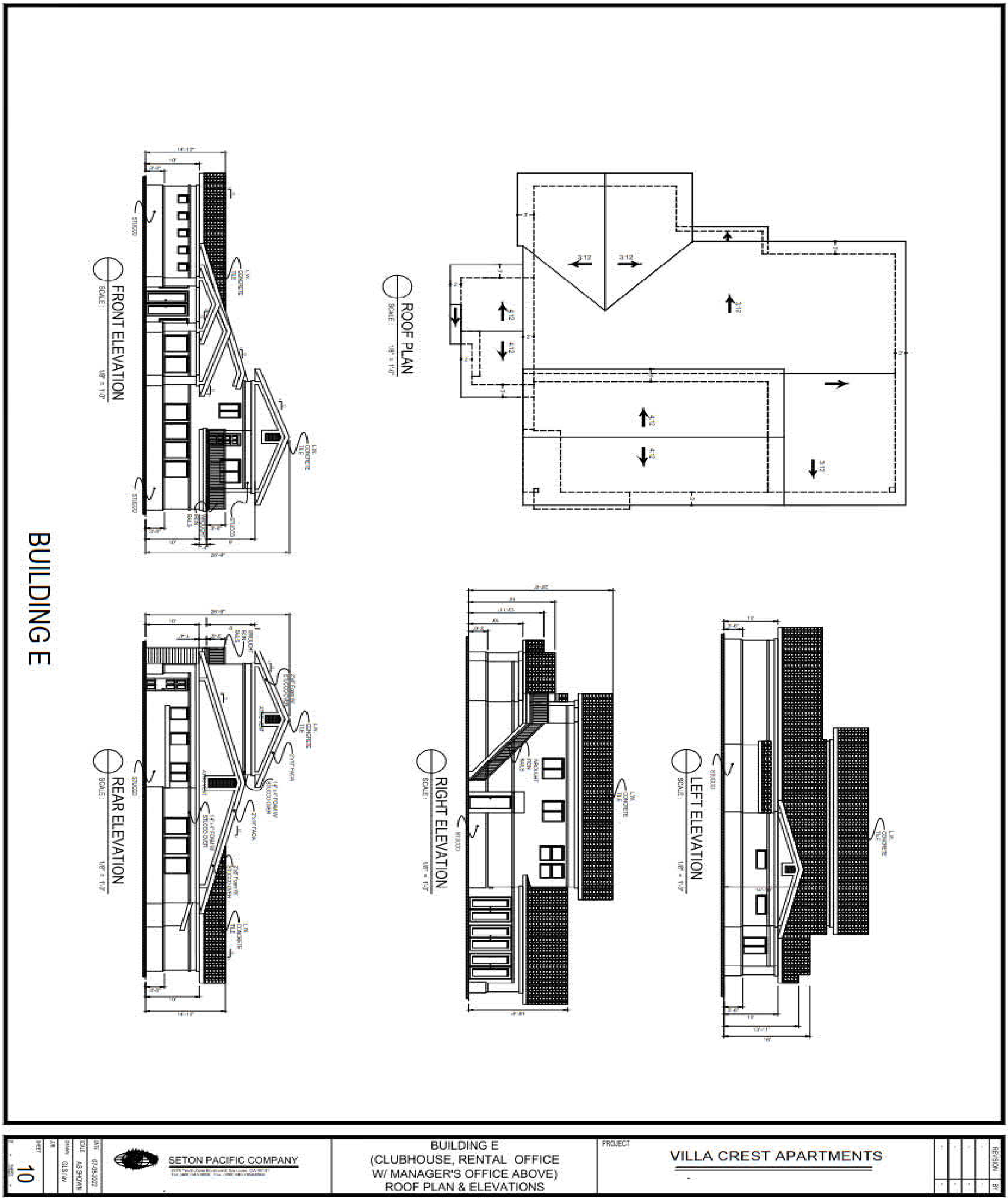
PHASE 1 AND 2 SITE PLAN



SITE PLAN WITH PHASING



BUILDING ELEVATION - BUILDING E (CLUBHOUSE WITH MANAGER'S UNIT)



Issues:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

I. AESTHETICS -- Would the project:

a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒

The City of Ridgecrest is located at the northeast corner of Kern County, within the Indian Wells Valley of the Mojave Desert. Its prime location provides vistas of four mountain ranges; Sierra Nevada Mountains to the west, the Cosos to the north, the Argus Range to the east and the El Paso Mountains to the south. The surrounding natural mountains and ridgelines provide a visual backdrop for much of the city. Both the City's General Plan Open Space & Conservation Element and Community Design Element contain policies regarding the protection of scenic resources.

The Bowman Road which is located south of the project site has been identified in the Ridgecrest General Plan 2030 as a scenic corridor. However, it is not a California Department of Transportation (Caltrans) designated scenic corridor.

The proposed project includes a request for a General Plan Amendment, Zone Change and a Site Plan Review approval to construct 361-unit multi-family residential development with a clubhouse and manager's unit in three phases. The project site is located in a rapidly urbanizing area of the city with existing single-family homes to the north and west, and vacant land to the southwest and east.

While the proposed project could alter the existing condition of the project site due to the construction of residential units, it is not located in proximity to any scenic vistas that may be obstructed or the project creates a visually offensive site. Proposed buildings are at 27 feet 4 inches in height which is less than the permitted height of 35 feet for the existing as well as proposed Zoning for the subject area.

Therefore, development of the project would have a less than significant impact on scenic vistas and no impact on scenic resources or substantially degrade the existing visual character or quality.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

If approved, the project will result in construction of a 361-unit multi-family residential development with a clubhouse and manager's unit in an increasingly urbanizing area of the city. All proposed outdoor lighting, located within parking areas, mounted on buildings and new street lighting fixtures would be facing down in order to minimize impacts due to glare.

Therefore, the proposed project would have less than significant impacts on light or glare that would adversely affect day or nighttime views in the area.

II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:

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 nonagricultural use?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Requested entitlement approvals will result in construction of a 361-unit multi-family residential development with a clubhouse and manager's unit in a rapidly urbanizing area of the city. No agricultural uses are proposed for the project site nor will any agricultural uses be impacted or displaced as a result of the proposed project. Further, there is no prime farmland or land under a Williamson Act contract within the project area. According to the California Department of Conservation, Farmland Mapping and Monitoring Program's Kern County Important Farmland Map, there are no agricultural lands in the City of Ridgecrest (California DOC 2010). The city, as a whole, does not contain any forest resources or land zoned for forest use.

Therefore, no impact related to agricultural resources is anticipated as a result of approval and development of the proposed project.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

Several federal, state and local air quality agencies and regulations that govern the project area exist at this time. The California Air Resources Board has divided California into regional air basins according to topography and other factors. The City of Ridgecrest including the project site is located within the Mojave Desert Air Basin (MDAB) and is under the jurisdiction of the Eastern Kern County Air Pollution Control District (EKCAPCD), formerly known as the Kern County Air Pollution Control District (KCAPCD). The EKCAPCD portion of the MDAB is a nonattainment area for two criteria air pollutants; Ozone (eight hour) and PM_{10}, though it is in attainment for all other air pollutants under state standards. In regard to federal standards, the City of Ridgecrest is classified as an attainment/unclassified area for all criteria air pollutants.

The California Clean Air Act requires triennial preparation of an Air Quality Management Plan (AQMP) which is the responsibility of EKCAPCD and the plan is prepared following the Kern Council of Governments (KCOG) projections. These plans are predicated on local land use plans, particularly general plan land use designations and zoning. Minor land use and zoning changes, such as the requested General Plan Amendment and Zone Change, would not significantly affect the adopted plans or projections.

Additionally, during construction, the project would be required to implement dust suppression measure during excavations, grading, and site preparation activities which would minimize the production of air pollutants.

Thus, the project is consistent with the growth projections accommodated by the AQMP. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan, and would have less than significant associated impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐

Air quality standards for the region are identified by both the United States Environmental Protection Agency (EPA) in the National Ambient Air Quality Standards (NAAQS) and the California Air Resources Board (CARB) in the California Ambient Air Quality Standards (CAAQS). Established standards deal with five pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), fine particulate matter (PM_{10}) and lead.

As indicated above, air quality in the region is managed by the EKCAPCD.

Development of multi-family housing on the project site could result in an increase in criteria pollutants during both construction and operational activities and could also contribute to the area's existing nonattainment status. Construction activities such as excavation and grading operations, construction related traffic, and wind blowing of over exposed earth could generate exhaust emissions and fugitive particulate matter that would affect local air quality. In addition to short term construction related emissions, operation of the project would contribute emissions from traffic generated by the project. Emissions during grading and construction are subject to all standard best management practices for dust control and other air control measures in place. Any ongoing vehicular emissions are subject to current federal and state emission standards.

Therefore, the project would have less than significant impacts and not violate any air quality standard or contribute to any existing or protected air quality violations.

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)?	☐	☐	☒	☐

As indicated earlier, the EKCAPCD is currently in nonattainment for both federal and state Ozone (O_3)(eight hour) and PM_{10}. The proposed project would generate O_3 and PM_{10} during both construction and ongoing operations. An increase in dust and vehicle emissions during construction is anticipated and they would be limited to short durations. These activities are subject to federal, state and local dust control as well as vehicle emission regulations.

Therefore, the project would not considerably increase any criteria pollutants, O_3 and PM_{10}, and impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Sensitive population groups include children, the elderly and the acutely ill, especially those with cardiorespiratory diseases. The nearest elementary school is located approximately .75 miles north of the project site and a school with an athletic field is located approximately two miles northwest of the project site. Residential developments are located to the north across Rader Avenue and west across Downs Street.

Although construction related activities would temporarily impact air quality, these impacts would be less than significant due to control measures that are already in place by federal, state and local agencies. Vehicular operations are also subject to adopted emission standards by federal and state agencies.

Therefore, exposure of sensitive receptors to substantial pollutant concentrations would be less then significant.

e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

No aspect of the project expected to create objectionable odors and therefore, the project would have no associated impacts.

IV. BIOLOGICAL RESOURCES -- Would the project:				
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?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

A Baseline Biotic Assessment and Focused Surveys for Desert Tortoise and Borrowing Owl report dated September 21, 2022 of the subject property has been prepared and submitted by the Altec Land Planning (see Attachment 1). The report indicates that the "survey effort consisted of a literature review, a site survey to perform a general inventory of plants and animals and a focused survey to ascertain presence/absence of Desert Tortoise and Burrowing Owl, an assessment of potential habitat for sensitive biological resources, and to check for presence/absence of jurisdictional waters or wetlands."

Report indicates that surveys found 37 plant species during site visits which may not reflect the total number of plant species likely to occur on the site due to below average rainfall and lack of germination within prior years. Report indicates that "sparse Mojave Mixed Woody Scrub with no Joshua Trees or other native desert trees" found in the general area. Report also indicates that a total of 34 common animals including Side-blotched Lizards, Desert Spiny Lizards, Desert Iguanas and Great Basin Whiptails were found or observed within and near the site. Common mammal's nests, borrows or scat observed include Black-tailed jackrabbit, white-tailed Antelope Ground Squirrel, Desert Woodrat and Coyote have also been observed during site visits.

The report further indicates that a literature review and knowledge of the area by the ALTEC biologists, a total of 27 sensitive biological resources that have been listed by the United States Fish and Game or by the California Department of Fish and Wildlife (CDFW) could potentially occur near the project site. However, due to the substantially disturbed nature of the site, its proximity to residential developments, intrusion by domestic dogs and cats and human activity, majority of the sensitive species listed by the above authorities do not have the potential to occur on the project site, the report concludes.

The report also concludes that "implementation of the project will not result in any additional permanent impacts to biological resources on the site" and the project site "have a low potential to affect Le Conte's Thrashers, Loggerhead Shrikes, and Prairie Falcons, as well as common bird species that may nest on the site." The report also states that "suitable habitat for Burrowing Owls is generally not present on the project site due to substantial disturbance and no sign of Owls and no larger burrows of Burrowing owls were observed on or adjacent to the site."

The report also concludes that "the project has no potential to affect a mapped blue line stream and other associated "State Waters" because they do not cross or nearby the Project Site."

However, the report recommends "the following mitigation measures [that] are generally suggested for all Project Sites and consist of measures often required of other commercial developers in the California deserts."

1. To comply with the Federal Migratory Bird Treaty Act, any vegetation or tree removal, or grading occurring between February 1 to August 15 shall require a qualified biologist to conduct at least one nesting bird survey, and more if deemed necessary by the consulting biologist, ending no less than 3 days prior to grading. All trees and suitable nesting habitat on the Project Site, whether they will be removed, shall be surveyed for nesting birds. If there are no nests present, this condition will be cleared.
2. To avoid potential impacts to any Burrowing Owls that may move onto the site in the future; a qualified biologist should conduct a preconstruction presence/absence survey for Burrowing Owls prior to commencement of project startup, if after a date of February 1, 2024.
3. if proposed or required by the local jurisdictional agency, the proposed project should utilize locally native and endemic plants when feasible.

With the incorporation of mitigation measures listed above, impacts on any species identified as a candidate, sensitive or special status from the development of the project would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

The Baseline Biotic Assessment and Focused Surveys for Desert Tortoise and Borrowing Owl report states that the highly disturbed project site due to human encroachment does not provide suitable conditions for a wildlife habitat. During surveys of the site there were no evidence of presence of sensitive communities such as desert tortoises, Mojave ground squirrel, Borrowing Owls or LeConte's Thrasher that are subject to plans, policies, regulations of the CDFW or the United States Department of Fish and Game.

Therefore, impacts to riparian habitat or other sensitive natural communities from the development of the project would be less than significant.

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?	☐	☐	☐	☒

The project is not located within a federally protected wetland as defined by Section 404 of the Clean Water Act and does not propose direct removal, filling or hydrological interruption of any kind.

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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

The proposed project includes several legislative actions and approval to construct 361-unit multi-family residential development with a clubhouse and manager's unit in a rapidly urbanizing area of the city. Residential development already exits to the north across Rader Avenue and west across South Downs Street. It does not provide any link between migratory wildlife corridors and therefore, not considered a part of a known wildlife movement or migration corridor. The site does not contain any waterways.

Therefore, the project would not impact the movement of native resident migratory fish or wildlife species.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

The City has no specific tree preservation policies that are unique to the project area. Therefore, the project would not conflict with any policies or ordinances protecting biological resources including tree preservation policies.

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?	☐	☐	☐	☒

There are no Habitat Conservation Plan, Natural Community Conservation Plan or other local, regional or state habitat conservation plan that are applicable to the project site. Therefore, project would have no impact on those areas.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

V. CULTURAL RESOURCES -- Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries	☐	☐	☐	☒

Previous development activities in the general area including the more recent construction of a bike path along the southern property line of the project area did not discover any evidence of culturally significant archaeological resources during surface disturbances. Further, the project will not directly cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the Government Code. However, if evidence of significant cultural resources is found during site grading or construction activities, all activities within 100 feet of the find will cease until such time as an authorized expert could identify and protect such resources as needed (General Plan Policy OSC-3.7). No evidence exists that the site has been used as a cemetery.

Since no evidence suggests that the project would directly or indirectly destroy or impact a unique paleontological resource or unique geologic feature on the subject site or disturb any human remains, the proposed project would not have any impact related to cultural resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

VI. GEOLOGY AND SOILS -- Would the project:

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.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐

Preliminary Geotechnical Engineering Investigation report dated September 11, 2007 prepared by Krazan & Associates (see Attachment 2) has been previously submitted for a residential project to be developed on the site. The report covers the entire area under consideration with the current entitlement applications. Even though considerable time has lapsed between the time the report prepared and current project submittals, the site has not been disturbed as evidenced by the information contained in the more recent biological study prepared and submitted for the project. Therefore, the staff is considering the information contained in the Preliminary Geotechnical Engineering Investigation report for the preparation of this initial Study.

The study states that sediments of the Indian Wells Valley where the project is located generally contains unconsolidated and semi-consolidated Quaternary alluvium derived from the surrounding mountain ranges. Report also states that two well-known fault zones, South Sierra Nevada and Garlock, are located within the project vicinity. These faults are concealed and do not exhibit active surface traces, the report concludes. According to the report no known active fault traces are found in the vicinity of the project. Additionally, the project area is not located within the Earthquake Fault Zone.

Therefore, seismic related impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

The above-mentioned Preliminary Geotechnical Engineering Investigation report indicates soils within the project area appears typical of those found in the geologic region and top 6 to 12 inches contain very loose silty sand with traces of gravel and clay. Beneath this layer is a loose to very dense silty sand, sandy silt or clayey sand of 3 to 4 feet in depth. Below this layer, 5 to 6 feet, is predominately medium dense to very dense silty sand, sandy silt, clayey sand or sand with varying amounts of gravel and clay. These soils are considered to be moderately strong and slightly compressible (pages 3 and 4 of the report). Report also includes recommendations for ground preparation for construction, engineered fill, drainage and landscaping and other activities associated with construction.

Therefore, impacts from soil related conditions including erosion or loss of top soil, lateral spreading, subsidence and expansive soil would not present an impact on the environment.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

VII. GREENHOUSE GAS EMISSIONS -- Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

"Greenhouse gases" (GHGs) emitted by human activity are implicated in global climate change. GHGs contribute to increase in earth's atmospheric temperature. Main Components of GHGs include, but not limited to, carbon dioxide, methane, and nitrous oxide.

The single largest source of GHG emissions is from fossil fuel consumption (motor vehicles, off-highway mobile sources and aircrafts) and account for more than one-half of GHG emissions.

Sources of greenhouse gas emissions associated with the project include construction related vehicles and equipment, and vehicle emissions from continued use of the developed project. The project is expected to generate over 2,407 daily vehicle trips according to the Institute of Transportation Engineers manual (ITE), 8th Edition. Greenhouse gas emissions associated with vehicles are addressed by the state and federal regulations and all vehicles are required to comply with these regulations in order to minimize greenhouse gas emissions.

The State of California has several regulations including statues (AB 32 and SB 1368) and executive orders (EO S-03-05, EO S-20-06 and EO S-01-07) dealing with GHGs. The AB 32, California Global Warming Solutions Act of 2006, is one of the most significant pieces of environmental legislation that California has adopted. It is designed to maintain California's reputation as a "national and international leader in energy conservation and environmental stewardship" and others. It intends to reduce California's GHG emissions to 1990 level by year 2020 which the state has achieved four years ahead of time.

The applicant will be required to prepare and submit a Dust Control Plan (DCP) addressing grading and construction activities. These plans would include dust control measures and plans will require city as well as the Air Quality Management District approval.

Compliance with existing regulations for construction related activities and vehicle emission regulations would reduce greenhouse gas emissions related impacts to less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

VIII. HAZARDS AND HAZARDOUS MATERIALS - Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒

As described under the Description of the Project above, the proposed project includes legislative actions and approval of a Site Plan Review to construct a 361 multi-family residential community and a clubhouse with a manager's unit within a rapidly urbanizing area of the city. The proposed project is not anticipated to transport, store, use, disposal or generate substantial amounts of hazardous materials or utilize any acutely hazardous materials. Household cleaners, solvents, pesticides and fertilizers which are associated with residential activities are for maintenance purposes only. Based on existing laws, they would not be stored in sufficient quantities that can pose a hazard to the public or the environment.

Therefore, the project would not result in any impacts due to transport, use, or disposal of hazardous materials.

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?	☐	☐	☒	☐

The proposed project is residential in nature and will be built on an existing highly disturbed vacant parcel of land that is not expected to contain any underground storage tanks (USTs), above storage tanks (ASTs), main gas lines, or other hazardous material conduits or storage facilities.

Therefore, the proposed project would not 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 and the project would have less than significant impacts on the environment.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐

No schools exist nor are any schools currently proposed within the project site or within one-quarter mile of the project site. The proposed project is not expected to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste.

Therefore, the project would have less than significant impacts due to hazardous emissions or materials on existing or proposed schools.

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?	☐	☐	☐	☒

The subject site is not listed or included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Therefore, the project would have no impact on public or the environment.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

The City of Ridgecrest is the closest urban area to the Naval Air Weapons Station (NAWS) China Lake. As a result, the city has adopted a Military Sustainability Element in its General Plan, which is intended to demonstrate City's commitment to and support of current and future missions at the NAWS China Lake. Additionally, other elements of the General Plan also contain policies related to preserving the significant economic trust for the city and the valley. Due to air operations of the NAWS China Lake, the Federal Aviation Administration (FAA) has established a Special Use Airspace (SUA) designation to alert users about areas of military activity, unusual flight hazard, or national security concerns.

Two SUAs, Military Operations Area (MOA) and Restricted Areas, are applicable to the planning area of the city. The City of Ridgecrest is located within the Isabella MOA. The MOA is intended to separate certain non-hazardous flight activities from Instrument Flight Rules (IFR) traffic. There are seven Restricted Airspace Areas and the area south of Ridgecrest Boulevard and west of South Downs Street is within Restricted Area 2506 (R-2506). Based on this information, the project lies just outside the R-2506 Restricted area. An Air Installation Compatible Use Zone (AICUZ) has also been established and included in the Military Sustainability Element of the General Plan. Based on Figure 4-2, 2007 AICUZ of the General Plan and the not yet adopted (by the city) the Final Air Installations Compatible Use Zones Study dated April 2011, the project site is located outside the AICUZ.

Therefore, the project site and the development of the project would have less than significant impact on the environment due to operations of the NAWS China Lake.

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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
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?	☐	☐	☐	☒

The project is not located within the vicinity of a private airport, physically interfere with an adopted emergency plan, or expose people or structures to significant risk of loss, injury or death due to wildland fires.

Therefore, the project would not impact those aspects of the environment.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

IX. HYDROLOGY AND WATER QUALITY - Would the project:

a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐

Section 303 of the federal Clean Water Act requires states to develop water quality standards to protect the beneficial uses of receiving waters. In accordance with California's Porter/Cologne Act, the Regional Water Quality Control Boards (RWQCBs) of the State Water Resources Control Board (SWRCB) are required to develop water quality objectives that ensure their region meets the requirements of Section 303 of the Clean Water Act.

The City of Ridgecrest falls within the jurisdiction of Lahontan Regional Water Quality Control Board (LRWQCB) and regulated by its Water Quality Control Plan for the Lahontan Region (Basin Plan). The Basin Plan sets forth water quality standards for surface water and groundwater of the region. The subject site is located within the Indian Wells Hydrological Unit (624.00) and overlies the Indian Wells Valley Groundwater Basin (6-54).

Section 402 of the Clean Water Act requires municipalities to obtain permits for the water pollution generated by stormwater in their jurisdiction. The applicant would be required to implement Best Management Practices (BMPs) which are defined as schedules of activities, prohibition of practices, maintenance procedures and other management practices to prevent or reduce the discharge of pollutants to the waters of the United States. Additionally, BMPs also include water quality impacts such as erosion and siltation, to the maximum extent practicable.

The proposed project includes several legislative actions and a Site Plan Review approval for development of a 361-unit multi-family residential project and a clubhouse with a manager's unit in three (3) phases in a rapidly urbanized area. None of the proposed uses are point source generators of water pollutants, and thus, no quantifiable water quality standards apply to the project. As a residential project it would add typical, urban, nonpoint-source pollutants to storm water runoff. These are addressed by local permits and would not exceed any receiving water limitations.

Therefore, based on required compliance with existing standards for BMPs, the project would not violate any water quality standards or waste water discharge requirements, thus, impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐

The Indian Wells Valley Water District provides water to the city including the project site. Groundwater is the sole source of portable water supply in the Indian Wells Valley. The primary source of natural recharge of the groundwater system in the Indian Wells Valley is infiltration of surface runoff from the Sierra Nevada, Cosos and Argus ranges, subsurface flow from Sierra Nevada bedrock unit, and geothermal upwelling and subsurface flow from the Rose Valley. Direct additions or withdrawals of groundwater are not proposed by the project. Additionally, the project will not involve massive substructures at depths that would significantly impair or alter the direction or rate of flow of groundwater. In a 2011 publication (IWVWD 2011 p.35), the district indicated that it had no immediate concerns with water supply reliability.

Therefore, the proposed project would not substantially deplete groundwater supplies or substantially interfere with groundwater recharge, and therefore, the project would have less than significant impact on the environment.

c) 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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

A man-made flood control channel known as Bowman Wash is located to the south of the project site and it collects surface flows from stormwater during rain events (Source: Ridgecrest Commercial Specific Plan Offsite Improvement Project). Flows collected from urban developments are directed to the man-made channel and ultimately directed to a weir/culvert located at South China Lake Boulevard.

Existing run-off from the undeveloped site finds its way on to the Bowman Wash. The project proposes to construct a detention basin within the Bowman Wash to handle existing and any new flows from the project. Responding to an Initial Study completed for a nearby project, the Lahontan Regional Water Quality Control Board (LRWQCB) commented that they have the jurisdiction over the Bowman Wash and therefore, required their approval for any work within or near the Bowman Wash. Permit requirement may not cause the alteration of the existing drainage pattern of the site or the general area.

Therefore, the proposed project would not substantially alter the existing drainage pattern of the site or the general area and therefore, impacts from the project would be less than significant.

d) 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?	☐	☐	☒	☐

The proposed project could increase runoff by increasing the impermeable surfaces on-site. However, compliance with city’s Master Drainage Plan (1989) and applicable permits and requirements, would ensure that post-development peak storm water runoff rates do not exceed pre-development peak storm runoff rates. The off-site detention basin and the off-site drainage network that supports the subject property and surrounding watershed would be adequate to handle the project’s post-development runoff.

Also, the project will generate only typical, non-point source, urban stormwater pollutants. These pollutants are covered by the applicable permits required of the project to reduce stormwater pollutants to the maximum extent practicable.

The proposed project would not create runoff that would exceed the capacity of existing and planned stormwater drainage systems and would not provide a substantial additional source of polluted runoff.

Therefore, impacts due to runoff water and capacity to handle them would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Otherwise substantially degrade water quality?	☐	☐	☒	☐

The project will not be a point-source generator of water pollutants. Long-term water pollutants expected to be generated on-site are typical urban stormwater pollutants. Compliance with the City's permitting requirements will ensure these stormwater pollutants would not substantially degrade water quality.

During construction, potential to generate short-term water pollutants including sediment, trash, leftover construction materials, and equipment fluids exists. The BMPs are required of the project to prevent contaminated construction site stormwater and construction-induced contaminants from entering into the drainage system. Construction sites that are larger than one acre, such as the project site, are subject to additional stormwater pollutant requirements during construction. The LRWQCB requires a Clean Water Act (CWA), section 402 (p) stormwater permits including National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit, Water Quality Order (WQO) 2009-0009-DWQ obtained from the State Water Board for projects larger than one acre. Submittal requirements for permits include a Storm Water Pollution Prevention Plan (SWPPP) that outline the BMPs that will be incorporated during construction. These BMPs including but not limited to, wattles, covering of stockpiles, silt fences, and other physical means will minimize construction-induced water pollutants by controlling erosion and sediment, establishing waste handling/disposal requirements, and providing non-storm water management procedures.

Therefore, compliance with permit requirements for construction ensures that development of the project would have less than significant impact to water quality.

f) 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?	☐	☐	☐	☒
g) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

The project site is located within the Ridgecrest South 7.5-minute USGS Quad. The Federal Emergency Management Agency (FEMA) Flood Zone Map number 06029C1600E effective September 26, 2008 for the area designates the project site as within Zone X, Area of Minimal Flood Hazard (area determined to be outside the 0.2% annual chance floodplain).

Therefore, the proposed project would not place housing or structures within a 100-year flood hazard area, hence, there would be no associated impacts.

h) 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?	☐	☐	☐	☒
i) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

The project site is relatively flat and site does not lie in a potential inundation area. There are no major dams or waterways located on or near the site, nor it is located near any bodies of water or water storage facilities that would be considered susceptible to seiche. There are no major hills or steep slopes in the immediate vicinity of the project site. Additionally, it is not located within any potential source of mudflow. Also the project area is not located near the ocean.

Therefore, no impact would occur with respect to exposure of people to flooding from dam or levee failure, inundation by seiche, tsunami or mudflow.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

X. LAND USE AND PLANNING -- Would the project:

a) Physically divide an established community?	☐	☐	☐	☒

Project will result in construction of 361 multi-family residential units and a clubhouse with a manager's unit on a vacant lot. Single family residential exist to the north across Rader Avenue and to the west across South Downs Street. Vacant land is located to the east and southwest and Bowman Road located to the south.

Therefore, the proposal would not result in physically dividing an established community, hence, no impact on the environment.

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?	☐	☐	☒	☐

Applications submitted include a General Plan Amendment and a Zone Change among others. The General Plan Land Use Element identify the project site as RM (Residential Medium Density) and zoned R-2 (Low-Density Multi-Family Residential District). The request includes an application to change the General Plan Land Use Designation to RH (Residential High Density) and corresponding zoning of R-3 (Medium Density Multi-Family Residential District) for the entire project area. The request is in line with the existing General Plan Land Use Designation and zoning of the property located southwest of the project area (GPA 17-01 and ZC 17-01).

The City's adopted General Plan Land Use Policy LU-1.2 states that areas with access to public transportation and residential serving uses are suitable for multi-family residential developments. The adopted Housing Element Policy H-1.8 encourages development of variety of housing opportunities for moderate-income households; locate higher density residential development close proximity to public transportation, retail, services and recreation (Policy H-3.4); and provide affordable large-family units to very low- and low-income families (Policy H-5.0). The proposed development served by two major arterials, South Downs Street and Bowman Road.

Therefore, the project does not conflict with adopted land use plan or regulation, hence, impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

The 9.4 million-acre West Mojave Habitat Conservation Plan covers the area bounded by Olancha in Inyo County on the north, the San Gabriel and San Bernardino mountains to the south, the Antelope Valley to the west, and the Mojave National Preserve to the east. This area includes private lands, public lands managed by the federal Bureau of Land Management (BLM) and military bases. The Plan's main objective is to protect the desert tortoise and nearly 100 other sensitive plants and animals, as well as their ecosystems.

As indicated in Section IV – Biological Resources, the biotic assessment prepared for the project did not identify any presence of sensitive species or their habitat on the project site. Report further indicates that the site has been highly degraded due to human activity and other factors.

Therefore, no impacts anticipated due to conflicts with habitat conservation plans or natural community conservation plans or regulations.

XI. MINERAL RESOURCES -- Would the project:

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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

No known mineral resources of any value to the region and the residents of the state have been identified within the City of Ridgecrest and specifically on the project site. The project site would not result in the loss of availability of a locally important mineral resource or recovery of it since the site has not been delineated as having such value on the local general plan, any specific plan or other land use plan.

Therefore, no aspect of the project would have any impact mineral resources or recovery of it.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

XII. NOISE -- Would the project result in:

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?	☐	☐	☒	☐

Noise impacts are considered significant if they expose people to levels in excess of standards established in local general plans or noise ordinances. In the City of Ridgecrest, normally acceptable external noise standard for multi-family residential is up to 60 dBA while 61 – 70 dBA considered conditionally acceptable (Table 8-1, Maximum Allowable Noise Exposure by Land Use, Health & Safety Element).

The Military Sustainability Element of the General Plan states that the city as the closest urban area to the Naval Air Weapons Station (NAWS) and identify it as a unique land use with planning challenges. Based on its operations, an Air Installation Compatible Use Zones (AICUZ) has been established and the city has adopted the 2007 study in its General Plan. Based on this study, it appears that the project site is located outside of the established Noise Zone 1 (60 to <65 dB CNEL).

Since there will be no residents on the site during construction of the project, short term construction noise due to activities poses no impacts. However, longer term noise will be generated by residents and vehicles entering and exiting and other operations such as trash trucks and vehicles on nearby roadways.

All grading and construction equipment are required to comply with established noise regulations and construction will be for a short duration. The City of Ridgecrest Municipal Code prohibit construction between the hours from 8:00pm to 6:00am. Future buildings on the site will be built in compliance with California Building Code residential standards for noise attenuation.

Therefore, exposure of persons to or generation of noise levels in excess of standards established in the general plan or noise ordinance, or applicable standards of other agencies would be considered less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐

There are no established performance standards for vibration in the City of Ridgecrest. During construction ground-borne vibrations could be produced but it would be perceptible on in the immediate vicinity (i.e., within 25 feet). Additionally, the proposed residential use would neither generate, nor expose people to excessive ground-borne vibrations or ground-borne noise levels. Furthermore, the proposed project does not involve construction practices that are typically associated with vibrations, such as pile driving and largescale demolition. Any construction equipment generated vibrations, if any, will be limited to short durations.

Therefore, impacts of the proposed project due to ground-born vibration or ground-born noise levels would be less than significant.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

The project proposes to construct a 361-unit multi-family residential development with a clubhouse and a manager's unit. Using data provided in the ITE Trip Generation Manual, 8th Edition project would generate 2,407 daily vehicle trips (see Section XVI – Transportation/Traffic below). The primary noise generated by the project would be from permanent vehicle operations. Noise generated from vehicular traffic on adjacent South Downs Street and Bowman Road would be higher than the vehicle related noise generated within the project.

Therefore, less than significant noise impacts from project operation would occur with regards to a substantial permanent increase in ambient noise levels in the project vicinity above the levels existing without the project.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

Grading and construction activities would temporarily increase noise levels throughout the entire construction period. Noise levels would vary depending on the type and number of trucks, heavy machinery and smaller construction equipment used. Typical construction equipment such as backhoe, concrete mixer, pump truck, mobile crane, a dozer, excavator, grader etc. could produce 80 – 85 dBA noise level at 50 feet. Construction would occur Monday – Friday during daylight hours, i.e., 8 am to 6 pm. On some occasions, construction may occur on Saturdays and Sundays due to scheduling of construction activities and equipment. Project generated noise levels at residences located to the north across Rader Avenue and west across Downs Street would be further attenuated due to roadway width and landscaping.

Since these effects would occur intermittently and would be temporary in nature, they would be considered less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

The nearest public/private airport is the Inyokern Airport located more than two (2) miles northwest of the project site. Similarly, the Naval Air Weapons Station (NAWS) China Lake facilities are also located well over 2 (two) miles from the project site. However, as discussed in Section VIII. HAZARDS AND HAZARDOUS MATERIALS above, the City of Ridgecrest is the closest urban area to the Naval Air Weapons Station (NAWS) China Lake and the project area is located outside of the established Air Installation Compatible Use Zone (AICUZ) based on Figure 4-2. 2007 AICUZ.

Therefore, no aviation related noise hazards for people working or residing in the project area would occur due to private or public air strip facilities.

XIII. POPULATION AND HOUSING -- Would the project:

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)?	☐	☐	☒	☐

The proposed project will ultimately construct 361 multi-family units and a clubhouse with a manager's unit. Since it is difficult to predict whether the inhabitants of the project would come from outside of the City of Ridgecrest or not, it is difficult to estimate the actual number of residents that the project would add to the current population of the city.

The US 2020 Census data indicate that the city had a population of 28,905. The city estimates of the population in 2022 stands at 28,027 a loss of 878 persons. The City of Ridgecrest has the second largest population in the Kern County. The Indian Wells Valley where the city is located estimated to have over 40,000 persons.

Therefore, the proposed project could accommodate growth rather than induce substantial population growth and the project's direct or indirect impact on population would be less than significant.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

The proposed project site is currently vacant land and therefore, the proposed project neither displace people nor will it displace substantial numbers of existing housing. However, the proposed project would provide additional opportunities for affordable housing in the city.

Therefore, the proposed project would have no impact by displacing substantial numbers of existing housing or number of people.

XIV. PUBLIC SERVICES -

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?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

The Kern County Fire Department (KCFD) and Office of Emergency Services provide fire protection services in the City of Ridgecrest. Fire Stations No. 77 (Ridgecrest Heights) and 74 (Ridgecrest) provide primary service with Fire Station No. 73 located in Inyokern serving as the backup.

The Ridgecrest Police Department (RPD) provides police protection services to the city.

The city is located within the Sierra Sands Unified School District which provides education services to students in K–12 grades.

The city also offers a variety of recreation opportunities through its parks and recreational programs.

Other public facilities include the City Library and the US Post office.

The proposed project would not create any significant adverse impacts to existing public services, nor would it necessitate the construction of new facilities for fire, police, school services, parks or other public services. Prior to building permits and/or occupancy permits, the project will be required to pay capital improvement fees and other fees imposed by individual service providers.

Therefore, the proposed project would not result in an impact related to public services.

XV. RECREATION -

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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

The City of Ridgecrest maintains ten parks including the Freedom Park, Kerr McGee Youth Sports Complex and several school athletic facilities and playgrounds. The City's inventory of parks ranges from one-half acre to 56 acres in size. In addition to city owned park facilities, the city also operates park owned by the Kern County (Leroy Jackson Park Sports Complex). The proposed project request approval of a General Plan Amendment, Zone Change and a Site Plan Review to construct a 361-unit multi-family residential development and a clubhouse with a manager's unit in three phases. Approval of the project requires it to pay park and other improvement fees which would be used for development and maintenance of such facilities. Any on-site recreational facilities such as the clubhouse will be for the benefits of the occupants of the project. Even though future residents of the project may use park facilities located throughout the city, the incremental increase in the demand for use of public parks considered not significant. Therefore, the proposed project would have less than significant impacts on recreational facilities within the city.

XVI. TRANSPORTATION/TRAFFIC -- Would the project:

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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

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?	☐	☐	☒	☐

A Traffic Study dated November 21, 2018 with an expiration date of August 30, 2020 prepared by The Perfect Solution has been submitted for the proposed project. The study evaluates traffic related conditions for a 301-unit apartment project on approximately 21 acres. Please note that the current proposal under consideration proposes to construct 361 multi-family units and a clubhouse with a manager's unit. The increase in the number of units may slightly increase the impacts evaluated in the study.

The study states that the project's trip generation and design hour volumes were calculated based on the Institute of Transportation Engineers (ITE) Trip Generation manual, 8th Edition and used the number of dwelling units proposed as an independent variable. Using the ITE manual's estimated 6.65 trips per dwelling unit, the report indicates that the 301-unit development would generate 2002 daily trips with 154 am peak hour and 197 pm peak hour trips. Since current proposal includes 362-units (including the manager's unit), based on the ITE manual daily trips generated by the project would be 2,407, an additional 405 daily trips than the daily trips analyzed in the report.

The report also assumes that 50% of the trips generated by the proposed project would be north bound including 30% on South Downs Street, 35% would go east on Rader Avenue to Norma Street and 15% go south on Downs Street (Table 2, Project Trip Distribution, p11).

The study indicates that most agencies consider Level of Service (LOS) C or better at an intersection as acceptable. LOS C utilizes more than 64% but less than or equal to 73% of the intersection capacity with no major congestion. The following table summarizes existing plus project generated trips and Level of Service (LOS) at nearby intersections (see Level of Service table below).

It should be noted that the project analyzed in the study for impacts of a project with 301-unit multi-family development whereas the proposed project contains 361 units plus the clubhouse and a manager's unit. As shown in the above table, studied intersections have more capacity to handle additional trips generated by the current proposal.

The study concludes that based on Traffic Engineering investigation completed for the project, no significant project impacts forecasted and therefore, no mitigation measures are required. Therefore, the proposed project would have less than significant impact on the circulation system and Level of Service.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Existing Plus Project Roadway Segments - Levels of Service

Roadway Segment - *Classification*	ADT	LOS	Volume/ Capacity
South Downs Street – *Major Arterial* between W. Upjohn Ave. and W. Radar Ave.	8,056	A	8,056 / 40,000 = 0.20
South Downs Street – *Major Arterial* between W. Radar Ave. and Bowman Rd.	7,615	A	7,615 / 40,000 = 0.19
West Radar Avenue – *Collector Street* between S. Downs Street and S. Gordon St.	1,759	A	1,759 / 15,000 = 0.12
West Radar Avenue – *Collector Street* between Heather Ct. and S. Norma St.	825	A	825 / 15,000 = 0.06
South Norma Street – *Minor Arterial* between W. Radar Ave. and Bowman Rd.	3,889	A	3,889 / 17,000 = 0.23

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	☐	☐	☐	☒

No aspect of the project expected to change in air traffic patterns by increasing traffic levels or change in location. Therefore, the project would have no impact on air traffic pattern.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐

A main access to the proposed 361 multi-family unit project with a clubhouse and a manager's unit is located on Rader Avenue with a secondary access further east of the main access on the same street. These access points are aligning with the centerlines of South Gordon Street and Heather Court already existing on north side of Rader Avenue.

Therefore, the project would have less than significant impact due to hazards due to design features.

e) Result in inadequate emergency access?	☐	☐	☒	☐

The proposed project is proposing its access on Rader Avenue via two access points with no gates. The project is also proposing to construct a 24-foot-wide temporary emergency access along the eastern portion of the project to the south ending next to the existing bike path during the Phase 1 and subsequent phases. When completed this and another access located along the westerly portion of the project will provide additional access points to the project. Appropriate agencies such as fire and police departments will evaluate the adequacy of these emergency access points.

Therefore, the proposed project would have less than significant impacts on emergency access.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

The proposed project consists of a General Plan Amendment, Zone Change and a Site Plan Review approval. These proposals are not expected to conflict with any policy, plan or program regarding public transit, bicycle, or pedestrian facilities or decrease the performance or safety of such facilities.

Therefore, there would be no impacts to adopted policies, plans or programs for public transit, bicycle or pedestrian facilities from the project.

XVII. UTILITIES AND SERVICE SYSTEMS -- Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐

The project area is located within the Lahontan Regional Water Quality Control Board (LRWQCB). The City of Ridgecrest is responsible for collection, conveyance, treatment, and disposal of waste water generated in both the City and Naval Air Weapons Station China Lake. The treatment facility is located on Navy owned property and the facility is operating at 75 percent or less of capacity. The proposed project includes the construction of a 361-unit multi-family residential development with a clubhouse and a manager's unit and other on-site amenities. None of the proposed uses would generate atypical wastewater such as industrial or agricultural effluent. All wastewater generated by the project is expected to be domestic sewage. Wastewater treatment facilities are designed to treat domestic sewage; and thus, typical domestic sewage does not exceed wastewater treatment requirements.

Since the project would not generate atypical wastewater, the project would not exceed wastewater treatment requirements, and therefore, the project would have less than significant impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

Water supply for the city is administered by the Indian Wells Valley Water District (IWVWD) and the wastewater treatment facilities are provided and administered by the City of Ridgecrest. The IWVWD rely on the continued use of groundwater as its source of portable water, consistently manage the valuable groundwater resources and actively participates in the Indian Wells Valley Cooperative Groundwater Management Group.

The project would increase the demand for water and wastewater service. However, the increase to water/wastewater service demand is minimal in comparison to the existing service areas of the water and wastewater service purveyors. Additionally, the facilities currently maintained by the service purveyors are adequate to serve the proposed increase in demand from the project. The water and wastewater improvements required for the project are on-site pipelines and unit connections to the infrastructure systems, which are subject to connection fees.

Therefore, the proposed project would not require or result in the construction or expansion of new water or wastewater treatment facilities off-site, and the project would have less than significant associated impacts.

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?	☐	☐	☒	☐

The City of Ridgecrest manages its stormwater and drainage infrastructure. New developments are required to be responsible for expansion of existing water, sewer, and storm drainage systems necessary to accommodate the development. Additionally, the city requires new developments to pay impact fees including drainage impact fees.

The final design of the project's drainage system would be engineered so that post-development peak runoff discharge rates are equal to or less than pre-development peak runoff rates. Project is designed with an off-site detention basin south of the project area within the Bowman Wash. Due to the drainage features including the detention and compliance with standard engineering practices are expected to minimize impacts to existing storm water drainage system.

Therefore, the proposed project would have less than significant related impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐

As stated above, the Indian Wells Valley Water District provides water throughout the City of Ridgecrest including the project site. The district relies on local groundwater as its main source of water. The IWVWD has not indicated that they are unable to provide service in response to circulation of previously prepared Initial Studies for projects adjacent to the project site. However, no Will Serve letter or denial has been issued by the IWVWD. Therefore, it is assumed that the existing water supplies are sufficient to adequately serve the project.

The proposed project would not require new or expanded water entitlements and therefore, the project would have less than significant impacts.

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 project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐

As indicated above, the City of Ridgecrest is responsible for the collection, conveyance, treatment, and disposal of any wastewater generated within the city and the adjacent Naval Air Weapons Station China Lake. All wastewater collected is conveyed through regional wastewater conveyance facilities (trunk sewer lines, lift station, and force main) to the City's Regional Wastewater Treatment Plant. The treatment plant is located on the NAWS - China Lake property. The plant's current capacity is 3.6 million gallons per day (approximately 11 acre-feet per day), and is currently operating at approximately 75 percent or less of capacity (IWVWD 2011, p. 31). More than one-third of the wastewater treated at the plant is generated by the NAWS - China Lake facilities, with the remainder generated in Ridgecrest (IWVWD 2011, p. 31).

Since existing facilities has the capacity to service projected demand for wastewater treatment including the proposed project, the project would have less than significant related impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Solid waste collection and disposal for multi-family residential units in the City of Ridgecrest is provided by the Ridgecrest Recycling and Sanitary Landfill. Collected trash and recycling is taken to the Ridgecrest Recycling and Sanitary Landfill. The landfill has been estimated to operate until the end of 2045 (CalRecycle 2011).

Therefore, the development of the proposed project would have less than significant related impacts and comply with federal, state, and local statues and regulations related to solid waste.

XVIII. 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?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

As discussed in Section IV(a), Biological Resources above, the project would result in impacts to habitat that support sensitive wildlife without mitigation. However, with the implementation of mitigation measures contained in that section, those potential impacts would be reduced to a less than significant levels.

Additionally, the Geotechnical Engineering Investigation (See Attachment 2) shows that the project would have less than significant impacts to important major periods of California history or prehistory.

With the suggested mitigation, the proposed project would not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife, eliminate rare or endangered plant or animals or eliminate examples of major periods of California history or prehistory. No significant impacts would occur that could not be mitigated to a less than significant level.

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)?	☐	☐	☒	☐

Appropriate mitigation measures have been identified to mitigate project specific impacts to biological resources. With regards to the remaining aspects of the analysis, individually and cumulatively, the proposed project would not result in any significant long-term impacts that would be individually limited but cumulative considerable.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

This Initial Study evaluates each type of impact with the potential to cause substantial adverse effects on human beings and concludes that all of those potential impacts are either less than significant or can be mitigated to a less than significant level with the implementation of measures presented. Therefore, the proposed project would not involve any activities, either during construction or operation, which would cause significant adverse effects on human beings that cannot be mitigated to a less than significant level.

Note: Authority cited: Sections 21083, 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080, 21083.05, 21095, Pub. Resources Code; Eureka Citizens for Responsible Govt. v. City of Eureka (2007) 147 Cal.App.4th 357; Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th at 1109; San Franciscans Upholding the Downtown Plan v. City and County of San Francisco (2002) 102 Cal.App.4th 656.

Revised 2009

ATTACHMENT 1

Baseline Biological Assessment and

Focused Surveys for Desert Tortoise and Burrowing Owl

Baseline Biological Assessment and

Focused Surveys for Desert Tortoise and Burrowing Owl Surveys

Parcel B of Parcel Map 11187, PMB 23/186-187, California Assessor's

Parcel Number 479-001-15-00-7

in the City of Ridgecrest,

Prepared for:

City of Ridgecrest

c/o Heather Spurlock, City Planner

Phone: 760-499-5063

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Prepared by:
Altec Land Planning

REPORT PREPARATION DATE:	SEPTEMBER 21, 2022
EFFECTIVE DATE OF REPORT:	SEPTEMBER 17, 2022
Expiration date OF REPORT:	FEBRUARY 1, 2024 (Reptile & Mammal Species only)
Expiration date OF REPORT:	FEBRUARY 1, 2024 (All applicable Bird Species)

DISTRIBUTION: DIGITAL ONLY TO CLIENT & CLIENT CIVIL ENGINEER

I Hereby certify that the findings and conclusions presented in this report are accurate to the best of my knowledge.
NOTE: No Joshua Trees on Site.

CDFW Scientific Collecting Permit #11586
Certified Wildlife Biologist #43090

Certified Arborist & Tree Risk Assessment Qualified WE#8024A
Qualified Storm water Developer/Planner – QSD/P #21595

Contents

1.0 INTRODUCTION

This report presents the results of a general biological assessment and focused Desert Tortoise (Gopherus agassizii) and Burrowing Owl survey conducted by Altec Land Planning (Altec) at Parcel B of Parcel Map 11187, PMB 23/186-187, located in the City of Ridgecrest, County of Kern, California (see Map 1). The project legal description and Assessor's Parcel Number is:

> Parcel B of Parcel Map 11187, PMB 23/186-187, records of Kern County
> Assessor's Parcel Number: 479-001-15 -00-7.

It is located on the U.S.G.S. 7.5 minute Ridgecrest, California Quadrangles. The proposed Project Site occupies ~21.34 acres. The Project Site is bordered by existing single-family residential development and Radar Avenue to the north, vacant property and Bowman Road to the south, vacant property and Downs Street to the west, and vacant property, zoned residential vacant land to the east. The Project Site is located at elevations ranging from ~2,348 feet at the southwest corner of the site to ~2,328 feet at the southeast corner of the site.

This survey effort consisted of a literature review, a site survey to perform a general inventory of plants and animals and a focused survey to ascertain presence/absence of Desert Tortoise and Burrowing Owl, an assessment of potential habitat for sensitive biological resources, and to check for presence/absence of jurisdictional waters or wetlands.

2.0 METHODS

A literature review was conducted to identify sensitive biological resources known from the vicinity of the Project Site. This included consultation with the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Data Base (CNDDB 2007) computerized data base, a review of the California Native Plant Society's (CNPS) *Rare and Endangered Vascular Plants of California* (2001), and a review of San Bernardino County's Biotic Resources Overlay Map. Pertinent documents from the Altec library and files were also consulted.

The Site was surveyed by Randolph J. Coleman, Certified Wildlife Biologist & Certified Arborist on SEPTEMBER 16 and 17, 2022 (see Table A). The site was surveyed for presence/absence of Desert Tortoise by walking United States Fish and Wildlife Service protocol (USFWS) 30 foot-wide transects over the entire site. Zone of Influence transects were performed surrounding the site, as much of the property directly surrounding the site is vacant (see Map 1). The surveyor also looked for sign of Burrowing Owls, Desert kit fox and American badger during the course of walking transects over the site and available buffer areas, as well as sign of nesting birds.

The assessment of the potential for occurrence of many of the sensitive biological resources known from the project vicinity was based on geographic range, habitat associations, soil types and personal experiences. All plant and vertebrate species observed were recorded in field notes. Unobserved wildlife species were identified through indirect sign (e.g., scat, tracks, nests, burrows, etc.). Bird species were identified through calls, nests, and binoculars.

Scientific nomenclature for this report is from the various standard reference sources: plant communities, Holland (1986); flora, Hickman (1993) and Munz (1974); reptiles and amphibians, Stebbins (2003); birds, American Ornithologist's Union (2005); and mammals, Grenfell (2000).

Table A. Biological Surveys Dates at the Project Site

2018 Date	Surveyors	Time	Weather	Temp.
June 20 (2000 Sunset)	R. Coleman	1440-2110	Partly cloudy (<10% clouds), 5-10 mph wind	87-106°F
June 21 (0530 Sunrise)		0400-0900	Partly cloudy (<0% clouds), 6-20 mph wind	71-90°F

2022 Date	Surveyors	Time	Weather	Temp.
September 16 (1856 Sunset)	R. Coleman	1500-2200	Clear, 5-10 mph wind (North to South)	73-86°F
September 17 (0634 Sunrise)		0400-0900	Clear, 0-5 mph wind (Northerly)	56-66°F

Figure 1. Current Over-View of the Site (Google Earth Image)

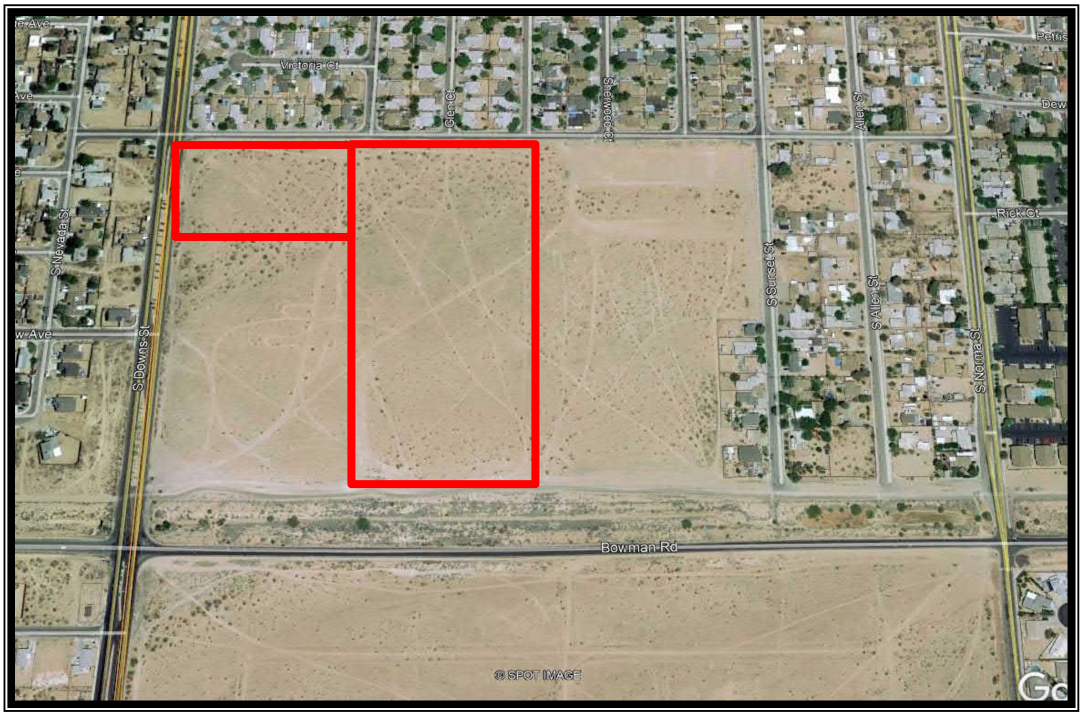

Figure 2. 2018 Over-View of the Site (Google Earth Image)

(Historical Image July 2007 and Site has not changed)

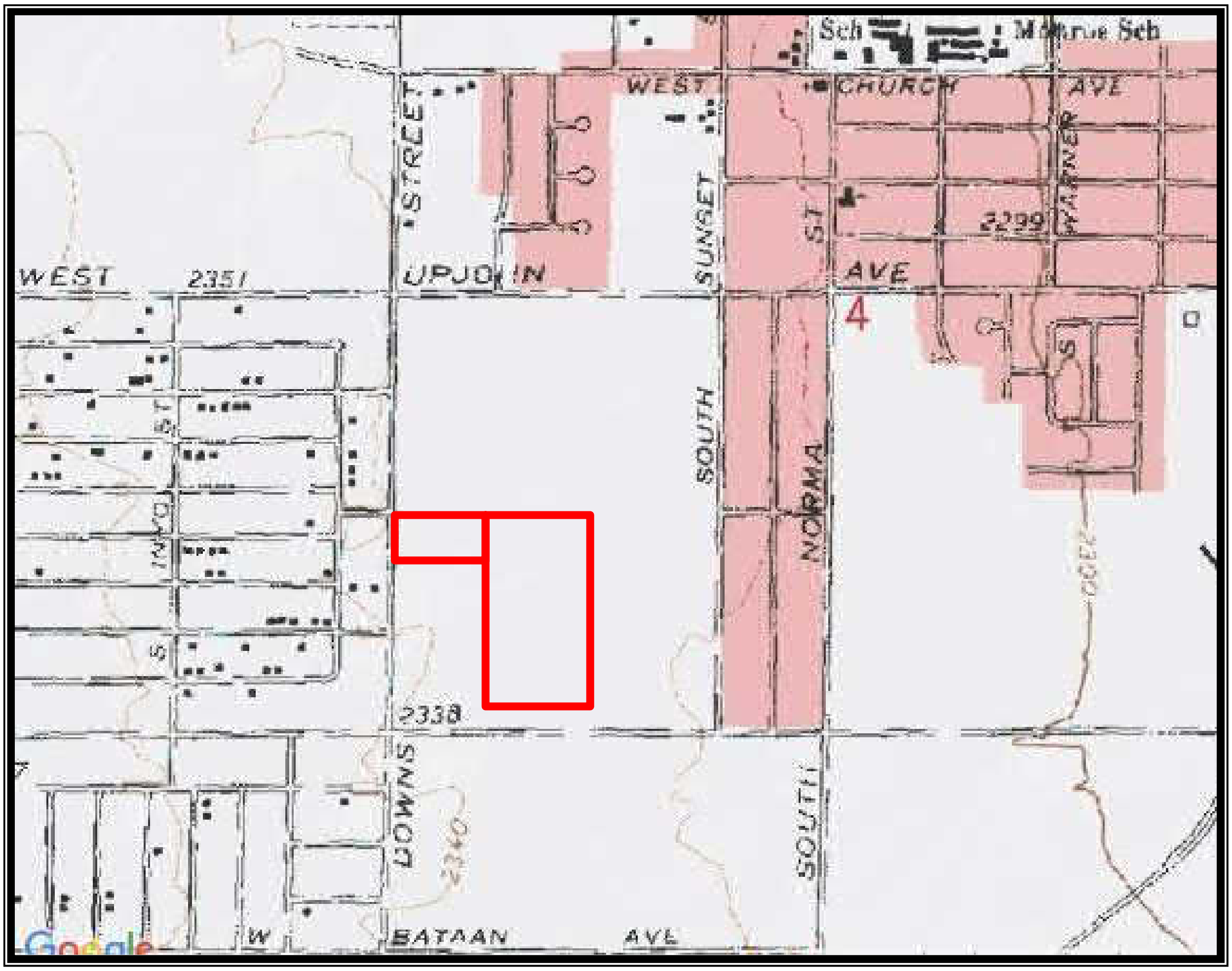

Figure 3. Over-View of the Site on a USGS Map

3.0 REGULATORY FRAMEWORK

3.1 Federal

Endangered Species Act (ESA) – The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service are the designated federal agencies accountable for administering the ESA. ESA defines species as "endangered" or "threatened" and provides regulatory protection at the federal level.

Section 9 of the ESA prohibits the "take" of listed (i.e., endangered or threatened) species. The ESA definition of take is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct." Recognizing that take cannot always be avoided, Section 10(a) includes provisions for take that is incidental to,but not the purpose of, otherwise lawful activities. Specifically, Section 10(a)(1)(A) permits (authorized take permits) are issued for scientific purposes. Section 10(a)(1)(B) permits (incidental take permits) are issued for the incidental take of listed species that does not jeopardize the species.

Section 7 (a)(2) requires federal agencies to evaluate the proposed project with respectto listed or proposed listed, species and their respective critical habitat (if applicable). Federal agencies must employ programs for the conservation of listed species and are prohibited from authorizing, funding, or carrying out any action that would jeopardize a listed species or destroy or modify its "critical habitat."

As defined by the ESA, "individuals, organizations, states, local governments, and other non-federal entities are affected by the designation of critical habitat only if their actions occur on federal lands, require a federal permit, license, or other authorization, or involve federal funding.

Section 10(a) of the ESA authorizes the issuance of incidental take permits and establishes standards for the content of habitat conservation plans (see Section 3.3 below).

Migratory Bird Treaty Act (MBTA) – Treaties signed by the U.S., Great Britain, Mexico, Japan, and the countries of the former Soviet Union make it unlawful to pursue, capture, kill, and/or possess, or attempt to engage in any such conduct to any migratory bird, nest, egg or parts thereof listed in this document. The Secretary of the Interior can issue permits for incidental take of migratory bird species. As with the ESA, the MBTA also allows the Secretary of the Interior to grant permits for the incidental take of these protected migratory bird species.

National Environmental Policy Act (NEPA) – If portions of a proposed project could fall under the jurisdiction of a federal agency (i.e., U.S. Army Corps of Engineers). NEPA establishes certain criteria that must be adhered to for any project that is "financed, assisted, conducted or approved by a federal agency. The federal lead agency is required to "determine whether the proposed action will significantly affect the quality of the human environment."

Section 404 of the Clean Water Act – This section of the Clean Water Act, administered by the

U.S. Army Corps of Engineers (USACE), regulates the discharge of dredged and fill material into "waters of the United States." The USACE has created a series of nationwide permits that authorize certain activities within waters of the U.S. provided that the proposed activity does not exceed the impact threshold for nationwide permits, takes steps to avoid impacts to wetlands where practicable, minimize potential impacts to wetlands, and provide compensation for any remaining, unavoidable impacts through activities to restore or create wetlands. For projects that exceed the threshold for nationwide permits, individual permits under § 404 can be issued.

3.2 State - California

California Endangered Species Act (CESA) – This legislation is similar to the federal ESA; however, it is administered by the California Department of Fish and Wildlife (CDFW). The CDFW is authorized to enter into “memoranda of understanding” with individuals, public agencies, and other institutions to import, export, take, or possess state-listed species for scientific, educational, or management purposes. CESA prohibits the take of state-listed species except as otherwise provided in state law. Unlike the federal ESA, CESA applies the take prohibitions to species currently petitioned for state-listing status (candidate species). State lead agencies are required to consult with CDFW to ensure that actions are not likely to jeopardize the continued existence of any state-listed species or result in the destruction or degradation of occupied habitat.

California Environmental Quality Act (CEQA) – The basic goal of CEQA is to maintain a high-quality environment now and in the future and the specific goals are for California's public agencies to:

1. Identify the significant environmental effects of their actions; and, either
2. Avoid those significant environmental effects, where feasible; or
3. Mitigate those significant environmental effects, where feasible.

CEQA applies to "projects" proposed to be undertaken or requiring approval by state and local government agencies. Projects are activities which have the potential to have a physical impact on the environment and may include the enactment of zoning ordinances, the issuance of conditional use permits and the approval of tentative subdivision maps. Where a project requires approvals from more than one public agency, CEQA requires one of these public agencies to serve as the "lead agency."

A "lead agency" must complete the environmental review process required by CEQA. The most basic steps of the environmental review process are:

1. Determine if the activity is a "project" subject to CEQA;
2. Determine if the "project" is exempt from CEQA; and
3. Perform an Initial Study to identify the environmental impacts of the project and determine whether the identified impacts are "significant". Based on its findings of "significance", the lead agency prepares one of the following environmental review documents:

    a. Negative Declaration if it finds no "significant" impacts;
    b. Mitigated Negative Declaration if it finds "significant" impacts but revises the project to avoid or mitigate those significant impacts; and
    c. Environmental Impact Report (EIR) if it finds "significant" impacts.

While there is no ironclad definition of "significance", Article 5 of the State CEQA Guidelines provides criteria to lead agencies in determining whether a project may have significant effects.

The purpose of an EIR is to provide state and local agencies and the general public with detailed information on the potentially significant environmental effects which a proposed project is likely to have and to list ways in which the significant environmental effects may be minimized and indicate alternatives to the project.

The Native Plant Protection Act (NPPA) – The NPPA includes measures to preserve, protect, and enhance rare and endangered native plant species. Definitions for "rare and endangered" are different from those contained in CESA. However, the list of species afforded protection in accordance with the NPPA includes those listed as rare and endangered under CESA. NPPA provides limitations on take as follows: "no person will import into this state, or take, possess, or sell within this state" any rare or endangered native plants, except in accordance with the provisions outlined in the act. If a landowner is notified by CDFW, pursuant to section 1903.5 that a rare or endangered plant is growing on their property, the landowner shall notify CDFW at least 10 days prior to the changing of land uses to allow CDFW to salvage the plants.

Natural Community Conservation Planning (NCCP) Program – The NCCP, which is managed by the CDFW, is intended to conserve multiple species and their associated habitats, while also providing for compatible use of private lands. Through local planning, the NCCP planning process is designed to provide protection for wildlife and natural habitats before the environment becomes so fragmented or degraded by development that species listing are required under CESA. Instead of conserving small, often isolated "islands" of habitat for just one listed species, agencies, local jurisdictions, and/or other interested parties have an opportunity through the NCCP to work cooperatively to develop plans that consider broad areas of land for conservation that would provide habitat for many species. Partners enroll in the programs, and, by mutual consent, areas considered to have high conservation priorities or values are set aside and protected from development. Partners may also agree to study, monitor, and develop management plans for these high value "reserve" areas. The NCCP provides an avenue for fostering economic growth by allowing approved development in areas with lower conservation value. See further discussion in Section 3.3 below.

Sections 1600-1603 of the State Fish and Game Code – The California Fish and Game Code, pursuant to Sections 1600 through 1603, regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife resources. Under state code, CDFW jurisdiction is assessed in the field based on one, or a combination, of the following criteria (CDFW 2005b):

1. At minimum, intermittent, and seasonal flow through a bed or channel with banks and thatalso supports fish or other aquatic life.
2. A watercourse having a surface or subsurface flow regime that supports or that has supported riparian vegetation.
3. Hydrogeomorphically distinct top-of-embankment to top-of-embankment limits.
4. Outer ground cover and canopy extents of, typically, riparian associated vegetation species that would be sustained by surface and/or subsurface waters of the watercourse.

The CDFW requires that public and private interests apply for a "Streambed Alteration Agreement" for any project that may impact a streambed or wetland. The CDFW has maintained a "no net loss" policy regarding impacts to streams and waterways and requires replacement of lost habitats on at least a 1:1 ratio. No mapped blue line "stream" affect the Project Site. These features would qualify as "Waters of the State," if applicable.

Section 2081 of the State Fish and Game Code – Under Section 2081 of the California Fish and Game Code, the CDFW authorizes individuals or public agencies to import, export, take, or possess state endangered, threatened, or candidate species in California through permits or memoranda of understanding. These acts, which are otherwise prohibited, may be authorized through permits or "memoranda of understanding" if (1) the take is incidental to otherwise lawful activities, (2) impacts of the take are minimized and fully mitigated, (3) the permit is consistent with regulations adopted in accordance with any recovery plan for the species in question, and (4) the applicant ensures suitable funding to implement the measures required by the CDFW. The CDFW shall make this determination based on the best scientific information reasonably available and shall include consideration of the species' capability to survive and reproduce.

Section 3505.5 of the State Fish and Game Code – This section makes it unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds-of-prey, e.g.: owls, hawks, eagles, etc.) or to take, possess, or destroy the nest or eggs of any bird-of-prey.

3.3 County – Kern

Applicable sections of the County of Kern Development Code establishes the guidelines for Desert Native Plant Protection and Management applied to specific desert native plants growing on private land within the unincorporated areas of the County, and to desert native plants growing on public land owned by the County or the State of California. The list of regulated desert native plants consists of the following groups:

- Desert Native Plants with stems two (2) inches or greater in diameter or six (6) feet orgreater in height
  - Smoke Trees (*Dalea spinosa*);
  - All species of the genus *Prosopis* (Mesquites);
- All woody species of the family *Agavaceae* (century plants, nolinas, yuccas);
- Creosote (*Larrea tridentata*) rings, ten (10) feet or greater in diameter;
- All Joshua trees (*Yucca brevifolia*); and
- Any part of any of the following species, whether living or dead:
  - Desert ironwood (*Olneya tesota*);
  - All species of the genus *Propopis* (mesquites);
  - All species of the genus *Cercidium* (palos verdes).

All plants protected or regulated by the State Desert Native Plants Act (i.e., California Food and Agricultural Code 80001 et. seq.) shall be required to comply with the applicable provisions of those statutes prior to the issuance of any County development permit or land use application approval. The County Agricultural Commissioner is the responsible agency for the issuance of any required wood tags, seals, or permits.

Any person who willfully removes or harvests or transplants a living desert native plant shall first obtain approval from the County to do so in accordance with the applicable procedures set forth.

3.4 City – Ridgecrest

Applicable sections of the City of Ridgecrest Development Code establishes the guidelines for Desert Native Plant Protection and Management applied to specific desert native plants growing on private land within the incorporated areas of the City.

The general geographical coordinates of Ridgecrest are at 35.622 deg latitude and -117.671deg longitude and an average elevation of 2,310 feet. The weather in the Indian Wells Valleyis predominantly influenced by its high desert location along the western edge of the Mojave Desert. The climate is characterized by hot days and cool nights with extremely arid conditions prevailing throughout the summer months.

The mean annual maximum temperature for the Ridgecrest area is 75 F (24 C) while the mean annual minimum temperature is 48 F (9° C). There are wide annual temperature fluctuations that occur from a high of 119 F (48° C) to a low of 1 F (−17 C). The area is known to have wind as high as 75 mph (121 km/h) on a sunny day. Whenever winds exceed 30 mph (48 km/h)dust devils and dust clouds form in the area due to the fine desert sands becoming airborne andthen leaving Eolian deposits. December is the coolest month with an average maximum and minimum temperatures of 60 F (16 C) and 30 F (−1 C). The all-time minimum temperature of 1 F (−17 C) was recorded on December 23, 1963, and January 7, 1973.

Ridgecrest is a desert environment, with an average of less than 5 inches (130 mm) of "equivalent rainfall" per year, which includes less than 2 inches (51 mm) of snow and very minimal dew, therefore the vast majority of typical moisture is from the normal winter storms and corresponding rainfall.

July is the hottest month with an average maximum temperature of 103 F (39 C) and an average minimum temperature of 66 F (19 C). The all-time maximum temperature of 119 F (48 C) was recorded on July 31, 1971.

These extreme weather patterns with extreme heat and little to no rainfall during summer months and freezing nights during winter months along with being the typical rainy-season with minimal rainfall patterns make all native desert endemic animal and plant life extremely hardy to survive these extremes when compared to the Sonoran Desert to the extended east and the Great Basin Desert to the north.

Contact with local Law Enforcement Officers (LEO’s):

A neighbor called the City of Ridgecrest Police Department and said someone was suspicious on the subject property on September 17, 2022, Saturday morning.

I had a short interview by the City Police Officer, prior to 7am, gave my Driver’s License and he also ran my vehicle plates for warrants.

I was not contacted by LEO’s in 2018 or September 16, 2022

4.0 RESULTS

4.1 Vegetation

Appendix 1 includes the scientific and common names for plant species identified during the surveys. A total of 37 plant species were identified in the general area of the survey. This number does not reflect the total number of plant species likely to occur on the site. 2017/18 and 2021/2022 have been a below average rainfall years, which has resulted in a lack of germination for many spring annual plant species during Site reviews and the even rarer fall annual plant species that require specific timing of hot August/September rainfall for germination. Weather records for Ridgecrest show that the area has only received ~0.35 inchesof rainfall in 2022. The low number of observable annual plants on the site is an indication of thedrought conditions that much the Mojave Desert and Southern California is experiencing.

The dominant plant community present on the site is best characterized as highly impacted by anthropogenic activities and sparse Mojave Mixed Woody Scrub with no Joshua Trees or other native desert trees in the general area (Holland 1986). This habitat is generally characterized bya lack of overstory desert trees and with only an understory of various shrubs and perennial herbs that are often typical components of other plant communities. At higher elevations Joshua Tree Woodland intergrades with Blackbrush Scrub and Mojavean Juniper Woodland and Scrub (Holland 1986); and at lower elevations with Mojave Creosote Bush Scrub (Holland 1986) and scattered Alkali Sinks (Dry Lakes) scattered throughout the Transmontane system in the Mojave Desert (Basin and Range affect). Dominant plant species typical of Mojave Mixed Woody Scrub present on the Project Site include: Creosote Bush (*Larrea tridentata*), Burrobush(*Ambrosia dumosa*), and Golden Cholla (*Opuntia echinocarpa*).

The Project Site is surrounded on all sides by development of perimeter roads, three sides by immediately adjacent or nearby residential development, by vacant land residentially zoned for future development to the east. The Site has received substantial historical (See Figure 2 Aerial Photograph) disturbance from trails by adjacent homeowner families walking with multipledogs (off-leash) and substantial use of Off-Highway Vehicle activities in the form of motorcycle and Quad trail uses and fairly normal vehicles uses by adjacent residents, and partial clearing ofnative vegetation on some areas of the Project Site (see Appendix 2: Site Photographs). No mapped blue line stream crosses the Project Site or immediately adjacent to the Site.

4.2 Wildlife

The list of common animals typically detected on or near the Project Site and some during the survey totals 34 species (6 reptiles, 5 mammals and 23 birds). The inventory was limited by the short survey duration, the general drought conditions of the area, and by the nocturnal and fossorial habits of many animals that would be limited during the Burrowing owl protocols.

These following common reptiles were observed during this specific field surveys:

Side-blotched Lizards (*Uta stansburiana*)
Desert Spiny Lizards (Sceloporus sp.)
Desert Iguanas (*Dipsosaurus dorsalis)*

Great Basin Whiptails (*Aspidoscelis tigris tigris*)

These common reptiles have been observed previously in the general area in past during site surveys or Mojave Ground Squirrel and Desert Tortoise workshops in Ridgecrest area:

Mojave Green (*Crotalus scutulatus)*

Southwestern Speckled Rattlesnake *(Crotalus mitchellii pyrrhus)*

The disturbed native habitats on the Project Site and existing residence and anthropogenic effects (with Active-Use by kids, off highway vehicles and numerous canines) and fencing and perimeter roads, no longer creates potential habitat for the Desert tortoise (*Gopherus agasizzii*),and additionally no tortoise sign was observed during the survey transects in either 2018 or 2022 but have been observed in the native desert areas since the 1970's. A few other common reptiles likely inhabit or utilize the site but were not observed due to early spring or late summer.

These following ubiquitous or common mammals were observed or detected (i.e., sign – nest-burrows -scat) during this specific field survey:

Black-tailed Jackrabbit (*Lepus californicus*)
Desert Cottontail (*Sylvilagus audubonii)*

White-tailed Antelope Ground Squirrel (*Ammospermophilus leucurus*)Desert
Woodrat (*Neotoma lepida*)

Coyote (*Canis latrans*).

These following ubiquitous or common birds observed during the survey include a mix of species commonly found in the local desert community and typically are observed at nearby residences that provide water, food, nesting and shelter resources and opportunities. Many of these birds observed were near or at residences during the walking of the transects including the following ubiquitous species: Mourning Dove (*Zenaida macroura*), Red-tailed Hawk (*Buteojamaicensis*), Black- throated Sparrow (*Amphispiza bilineata*), Verdin (*Auriparus flaviceps*), American Kestrel (*Falco sparverius*), and Common Raven (*Corvus corax*). Additional bird species were observed (2018 or 2022) in the area and are listed in Appendix 1.

4.3 Sensitive Elements

Plant or animal taxa may be considered "sensitive" due to declining populations, vulnerability to habitat change or loss, or because of restricted distributions. Certain sensitive species have been listed as Threatened or Endangered by the United States Fish and Wildlife Service (USFWS) or by the CDFW and are protected by the federal and state Endangered Species Actsand the California Native Plant Protection Act. Other species have been identified as sensitive by the USFWS, the CDFW, or by private conservation organizations, including the CNPS, but have not been formally listed as Threatened or Endangered. Such species can still be considered significant under the California Environmental Quality Act (CEQA).

The literature review, and ALTEC biologists' knowledge of the project vicinity, indicated that as many as 27 sensitive biological resources potentially occur near the Project Site. For a summary of sensitive species known to occur or potentially occurring near the Project Site, seeTables 1 through 4.

Table 1. Sensitive Plants: Project Site

Species	Protective Status	Habitat	Flowering Period (Elevation/rainfall)	Occurrence Probability
Agavaceae Century plants, nolinas & Yuccas	F: ND C: ND CNPS List: ND State Rank: ND County: Protected	Varies	Varies	Absent (Not detected during survey)
Arenaria paludicola Marsh sandwort	F: FE C: CE CNPS List: 1B.1 State Rank: S1 County: None	Sandy, openings. Marshes & swamps	May – Aug	Absent (Not detected during survey)
Berberis nevinii Nevin's barberry	F: FE C: CE CNPS List: 1B.1 State Rank: S1 County: None	Sandy or gravelly. Chaparral; Cismontane woodland; Coastal scrub; Riparian scrub	(Feb) Mar – Jun	Absent (Not detected during survey)
Brodiaea filifolia Thread-leaved brodiaea	F: FT C: CE CNPS List: 1B.1 State Rank: S2 County: None	Often clay. Chaparral (openings); Cismontane woodland; Coastal scrub; Playas; Valle7y & foothill grassland; Vernal pools	Mar – Jun	Absent (Not detected during survey)
Cercidium Palos verdes	F: FD C: FD CNPS List: FD State Rank: FD County: Protected			Absent (Not detected during survey)
Chloropyron maritimum ssp. Maritimum Salt marsh bird's beak	F: FE C: CE CNPS List: 1B.2 State Rank: S1 County: None	Coastal dunes; Marshes & swamps (coastal salt).	May – Oct (Nov)	Absent (Not detected during survey)
Dalea spinosa Smoke tree	F: FD C: FD CNPS List: FD State Rank: FD County: Protected			Observed in the general area along ephemeral washes and locations with high water table
Dodecahema leptoceras Slender-horned spineflower	F: FE C: CE CNPS List: 1B.1 State Rank: S1 County: None	Sandy. Chaparral; Cismontane woodland; Coast scrub (alluvial fan).	Apr – Jun	Absent (Not detected during survey)
Eriastrum densifolium ssp. sanctorum Santa Ana River woollystar	F: FE C: CE CNPS List: 1B.1 State Rank: S1 County: None	Sandy or gravelly. Chaparral; Coastal scrub (alluvial fan).	Apr – Sep	Absent (Not detected during survey)

Eschscholzia androuxii Joshua Tree poppy	F: FD C: FD CNPS List: 4.3 State Rank: S3 County: None	Desert washes, flats, slopes; sandy, gravelly & rocky. Joshua tree woodland; Mojavean desert scrub.	Feb – May (Jun)	Absent (Not detected during survey)
Euphorbia vallis-mortae Death Valley sandmat	F: FD C: FD CNPS List: 4.2 State Rank: S3 County: None	Mojavean desert scrub (sandy or gravelly)	May – Oct	Absent (Not detected during survey)
Funastrum utahense Utah vine milkweed	F: FD C: FD CNPS List: 4.2 State Rank: S4 County: None	Sandy or gravelly. Mojavean desert scrub; Sonoran Desert scrub.	(Mar) Apr – Jun (Sep-Oct)	Absent (Not detected during survey)
Grusonia parishii Parish's club-cholla	F: FD C: FD CNPS List: 2B.2 State Rank: S2 County: None	Sandy, rocky. Joshua woodland; Mojavean desert scrub; Sonoran Desert scrub.	May – Jun (Jul)	Absent (Not detected during survey)
Larrea tridentate Creosote	F: FD C: FD CNPS List: FD State Rank: FD County: Protected			Ubiquitous, but no 10-foot interior rings observed in general area (Johnson Valley area)
Linanthus maculatus Little San Bernardino Mtns. linanthus	F: FD C: FD CNPS List: 1B.2 State Rank: S2 County: None	Sandy, Desert dunes, Sonoran Desert scrub, Mojave Desert scrub, Joshua tree woodland, 6,800 feet elevation	March - May	Absent-Low (Not detected during survey)
Nasturtium gambelii Gambel's water cress	F: FE C: CT CNPS List: 1B.1 State Rank: S1 County: None	Marshes & Swamps (freshwater or brackish)	Apr – Oct	Absent (Not detected during survey)
Olneya tesota Desert ironwood	F: FD C: FD CNPS List: FD State Rank: FD County: Protected			Absent (Not detected during survey)
Prosopis Mesquites	F: FD C: FD CNPS List: FD State Rank: FD County: Protected			Observed at residences and in the general area along ephemeral washes and locations with high water table
Saltugilia latimeri Latimer's woodland-gilia	F: FD C: FD CNPS List: 1B.2 State Rank: S3 County: None	Rocky or sandy, often granitic, sometimes washes. Chaparral; Mojavean Desert scrub; Pinyon & juniper woodland.	Mar – Jun	Absent (Known from fewer than 20 occurrences, not much known about life history)

Sidalcea pedata Bird-foot checkerbloom	F: FE C: CE CNPS List: 1B.1 State Rank: S1 County: None	Meadows & seeps (mesic); Pebble (pavement) plain.	May – Aug	Absent (Not detected during survey)
Thelypodium stenopetalum Slender-petaled thelypodium	F: FE C: CE CNPS List: 1B.1 State Rank: S1 County: None	Meadows & seeps (mesic, alkaline).	May – Sep	Absent (Not detected during survey)
Yucca Brevifolia Joshua tree	F: FD C: FD CNPS List: FD State Rank: FD County: Protected			Ubiquitous and no Joshua Trees have been removed or proposed to be removed

Table 2. Sensitive Reptiles: Project Site

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Gopherus agassizii Desert tortoise	F: FT C: CT CDFW: None	A variety of desert habitats, creosote bus scrub, wash scrub.	Absent (Not observed/detected or sign detected on or adjacent to site)
Phrynosoma blainvillii Coast horned lizard	F: FD C: FD CDFW: SSC		Absent (Not observed/detected on or adjacent to site)

Table 3. Sensitive Birds: Project Site

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Athene cunicularia Burrowing Owl	F: FD C: FD CDFW: SSC	Inhabits a variety of open habitats (including edges of ag. fields), often occupies unused ground squirrel and other burrows	Absent (Habitat marginal to unsuitable [very disturbed] very few burrows suitable for owl occupation observed and lack of resources)
Toxostoma lecontei Le Conte's Thrasher	F: FD C: FD CDFW: SSC	Resident of open desert wash, scrub, alkali scrub, succulent scrub habitats, nests in dense spiny shrubs and cacti in washes	Absent-Low (CNDDB record from >5.5 mi. NE of site, most of site is too close to residential development)

Table 4. Sensitive Mammals: Project Site

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Ovis canadensis nelson Desert bighorn sheep	F: None C: None CDFW: FP	Deep canyons and rocky slopes of the desert mountains with available water and forage	Absent but have been observed throughout the Mojave transmontane rocky hills/mountains ranges since the 1970's.
(*Chaetodipus fallax pallidus*) *Pallid San Diego Pocket Mouse*	F: None C: None CDFW: SLC	varies	Absent (Not detected during survey)

Definitions of status designations and occurrence probabilities.

Federal designations: (Federal Endangered Species Act, US Fish and Wildlife Service):

END: Federally listed, Endangered.
THR: Federally listed, Threatened.
BCC: Birds of Conservation Concern
C: Candidate for Federal listing
ND: Not designated.

State designations: (California Endangered Species Act, California Dept. of Fish and Wildlife)

END: State listed, Endangered.
THR: State listed, Threatened.
RARE: State listed as Rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)

CSC: California Special Concern Species.
ND: Not designated.

California Native Plant Society (CNPS) designations: (non-regulatory, compilation by a non-profit organization which tracks rare plants)

CNPS Designations Note: According to the CNPS (http://www.cnps.org/programs/Rare_Plant/inventory/names.htm), ALL plants on Lists 1A, 1B, and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. Certain plants on Lists 3 and 4 do as well.

The CDFW (http://www.dfg.ca.gov/hcpb/species/t_e_spp/nat_plnt_consv.shtml) states that plants on Lists1A, 1B, and 2 of the CNPS Inventory consist of plants that may qualify for listing, and recommends they be addressed in CEQA projects (CEQA Guidelines Section 15380). However, a plant need not be in the Inventory to be considered a rare, threatened, or endangered species under CEQA. In addition, CDFW recommends, and local governments may require, protection of plants which are regionally significant, such as locally rare species, disjunct populations of more common plants, or plants on the CNPS Lists 3 and 4.

List 1A: Plants presumed extinct in California.
List 1B: Plants rare and endangered in California and throughout their range.
List 2: Plants rare, threatened or endangered in California but more common elsewhere.
List 3: Plants for which more information is needed.
List 4: Plants of limited distribution; a "watch list."
CA Endemic: Taxa that occur only in California

CNPS Threat Code:

.1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened, or no current threatsknown)

Note: All List 1A (presumed extinct in California) and some List 3 (need more information- a review list) plants lacking any threat information receive no threat code extension. Also, these Threat Code guidelines represent a starting point in the assessment of threat level. Other factors,such as habitat vulnerability and specificity, distribution, and condition of occurrences, are also considered in setting the Threat Code.

Definitions of occurrence probability:

Occurs: Observed on the site by ALTEC personnel or recorded on-site by other qualified or Certified Wildlife Biologists.

High: Observed in similar habitat in region by qualified biologists, or habitat onthe site is a type often utilized by the species and the site is within the known range of the species.

Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally usedby the species.

Low: Site is within the known range of the species but habitat on the site israrely used by the species.

Absent: A focused study failed to detect the species, or no suitable habitat is present.

CDFW CNDDB rankings: Animals

S1 = Extremely endangered:
<6 viable occurrences or <1,000 individuals, or < 2,000 acres of occupied habitat

S2 = Endangered:
about 6-20 viable occurrences or 1,000 - 3,000 individuals, or 2,000 to 10,000 acres ofoccupied habitat

S3 = Restricted range, rare:
about 21-100 viable occurrences, or 3,000 – 10,000 individuals, or 10,000 – 50,000 acresof occupied habitat

S4 = Apparently secure:
some factors exist to cause some concern such as narrow habitat or continuing threats

S5 = Demonstrably secure; commonly found throughout its historic range
SH = All sites are historical, this species may be extinct, further field work is needed

CDFW CNDDB rankings: Plants and Vegetation Communities

S1 = Less than 6 viable occurrences OR less than 1,000 individuals OR less than 2,000 acres
S1.1 = very threatened
S1.2 = threatened
S1.3 = no current threats known
S2 = 6-20 viable occurrences OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 = very threatened
S2.2 = threatened
S2.3 = no current threats known
S3 = 21-80 viable occurrences or 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 = very threatened
S3.2 = threatened
S3.3 = no current threats known
S4 = Apparently secure within California;
this rank is clearly lower than S3, but factors exist to cause some concern;[i.e., there is some threat, or somewhat narrow habitat.]

S5 = Demonstrably secure to ineradicable in California.

Western Bat Working Group (WBWG) designations:

The Western Bat Working Group is comprised of agencies, organizations and individuals interested in batresearch, management, and conservation from the 13 western states and provinces. Its goals are (1) to facilitate communication among interested parties and reduce risks of species decline or extinction; (2) toprovide a mechanism by which current information on bat ecology, distribution and research techniques can be readily accessed; and (3) to develop a forum to discuss conservation strategies, provide technicalassistance and encourage education programs.

H: High: Species which are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats.

M: Medium: Species which warrant a medium level of concern and need closer evaluation,more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat.

L: Low: Species for which most of the existing data support stable populations, andfor which the potential for major changes in status in the near future is considered unlikely. There may be localized concerns, but the overall status ofthe species is believed to be secure. Conservation actions would still apply for these bats, but limited resources are best used on High and Medium status species.

P: Periphery: This designation indicates a species on the edge of its range, for which noother designation has been determined.

Due to the substantially disturbed nature of the Project Site, proximity to residential development and associated infrastructure, and intrusion by domestic dogs and cats and kids and motorcycles/OHV on the site daily (use of public trail along south side of Site is used after 10 pm and about 1 hour prior to dawn with walkers, runners and bike riders with dogs), the majority of the sensitive species listed in the tables above do not have potential to occur on the Project Site, or at best have a very low potential of utilizing the site.

Of the 22 sensitive plant species listed in Table 1, only Pinyon Rock Cress (*Arabis dispar*) and Little San Bernardino Mountains Linanthus (*Linanthus maculatus*) have any probability (albeit low) of occurring near the Project Site, but the lack of localized rock outcroppings or hills create no potential habitat for this specific site. Neither of these plants or any other sensitive plant species were observed on the site during the survey. There is an historic CNDDB record (1937) of the Linanthus distant from the Project Site, but this species was not observed during the survey and the specific Project Site has substantial disturbance. During drought periods, desert annuals do not germinate, and Little SB Mountains Linanthus are often undetectable.

Table 2 lists two reptile species known from the vicinity of the Project Site. The Desert Tortoise is a federal and state listed threatened species. Although a focused survey utilizing 30 foot-wide transects was performed over the entire Project Site, no tortoises, or their sign (scat, burrows, pallets, carcasses, etc.) were detected. Zone of Influence transects in native were performed on undeveloped lands around the Project Site at intervals of 100, 300, 600, 1200, and 2,400 feet from the project boundary, also with negative results. Desert Tortoises do not appear to occur on or immediately adjacent to the site, but it is noted they are in the general area.

Table 3 lists two species of sensitive birds that have varying probabilities of occurrence on the site. Of the four birds discussed in Table 3, only the Loggerhead Shrike (*Lanius ludovicianus*) and Prairie Falcon have a moderate probability of utilizing the site (for foraging) if the specific

Ste was in a native condition. The Loggerhead Shrike is considered a “Species of Special Concern” (CSC) as a nesting species by the CDFW, and a “Bird of Conservation Concern” (BCC) by the USFWS. Although Prairie Falcons (*Falco mexicanus*) have a moderate probability of foraging over the project, the site does not provide nesting habitat for Prairie falcon (the falcon nests on cliffs). Nesting Prairie Falcons are considered a CSC by the CDFW and are designated as a BCC by the USFWS. Burrowing Owls (*Athene cunicularia*) are considered a CSC, and have a state ranking of S2 (Endangered in the CDFW state ranking system). During the site survey, Burrowing Owls, their sign, and burrows capable of housing Burrowing Owls were searched for on the property and no Burrowing Owls or their sign were observed on the site, and no suitable burrows that could potentially support an owl were located. The site does not have the local characteristics (wide shallow desert washes) to support Le Conte’s Thrasher (*Toxostoma lecontei*), and this species was not observed on or adjacent to the site during the survey. This species is also considered a CSC by the CDFW and a BCC by the USFWS. This species had been historically observed by Coleman north of Adelanto along the wide shallow drainage courses since the 1070’s.

No sensitive mammal species were observed on the site or within buffer areas during the survey. Of the one sensitive mammal listed in Table 4, there is a very low probability that Pallid San Diego Pocket Mouse (*Chaetodipus fallax pallidus*) could utilize the site. This pocket mouse is considered a CSC by the CDFW; and has a state ranking of S3 (a restricted range or rare species under the state ranking system).

Table 4 lists one species of mammal and were not observed on the Project Site and is not located at or near desert rocky hills or mountains and therefore does not have suitable habitat for Nelson’s Bighorn Sheep (*Ovis canadensis nelsoni*).

5.0 DISCUSSION

5.1 Potential Impacts of the Proposed Project

Implementation of the project will not result in any additional permanent impacts to biological resources on the site because of the existing substantial disturbance. However, the site has been heavily disturbed, and some areas have been cleared (see Site Photographs). Much of the “biological value” of the site has already been lost.

Implementation of the proposed project creates no additional negative impact may have a low potential to affect Le Conte’s Thrashers, Loggerhead Shrikes, and Prairie Falcons, as well as common bird species that may nest on the site (NOTE: numerous Cactus Wren [*Campylorhynchus brunneicapillus*] nests were observed in larger Cholla cacti during the transects throughout the general area and typically observed near residences that provide food and water resources). Suitable habitat for Burrowing Owls is generally not present on the project site due to substantial disturbance and no sign of owls and no larger burrows Burrowing owls were observed on or adjacent to the site.

The project has no potential to affect a mapped blue line stream and other associated “State Waters” because they do not cross or nearby the Project Site.

5.2 Suggested General Mitigation Measures and Issues of Concern

Mitigation measures recommend methods to avoid negative impacts to significant biological resources. Such measures are designed to protect sensitive plant and wildlife species and their habitats. The following mitigation measures are generally suggested for all Project Sites and consist of measures often required of other commercial developers in the California deserts.

1.) **The Federal Migratory Bird Treaty Act recommendations:**

To comply with the Federal Migratory Bird Treaty Act, any vegetation or tree removal, or grading occurring between February 1 to August 15 shall require a qualified biologist to conduct at least one nesting bird survey, and more if deemed necessary by the consulting biologist, ending no less than 3 days prior to grading. All trees and suitable nesting habitat on the Project Site, whether they will be removed, shall be surveyed for nesting birds. If there are no nests present, this condition will be cleared.

Conducting construction activities outside the breeding season (August 16 through January 31) can avoid having to implement these measures, although even non-occupied raptor nests are protected under *Section 3505.5 of the State Fish and Game Code* and permission must be granted by CDFW to remove them.

2.) The **Burrowing Owl** *(Athene cunicularia)* is a CDFW CSC and is also protected by CDFW state code that grants protection to raptors. A habitat assessment and “burrow survey” were performed for Burrowing Owls on the site, but no owls or their sign were detected in 2018 or 2022 and not anticipated for .

The Project Site no longer contains suitable habitat for this species. To avoid potential impacts to any Burrowing Owls that may move onto the site in the future; a qualified biologist should conduct a preconstruction presence/absence survey for Burrowing Owls prior to commencement of project startup, if after a date of February 1, 2024. If an occupied burrow is found in an area that is near potential ground disturbance, and development activities are to take place during the breeding season (defined as February 1 through August 31), then no new disturbance should occur within 250 feet of the occupied burrow (or within 160 feet during the nonbreeding period). Avoidance also requires that a minimum of 6.5 acres of foraging habitat be permanently preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls (with or without dependent young) or single unpaired resident bird. The configuration of the protected habitat should be approved by CDFW (CDFW 1995). Upon consultation with CDFW, approval may also be granted for passive relocation of burrowing owls outside the breeding season through installation of one-way doors.

Because the Site is substantially disturbed and adjacent to numerous residences with many dogs and kids, this Site has no current potential to be re-inhabited by Burrowing Owls, therefore the expiration for this assessment is February 1, 2024, similar to the expiration of mammals.

3.) **Landscaping,** if proposed or required by the local jurisdictional agency, of the proposed project should utilize locally native and endemic plants when feasible. The use of native plants has many advantages over using typical non-native or ornamental plant species. Native and endemic plant species are adapted to local climatic conditions and require far less irrigation and or fertilizers than species not adapted to the arid climate and have additionally adapted for native pests but may be more prone to be negatively affected by invasive/non-native pests. Native plants are less likely to harbor or facilitate the spread of introduced plant pests or parasites. The use of native vegetation will help encourage native and endemic wildlife species (mainly birds and insects) to utilize the area and generally offsets the loss of native vegetation that was previously partially cleared for previous activities. Implementing this measure will also comply with *Ordinance No. 140 – Desert Native Plant Protection* as discussed in Section 3.3 of this report. A removal permit shall be required for the removal of any native tree or plant as regulated in Section 89.0107. Disturbing, moving (transplanting or otherwise), removal or destruction of an existing Regulated Desert Native Plant shall be subject to the provision of the ordinance outlined in Section 3.3.

4.) **Discussion of Streambed Alteration, Blue-Line Stream on USGS Maps and Upstream Storm waters:** "A Review of Stream Processes and Forms in Dryland Watersheds: CDFG-Dec. 2010". The Site has the following attributes which any one itemwould be relative for the requirement of a Streambed Alteration Permit by CDFW:

- **Site:** Does not have a USGS delineated "Blue Line Stream" and the Site ultimately drains into the Coyote Dry Lake.
- **USGS Blue-Line Stream:** The nearest is northerly about a 0.2 mile and is onethe ephemeral natural drainage courses that ultimately drain into the Coyote Dry Lake.This drainage channel's hydrology does not have the required volume of storm water discharge to affect this Site in a 100-year storm event.
- **100-Year-Flood Plain Designation:** Site is not in a "Designated Flood Plain".
- **Dominate Upstream Desert Alluvial Fan Channel:** The Site does not have a "Dominate upstream desert alluvial fan channel" that has become undefined due to lower slope and braiding of typical desert type alluvial fan morphology, therefore no potentially significant upstream off-site concentrated or sheet flows are formed from analluvial fan that would be of an issue impacting the Site. The relatively minimal development in this area creates no potential effect to the Project Site.
- **Rivers & Riparian Corridors:** This Site does not have a dominate river or riparian corridor. The Mojave River is the dominate blue-line stream of the Western Mojave Desert and is created from the northerly sides of both the San Bernardino and San Gabriel Mountain ranges and ending at Soda and Silver Dry Lakes, over 100 milesnortherly and then easterly. The Colorado River dominates the Eastern Mojave Desert,along with several adjacent/nearby states and ultimately drains into the Sea of Cortez over 100 miles southerly. The Site is not a part of either dominate tributary area.
- **Discussion of Ephemeral Natural Drainage Course(s):** The Site does not have any "Significant Native or Altered Ephemeral" drainage course(s) bisecting the Site.
- **OTHER**
    - **Aspect & Topography Issues:** The topography slopes generally to the east.The local customary aspect varies with each dry lake shape and this specific Project Site has a lower level of erosivity potential, sedimentary transport, and debris deposition during storm events.
    - **Road Issues:** Typically, roads bisect sheet flows and natural drainage courses and re-routes flows along these roads until the water surface is no longer contained and breaks free of the road improvements (paved roads, graded dirt, and unimproved dirt roads and how the shoulders have been graded or

improved) and then may continue in a newer location in the local customary aspect to the localized Dry Lake or Mojave and Colorado Rivers.

- **Hydrology Report & Issues:** A Hydrology Report was not prepared and would contain other specific information for development purposes.
- **Observable Upstream diversions:** Observable Diversions from upstream suburban development; public infrastructure and specifically the Los Angeles Aqueduct have permanently altered the areas upstream hydrology and have no existing or future potential effect of the Site.

5.) **Wildland Fire** has an increasing affect in this area of the Mojave Desert due to a multitude of issues with invasive plant and grass species and nitrogen deposition from smog, thereby creating an increasing frequency, flame height and intensity in the general area. Any increase of higher density of vegetation and increases in invasive grasses and other non-native plant species have historically and will continue to impact the native desert adversely. The site has no historical wildland fire based upon the existing mosaic of native vegetation and recent decades of aerial photographs.

6.) **Habitat Fragmentation** has both natural (i.e. Aqueduct/River Riparian, Wildland Fires and Intermontane Sky Island issues) and anthropogenic barriers and boundaries, for various species, affecting regional desert habitat zone fragmentation from Highways 18, 58, 62, 66, 247 and 395, Interstates 10, 14, 15 and 40, California & Los Angeles Aqueducts, Railroad and Utility Corridors, all types of military bases, public facilities, agriculture, residential, industrial, commercial development that limit overall terrestrial migration and gene pool diversity since the “Post World War II Era”.

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TABLE: Representative Species for each Plant Community

Joshua Tree Woodland – Juniper Woodland

Common Name	Scientific Name
Joshua Tree	Yucca brevifolia
California Juniper	Juniperus occidentalis
Creosote Bush	Larrea tridentata
Common Sagebrush	Artemesia tridentata
Mormon Tea	Ephedra nevadensis
Rabbit Brush	Chrysothamus nauseosus
Golden Bush	Haplopappus linearifolius
Cutleaf Filaree	Erodium cicutarium
Wild Buckwheat	Erigonum fasciculatum
Beaver Tail	Opuntia basilaris
Turpentine Broom	Thamnosoma montana
Purple Brush	Tetracoccus hallii

Joshua Tree Woodland

Joshua Tree	Yucca brevifolia
Mojave Yucca	Yucca schidigera
Creosote Bush	Larrea tridentata
Common Sagebrush	Artemesia tridentata
Wild Buckwheat	Erigonum fasciculatum
Cotton Torn	Tetradymia axillaris
Boxthorn	Lycium andersonii
Filaree	Erodium sp.
Schimus	Schimus barbatus

APPENDIX 1

PLANTS AND ANIMALS OBSERVED

MOSTLY ALONG THE TRANSECTS

and

OBSERVATIONS AT NEARBY RESIDENCES

and

ALONG ROADS

and

UTILITY CORRIDORS

OF THE PROJECT SITE AND GENERAL AREA

(Previous Casual observations, projects & attendance at local workshops)

Vascular Plants Observed in the general area of the Project Site, San Bernardino County, California

JUNE 24, 2018 & SEPTEMBER 17, 2022

GNETAE - GNETAE

Ephedraceae - Ephedra Family

Ephedra californica - Desert tea

ANGIOSPERMAE: DICOTYLEDONES - DICOT FLOWERING PLANTS

Asteraceae - Sunflower Family

Ambrosia acanthicarpa - Annual bur-sage

Ambrosia dumosa - Burrobush

Ambrosia dumosa/Hymenoclea salsola (hybrid) - Hybrid Burrobush/Cheesebush

Bebbia juncea var. *aspera* - Sweetbush

Encelia actoni - Acton's encelia

Encelia farinose - Brittlebush

Ericameria cooperi var. *cooperi* - Cooper's goldenbush

Hymenoclea salsola - Cheesebush

Stephanomeria exigua - Annual mitra

Tetradymia stenolepis - Mojave cottonthorn

Bignoniaceae - Bigonia Family

Chilopsis linearis ssp. *Arcuate* - Desert willow

Boraginaceae - Borage Family

Amsinckia tessellate - Checker fiddleneck

Brassicaceae - Mustard Family

Sisymbrium irio - London rocket

Cactaceae - Cactus Family

Echinocereus engelmannii - Hedgehog cactus

Opuntia basilaris - Beavertail cactus

Opuntia echinocarpa - Silver cholla

Opuntia ramosissima - Pencil cholla

Chenopodiaceae - Goosefoot Family

Salsola tragus - Russian thistle

Cucurbitaceae - Gourd Family

Cucurbita palmata - Coyote gourd

Euphorbiaceae - Spurge Family

Chamaesyce albomarginata - Rattlesnake weed

Stillingia linearifolia - Narrow-leaved stillingia

Fabaceae - Pea Family

Acacia greggii - Catclaw

Parkinsonia aculeate - Mexican palo verde

Prosopis glandulosa var. *torreyana* - Honey mesquite

Psorothamnus arborescens var. *simplicifolius* - California indigo bush

Senna armata - Desert senna

Krameriaceae - Krameria Family

Krameria grayi - White rhatany

Lamiaceae - Mint Family

Salazaria Mexicana - Paper-bag bush

Salvia columbariae - Chia

Malvaceae - Mallow Family

Sphaeralcea ambigua - Desert mallow (color variations)

Polemoniaceae - Phlox Family

Eriastrum sp. - Woolly star

Polygonaceae - Buckwheat Family

Eriogonum fasciculatum var. *polifolium* - Flat-topped California buckwheat

Eriogonum inflatum - Desert trumpet

Rosaceae - Rose Family

Coleogyne ramosissima - Blackbush

Simmondsiaceae - Jojoba Family

Simmondsia chinensis - Jojoba

Solanaceae - Nightshade Family

Datura wrightii - Jimsonweed

Lycium andersonii - Anderson's box-thorn

Lycium cooperi - Peach thorn

Viscaceae - Mistletoe Family

Phoradendron californicum - Desert mistletoe

Zygophyllaceae - Caltrop Family

Larrea tridentate - Creosote bush

ANGIOSPERMAE: MONOCOTYLEDONES - MONOCOT FLOWERING PLANTS

Liliaceae - Lily Family

Yucca brevifolia - Joshua tree

Yucca schidigera -	Mojave yucca

Poaceae - Grass Family

Achnatherum hymenoides -	Indian ricegrass
Pleuraphis (Hilaria) rigida -	Big galleta
**Schismus barbatus* -	Mediterranean grass
*Brome sp. -	Mediterranean grass

* - indicates a nonnative (introduced) species.

c.f. - compares favorably to a given species when the actual species is unknown.

Some species may not have been detected because of the seasonal nature of their occurrence. Commonnames are taken from Hickman (1993), Jaeger (1969), and Munz (1974).

Vertebrates Observed on the Project Site or previously in the native desert areas,
San Bernardino County, California

JUNE 24, 2018 & SEPTEMBER 17, 2022

REPTILES - REPTILIA

Rattlesnake – Crotalus

Speckled rattlesnake - *Crotalus mitchellii*

Mojave rattlesnake - *Crotalus scutulatus*

Iguana - Iguanidae

Desert iguana - *Dipsosaurus dorsalis*

Spiny Lizards – Sceloporus

Desert Spiny Lizard (Sceloporus sp.)

Horned Lizards and allies - Phrynosomatinae

Side-blotched lizard - *Uta stansburiana*

Whiptails and relatives - Teiidae

Great Basin whiptail - *Aspidoscelis tigris tigris*

BIRDS - AVES

New World Quail - Odontophoridae

California Quail - *Callipepla californica*

Kites, Eagles, Hawks, and allies - Accipitridae

Red-tailed Hawk - *Buteo jamaicensis*

Caracaras and Falcons - Falconidae

American Kestrel - *Falco sparverius*

Pigeons and Doves - Columbidae

Rock Pigeon - *Columba livia*

Mourning Dove - *Zenaida macroura*

Silky Flycatchers - Ptiliogonatidae,

Phainopepla - *Phainopepla nitens*

Cuckoos, Roadrunners, and Anis - Cuculidae

Greater Roadrunner - *Geococcyx californianus*

Hummingbirds - Trochilidae

Costa's Hummingbird - *Calypte costae*

Rufous Hummingbird - Selasphorus rufus

Tyrant Flycatchers - Tyrannidae

Hammond's Flycatcher (M) - *Empidonax hammondii*

Say's Phoebe - *Sayornis saya*

Western Kingbird - *Tyrannus verticalis*

Jays, Magpies, and Crows - Corvidae

Common Raven - *Corvus corax*

Penduline Tits and Verdin - Remizidae

Verdin - *Auriparus flaviceps*

Wrens - Troglodytidae

Cactus Wren - *Campylorhynchus brunneicapillus*

Wrens – Thryomanes

Bewick's wren - *Thryomanes bewickii*

Mockingbirds, Thrashers, and allies - Mimidae

Northern Mockingbird - *Mimus polyglottos*

California thrasher - *Toxostoma redivivum*

Starlings and Allies - Sturnidae

European Starling - *Sturnus vulgaris*

Emberizines - Emberizidae

Black-throated Sparrow - *Amphispiza bilineata*

White-crowned Sparrow (M) - *Zonotrichia leucophrys*

Fringilline and Cardueline Finches - Fringillidae

House Finch - *Carpodacus mexicanus*

Old World Sparrows - Passeridae

House Sparrow - *Passer domesticus*

MAMMALS - MAMMALIA

Rabbits and Hares - Leporidae

Desert Cottontail - *Sylvilagus audubonii*

Black-tailed Jackrabbit - *Lepus californicus*

Squirrels, Chipmunks, and Marmots - Sciuridae

White-tailed Antelope Squirrel - *Ammospermophilus leucurus*

Mice and Rats - Muridae

Desert Woodrat (middens) - *Neotoma lepida*

Foxes, Wolves, and relatives - Canidae

Coyote - *Canis latrans (numerous observation on-site and off-site in 2018 and 2022)*

M = species observed during migration or wintering (usually not a year-round resident) but a small percentage of migrating birds get off track in the fly-ways and then inhabit non-normal locations and for a local example a **Scissor-tailed flycatcher** (*Tyrannus forficatus*) stayed at Lucky Park in 29 Palms back inthe 2008 timeframe and was observed personally with a Kingbird while local birders did not have to travelto Oklahoma to observe this species for their personal Bird Life List.

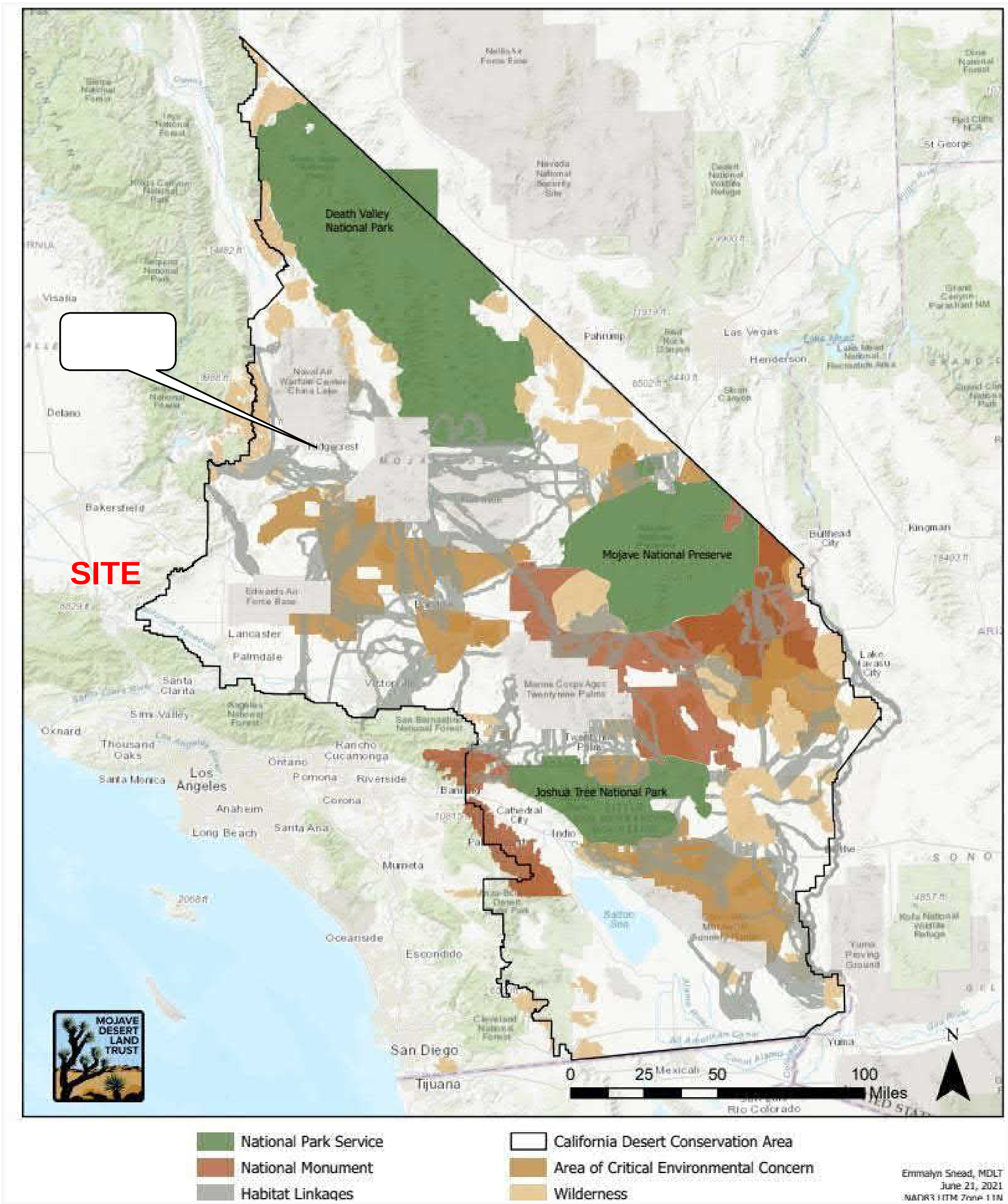
APPENDIX 2

OTHER MAPS AND SITE PHOTOGRAPHS

Location & General Information of Site: See attached Drawings No. 1–5

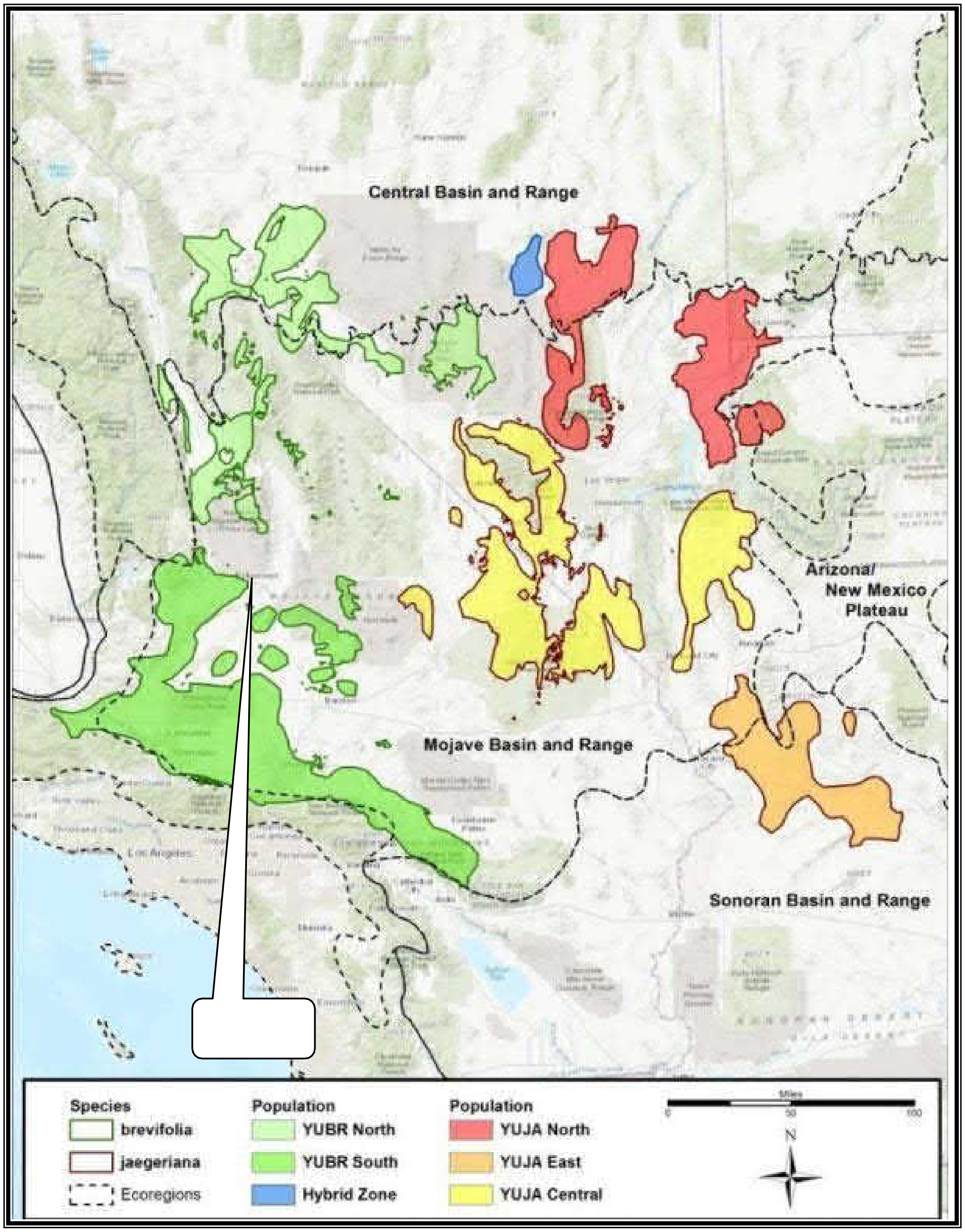
California Desert Conservation Area Map:	See attached Drawing No. 1
Western Joshua Tree Petition Map:	See attached Drawing No. 2
Ridgecrest Location Map:	See attached Drawing No. 3
Seismic Information:	See attached Drawing No. 4
SCE- Fire Risk Map:	See attached Drawing No. 5

California Desert Conservation Area Map



DRAWING 1

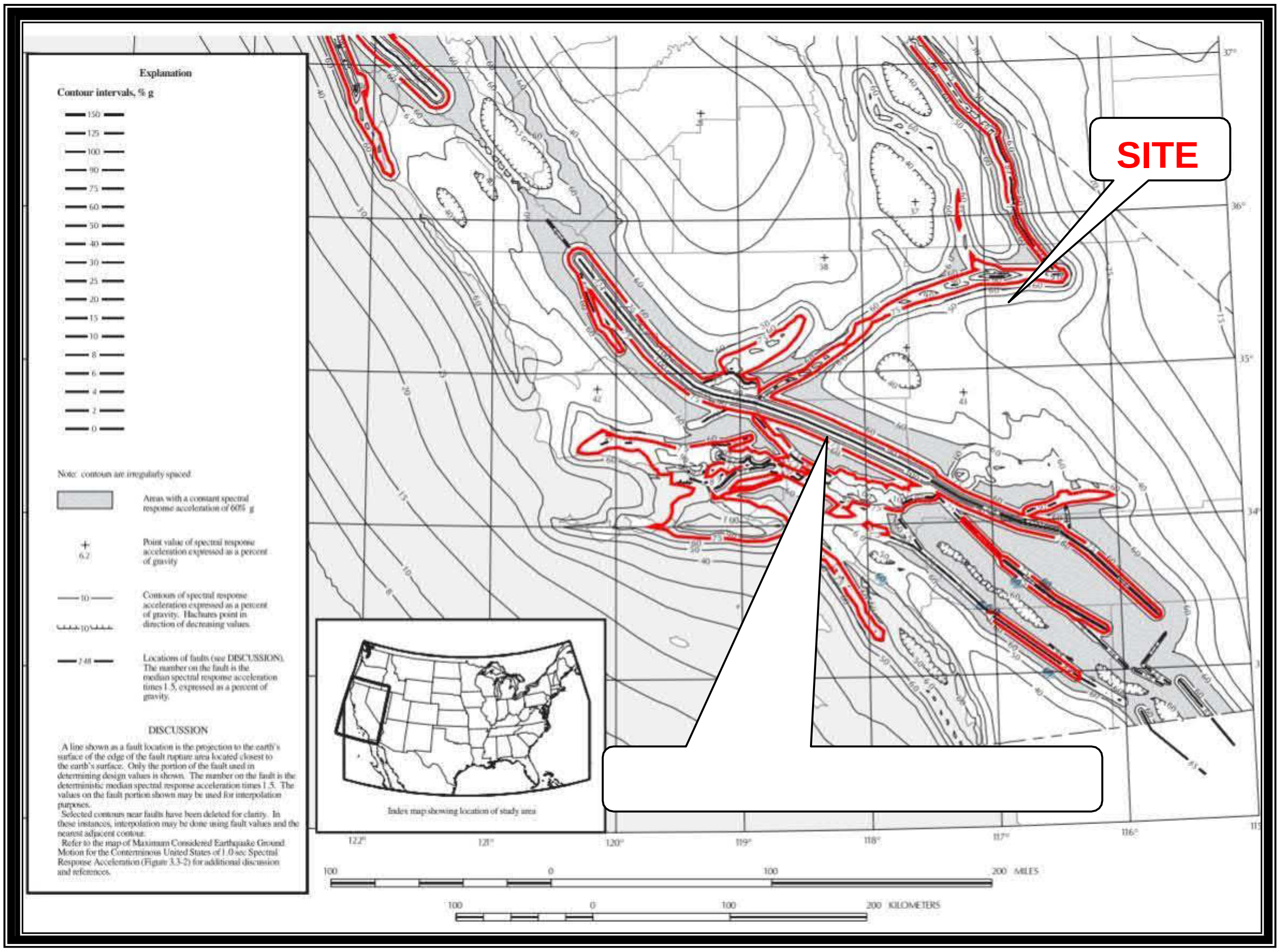
Western Joshua Tree CESA Petition & DFW's Evaluation of Petition Map



RIDGECREST – REGIONAL LOCATION MAP

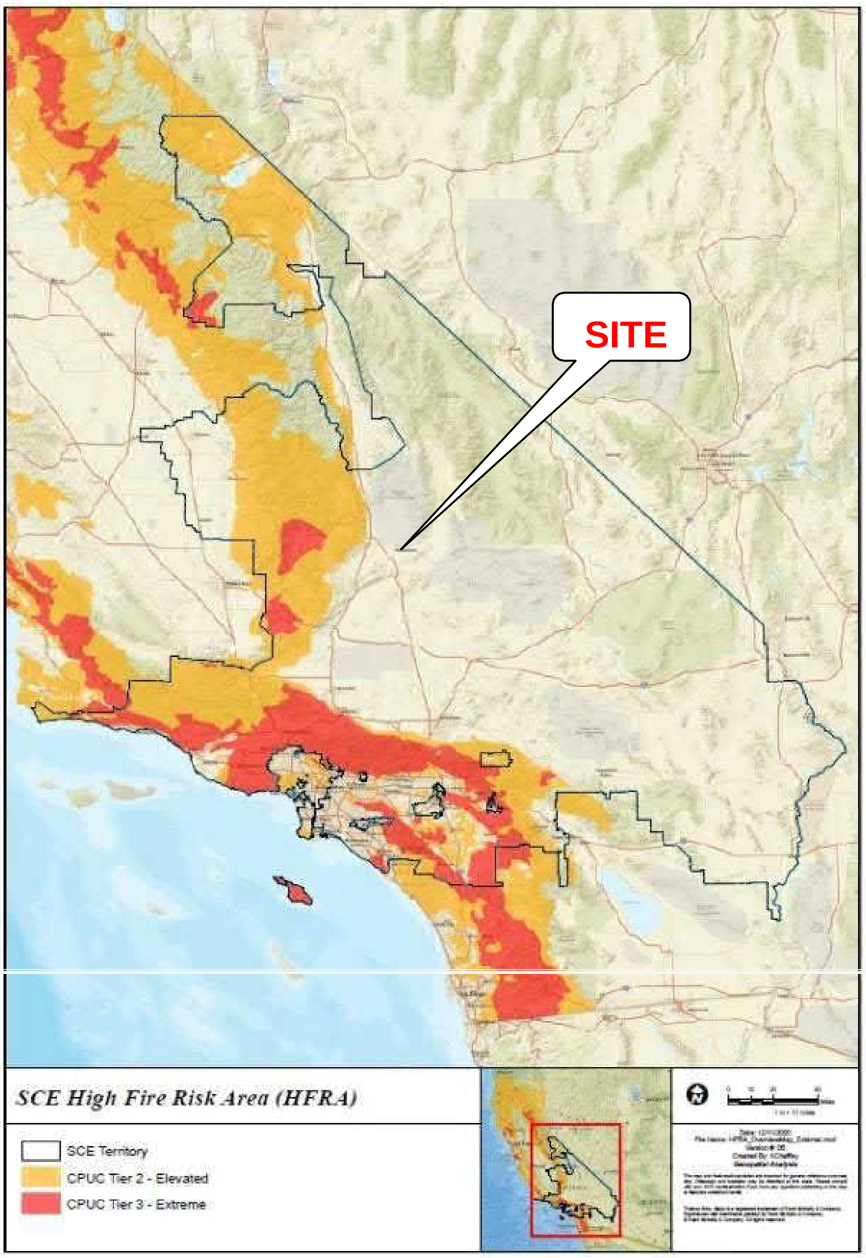
SEISMIC LOCATION MAP

1.0 second spectral response acceleration map, with 0.75g contours shown



GoogleEarthPro: 35.60983° N / 117.68456° W & Elevation 2338

Figure SCE 4-1
Boundary Map of SCE's HFRA



Southern California Edison - High Risk Fire Area Map (HRFA)

Photographs:

MIDDLE OF SITE AT DAWN (September 17, 2022)

TYPICAL: RAVENS ROOSTED THROUGHOUT SITE AND STAYED ON THE SITE
(Before Dawn - September 17, 2022)

TYPICAL: DEBRIS SCATTERED THROUGHOUT SITE
(September 17, 2022)

TYPICAL: DEBRIS SCATTERED THROUGHOUT SITE
(September 16, 2022)

SOUTH SIDE OF SITE EXTENDING BEYOND SITE BOUNDARY (SITE TO THE LEFT)
TYPICAL: CITY RUNNING/WALKING/BIKING TRAIL ALONG SOUTH SIDE OF SITE
(Used during the day and at least until after 10PM in 2018 and on September 16, 2022
And
Used prior to dawn in 2018 and on September 17, 2022)

TYPICAL: CITY RUNNING/WALKING/BIKING TRAIL BENCH ALONG SOUTH SIDE OF SITE
(Used during the day and at least until after 10PM in 2018 and on September 16, 2022
And
Used prior to dawn in 2018 and on September 17, 2022)

TYPICAL: CANINE AND HUMAN PRINTS THROUGHOUT SITE (September 16, 2022)

LOOKING NORTH ALONG EAST SIDE OF SITE (SITE TO THE LEFT)

LOOKING NORTH ALONG WEST SIDE OF SITE (SITE TO THE RIGHT)
EXTENDING BEYOND SITE BOUNDARY TO TE WALKING TRAIL TO THE SOUTH

TYPCIAL: LOOKING EAST ALONG NORTH SIDE OF SITE (SITE TO THE RIGHT)

TYPCIAL: VERY HIGH USAGE OF OFF-HIGHWAY VEHICLES ON THE SITE

TYPICAL: VACANT LOT TO THE WEST OF SITE WITH DEBRIS & HIGH VEHICLE USAGE

APPENDIX 3

QUALIFICATIONS

Consultant has completed the following environmental education, workshops, licenses, and designations:

2021 - **Certificate Foundations of Utility Vegetation Management** (UVM) - Univ. Wisconsin-Steven's Point/UVM Assn.

- Introduction to Utility Vegetation Management [UVM - 101] & Leadership and Organization [UVM – 2.1]
- Programs and Project Management [UVM – 2.2] & Integrated Vegetation Management [UVM – 2.3]

2020 - **Botanical - Mitigation Measures & Monitoring** (David Magney; Rare Plant Program Manager at CNPS)

- **Tree Care for Birds & Other Wildlife** *(Arizona/California/Nevada/Hawaii)*-International Society of Arboriculture
- **Online Tools for Vegetation Data** – California Native Plant Society (CNPS)
- **Wildland-Urban Interface** – American Planning Association

2019 - **Joshua Tree Master Naturalist**: Joshua Tree National Park Desert Institute & UC Riverside (8 courses)

- **Desert Plant Phenology of Joshua Tree National Park:** UC Riverside and JTNP Desert Institute
- **Desert Tortoise Biology & Conservation:** CDFW/BLM/UC Riverside and JTNP Desert Institute
- **Fugitive Dust Control** (CV1903-007751-7796): South Coast Air Quality Management District

2018 - Large Branchiopods of California Workshop: TWS-SoCal and USFWS @ San Diego Botanic Garden

- Sea Turtle Workshop: NMFS Protected Res. Div., West Coast Region/NOAA @ Long Beach Aquarium 2010/15 - San Bernardino County Planning & Airport Commissioner - Review & Approval of CEQA Studies & Projects 2014 - **Arroyo Toad (Anaxyrus californicus) Workshop** (The Wildlife Society San Diego Chapter)
- Sustainable Communities @ APA-PTS Conference: Feb. 7-8, 2014, in San Diego
- California Annual Conference/APA (4 Days – Anaheim and Visalia in 2013 & 2014)

2013 - **Tree Risk Assessment Qualified** International Society of Arboriculture (WE#-8024A – Renewed in 2018 & 2023)

- **Yellow Billed Cuckoo (*Coccyzus americanus*) Workshop** (Kern River Valley – KRV Audubon Facility)
- **Southwestern Willow Flycatcher (Empidonax traillii extimus) Workshop** (KRV Audubon Facility)
- National Innovative Communities Conference: 2013 (Ontario CA – San Diego mention as a leader may times)
- **Environmental Leadership Certificate:** CSU San Marcos (Matt Rahm, PhD., Esq.)

1998/12 - **UC Riverside Field & Other Certificates: - Desert Ecology - Field Ecology - Botany - Ornithology - Geology -**

Geographic Information Systems - Geographical Positioning Systems - Educational Facility Planning

- American Planning Association Annual Conference (4 Days - Los Angeles)
- California County Planning Commissioners Association (2 Days - Suisun City)

2011 - **Scientific Collecting Permit #11586** by California Department of Fish and Wildlife

- **Legends of the Fall: Exploring the Clandestine Flora of Early Fall in the Eastern Mojave Desert**
  Rare [& Endangered] Autumn Annuals – Dr. James Andre & Dr. Tasha La Doux - CNPS @ UC- DRC

- **Certified Environmental Planner - Advanced Specialty Certification for AICP (2011 [1 of 33 in U.S.])**
- **Qualified Storm Water Developer & Planner (QSD/P #21595) by CASQA**

2010 - **Certified Wildlife Biologist #43090** **-** by The Wildlife Society - Life Member (2006)-Western Section 2009

- **Western Pond Turtle, California Tiger Salamander & Red-legged Frog Workshop** (CSU Sonoma)

- **Wildlife Management & Ecosystem Management** (**Dr. Cameron Barrow,** UC Riverside Research Center/3-units)
- **Bird Biology** - Cornell University/3-unit course

2008 - **Palms Culture in the Southwest** (2 days - International Society of Arboriculture (ISA) in Las Vegas)

2007 - **Certified Arborist WE #8024A** – Int. Society of Arboriculture (+60hours CE)

- **Riparian Ecology & Plant Identification Workshop** (David Magney; Rare Plant Program Manager at CNPS)
- **Jurisdictional Delineation of Wetlands** (38-hours of Army Corps of Engineering training in San Diego)
- **Protocols for Botanical Reports** (2 day - U.C. Davis – Bodega Bay Marine Research Lab)

2006 - **Vegetation Mapping** in Redlands (4 day – Dr. Todd Keeler-Wolf, Senior Vegetation Ecologist, CDFW & Dir. CNPS 2005

- **Mojave Ground Squirrel Workshop -** Wildlife Society, CDFG & USFW

2003 - **California Burrowing Owl Symposium –** The Wildlife Society/Western Section in Sacramento

2002 - **Tortoise Workshop by Desert Tortoise Council** (Life Member), CDFG & USF&W

1994 - Registered Environmental Assessor #05791; Calif. Environmental Protection Agency (DTSC/ended in 2012) 1993 - American Institute Certified Planners #9892 & Certified Environmental Professional (2011 [1 of 33 in U.S.]) 1982/4 - CA Licenses: Land Surveyor #5413 (1984); Civil Engineer #36293 (1983); Real Estate Broker #836955 (1982) 1980 **- B.S. in Civil & Environmental Engineering** from University of California,

1976 - Personally familiar with the general area; have completed various Surveys, Engineering, Planning & Appraisals

BIOLOGICAL & ENVIRONMENTAL RESUME SUMMARY – RANDY COLEMAN, AICP, CCIM, MIRM, LS, PE

PROFESSIONAL MEMBERSHIPS & DESIGNATIONS:

LIFE MEMBER: International Society of Arboriculture, The Wildlife Society- Western Chapter, Desert Tortoise Council, Society for the Conservation of Bighorn Sheep (SCBS), Sierra Club, NRA Patriot Life Endowment

CERTIFIED ARBORIST #WE-8024A (**2007** - original and updated*2 to 12/31/2023)

TREE RISK ASSESSMENT QUALIFIED (**2014** - Original SoCal group 1st Updated 03/07/2024) CERTIFIED WILDLIFE BIOLOGIST #43090 - (2010) & Professional Development Certificate (2015 & 2020) **SCIENTIFIC COLLECTING PERMIT #11586** - (**2011** & Updated - California Department of Fish & Wildlife)

Foundations of Utility Vegetation Management Certificate **(2021** - Univ. Wisconsin-Steven's Pt./UVM Assn)

CERTIFICATES: University of California RIVERSIDE (2001-2012)

- **Botany, Desert Ecology, Field Ecology, Ornithology, Geology, GIS, GPS**, Educational Facility Planning

School Business Management: CSU San Bernardino (2000 - Dr. Arthur Townley)
Environmental Leadership Academy: CSU San Marcos (2012 - Dr. Matt Rahm)
Master Naturalist: Joshua Tree National Park Desert Institute – (8 courses with UC Riverside)

EDUCATION: Bachelor of Science Civil & Environmental Engineering: University of California IRVINE, 1980

EXPERIENCE:

Mr. Coleman is an independent Certified Arborist and owner of ALTEC Land Planning since 1990 providing comprehensive consulting for a large variety of land planning projects; acquisitions; environmental compliance, native plants and endangered/threatened species protocol surveys; monitoring, mitigation and recommendations; including for re-establishment of native and locally endemic plant species for Mojave Desert, Mojave River riparian corridor and other Mojave and Sonoran Desert micro-environments; expert witness and litigation services, bird nesting studies and clearances, and jurisdictional entitlements, governmental compliance and permitting.

These experiences and expertise have included expert witness services and native re-landscaping plans for the Mojave River riparian corridor for a 175 felony count criminal litigation by Agency District Attorney requiring approval from US Fish & Wildlife Services, Army Corp of Engineers, California Department of Fish and Wildlife, County Flood Control District, and local city agencies. Additionally, expert witness services and prepared reports and testimony for a $100,000 Fine ($1,000 per tree -100+ native trees for a City); Black Walnut, Palm and Oak Tree Reports for southern California cities, tree and landscaping post-fire valuations, wildland urban interface fire (fuel) mitigation plans, market studies, community relations and fiscal analysis; native tree and plant assessments, preservation and relocations services; diagnosis of desert tree growth and relocation issues, construction impact mitigation and monitoring; preparation of landscaping assessment district plans; landscaping and irrigations plans and associated inspections and monitoring; right-of-way services, E-220 Multi-modal High Desert freeway corridor between I-15 and I-14, expert witness services, hazardous waste, Federal Bankruptcy, Airport master planning and approvals by state agencies for runway expansion issues & hazards evaluation; Fuel Modification Reports and Mapping for planned residential developments in fire-prone chaparral at the wildland-suburban interface; prepared approved Specific Plans with landscaping recommendations and native plant selection and monitoring/bonding programs.

Mr. Coleman is also President and founded BCA Engineering Corp. in 1981 where he has been providing professional Civil Engineering, Land Planning, Land Surveying, Project/Construction Management, Design-Build and community relations for non-profits/private/public sectors and public/private/charter schools.

Mr. Coleman has consulted for USDA Rural Utilities for water systems in disadvantage communities, state agencies, San Bernardino County and cities throughout SoCal, redevelopment agencies, special and school districts, banks, FDIC/RTC, insurance companies, national & local developers, homeowners' associations, theme park, homeowners, architects, landscape architects/contractors, property managers, NGOs/non-profits, and attorneys**.**

The International Society of Arboriculture

Hereby Announces That

Randy Coleman

Has Earned the Credential

ISA Tree Risk Assessment Qualification®

By successfully meeting ISA Tree Risk Assessment Qualification certification requirements through demonstrated attainment of relevant competencies as supported by the ISA Credentialing Council

Caitlyn Pollihan
CEO & Executive Director

7 March 2014	7 March 2024
Issue Date	Expiration Date

The International Society of Arboriculture

Hereby Announces That

Randy Coleman

Has Earned the Credential

ISA Certified Arborist ®

By successfully meeting ISA Certified Arborist certification requirements through demonstrated attainment of relevant competencies as supported by the ISA Credentialing Council

Caitlyn Pollihan
CEO & Executive Director

14 July 2007	31 December 2022	WE-8024A
Issue Date	Expiration Date	Certification Number

ANAB ACCREDITED
ISA Certified Arborist

CERTIFICATE OF TRAINING

CALIFORNIA CONSTRUCTION GENERAL PERMIT

QUALIFIED SWPPP DEVELOPER (QSD)
AND
QUALIFIED SWPPP PRACTITIONER (QSP)

RANDOLPH J. COLEMAN

Sep 28, 2021 - Oct 30, 2023

Certificate # 21595

CASQA

California Stormwater Quality Association and
California Construction General Permit Training Team

THE WILDLIFE SOCIETY

The Wildlife Society

INCORPORATED IN WASHINGTON, D.C.

grants the designation

Certified Wildlife Biologist

to

Randolph J. Coleman

in recognition of fulfillment of all the professional requirements approved by The Wildlife Society and verified by the Society's Certification Review Board. This designation is valid for 5 years, beginning this 2nd day of August 2010, provided membership in the Society remains in good standing.

President, The Wildlife Society

Chairman, Certification Review Board

Executive Director, The Wildlife Society

MOJAVE DESERT LAND TRUST
CELEBRATING 15 YEARS OF DESERT CONSERVATION

Dear Randy,

The fate of the western Joshua tree remains in limbo. California Fish and Game Commission members failed to reach a unanimous decision on whether to grant the western Joshua tree threatened species status on June 16, 2022. Despite the tied vote by members, we were heartened by the Commission's thoughtful discussion regarding the science behind the imperiled status of the western Joshua tree. We welcome their decisions to expand tribal input and consider initiating a conservation plan.

The species remains protected under its candidacy for the California Endangered Species Act until a decision is made by the Commission in October.

Thank you to everyone who came out to the rally at our HQ, signed our petition, and took the time to make such compelling public comments before and during the Commission meeting.

Thank you to Brendan Cummings of the Center for Biological Diversity for his leadership in this effort and Senator Dianne Feinstein and Assembly Member James C. Ramos for speaking out during the Commission meeting in support of listing.

We know that the western Joshua tree decision will ultimately have great bearing on the role of California's Endangered Species Act in protecting species threatened by climate change. We hope the Commission chooses to take bold, decisive action in applying CESA as a tool to protect our state's most vulnerable species, including the western Joshua tree, against this extraordinary threat.

We will keep you informed and look forward to working alongside you to continue supporting the western Joshua tree.

Cody Hanford and Kelly Herbinson
Joint Executive Directors

California won't immediately list western Joshua tree as threatened

By Associated Press - June 16, 2022 - SACRAMENTO, CA —California won't be listing the iconic western Joshua tree as a threatened species for now after the four-member Fish and Game Commission couldn't reach agreement on how best to protect the plant from climate change.

After deadlocking on whether to list the species under the California Endangered Species Act, commissioners decided toreconsider in October. In the meantime, they voted to pursue more feedback from tribes and directed the California Department of Fish and Wildlife to work on a conservation planfor the species.

The desert plant is known for its unique appearance, with spiky leaves on the end of its branches, and is found in the national park that bears its name about 130 miles (209 kilometers) eastof Los Angeles and through a stretch of desert up to Death Valley National Park. There are two types of trees, the eastern and western, but only the western is up for consideration.

Western Joshua tree is being considered for endangered protections. [Jae C. Hong/AP]

If the tree is listed as a threatened species, killing one would require special approval from the state. That would make it harder towin approval for housing, solar fields, or other development projects on land where Joshua trees are abundant. The trees are nowunder conditional protection while the state decides whether to deem them threatened.

The state has never listed a species as threatened based primarily on threats from climate change, said Brendan Cummings, conservation director for the Center for Biological Diversity.

The center petitioned in 2019 to have the western Joshua tree listed as threatened, saying hotter temperatures and more intenseperiods of drought fueled by climate change will make it harder for the species to survive through the end of the century. It also argued wildfires and development threats harm the trees' ability to live and reproduce.

The state's ongoing drought, which scientists say is part of the worst megadrought in 1,200 years, is likely harming the trees' ability to survive, Cummings said. "We're likely witnessing a single, large-scale mortality event right now," he told the commission.

The commissioners broadly agreed that hotter temperatures and more extreme droughts fueled by climate change will put the species in danger over the coming decades. But they were split on whether the Endangered Species Act was the best way to address those concerns. The California Department of Fish & Wildlife has recommended against listing the species as threatened. The department acknowledged that areas suitable for the western Joshua trees growth are likely to decline due to climate change by 2100. But it said in an April report that the treeremained "abundant and widespread," which lowers the risk of extinction.

“The question is not, ‘Will climate change be bad for Joshua tree?’ The question is, ‘How bad will it be, and how quickly?’ And the truth is we don’t know yet,” Jeb McKay Bjerke, who presented the Department of Fish & Wildlife’s recommendation to the commission, said WednesdayFires swept through an area where the Joshua tree is found in California. [Marcio Jose Sanchez/AP]

It’s unknown how many Joshua trees exist in the state, but it could be anywhere from 4.8 million to 9.8 million, he said. It was a “close call” for the department not to recommend listing the species as threatened, he said, and three of five outside peer reviewers who were asked to look at the recommendation by the department disagreed with the conclusion.

About 40% of the Joshua trees in the state are on private land. Many of the comments focused on the development of housing and solar projects in the region. Several local and state politicians and union workers said listing the species as threatened would make it harder to move forward with necessary projects, including those that aim to fight climate change by boosting renewable energy.

California holds off on listing western Joshua tree as threatened

Erin Rode, Palm Springs Desert Sun June 16, 2022,

Joshua Trees grow on protected Mojave Desert Land Trust lands which create wildlife linkages near the border of Joshua Tree and Yucca Valley, November 18, 2021.

The western Joshua tree will remain a protected species after the California Fish and Game Commission failed to come to a majority decision on Thursday on whether the iconic plant should be listed under the California Endangered Species Act.

High desert cities, construction and real estate trade groups, and renewable energy developers oppose the listing, arguing it would stymie development of housing and renewable energy. Conservation groups, scientists, and advocates, however, have argued that listing the tree is integral to protecting the species from climate change, as well as other threats like wildfire and development.

The commission considered four hours of public comments on Wednesday, and also heard presentations from the Center for Biological Diversity, which submitted the petition to list the species as threatened, and from the California Department of Fish and Wildlife, which issued a report recommending against listing the species in April.

Commission Vice President Erika Zavaleta and President Samantha Murray supported listing the western Joshua tree on Thursday, but commissioners Jacque Hostler-Carmesin and Eric Sklar said they want to delay the decision and encouraged all involved parties to work on a range-wide conservation plan in the meantime, although both indicated they would likely support listing the species at a future date. The fifth commissioner position currently vacant.

"Based on the models and the evidence, I come to a different conclusion than the scientists at the department... This strong suite of models and ground-truthing have led me to the conclusion that we have a lot of work to do to protect the species from becoming endangered in the next 80 years mainly throughout most of the southern part of its range," Zavaleta said.

Murray said the commission is tasked with evaluating whether a species is threatened or endangered, not with evaluating the potential economic impacts or impacts on housing and development of a listing.

"Listing doesn't mean that there can't be housing, that there can't be renewable energy projects, it just means they'll happen under a more careful watch," she said. "Over the last 18 months (while the species had candidate status), development and projects have still been happening. It just means it will be paired with numerical caps of trees that are taken and paired with habitat conservation planning efforts."

But Sklar said he preferred to continue the item to the commission's October meeting, with the hopes that delaying the decision would incentivize all parties to work on a conservation plan, and prompt the legislature to pass legislation related to protections for the species.

"I think it puts pressure on all parties, those for listing, those going against the listing, to work together to craft a really good solution," he said. "Not listing today keeps the pressure on all the groups in a greater way." He added that after listing a species it could take years before a conservation plan is developed.

Murray and Zavaleta said they doubted delaying the vote would in fact incentivize these actions more than listing the species as threatened would.

The discussion also raised the broader question of how to best use the California Endangered Species Act to protect species from climate change, with Sklar calling protecting individual species "like fiddling while Rome burns." The western Joshua tree represents the first time the state law has been used to protect a species that is primarily threatened by climate change.

A motion from Sklar to continue the item to the August meeting, and reopen the public record then for additional tribal input and ideas from the Department of Fish and Wildlife on creating a range-wide recovery and conservation plan, failed 2-2 with Murray and Zavaleta voting no. A second motion made by Zavaleta to list the species as threatened also failed 2-2, with Sklar and Hostler-Carmesin voting no, so the item will be continued to the commission's October meeting.

As a candidate for listing, the tree temporarily receives the same protections as a state-listed endangered or threatened species. This includes a prohibition on the import, export, take (or kill), possession, purchase, or sale of the western Joshua tree, or any part or product of the tree, without proper authorization.

The commission did agree to narrowly reopen the public record to receive additional input from California tribes in response to criticism that there wasn't sufficient engagement from tribes on the issue. The commission also voted to have the Department of Fish and Wildlife provide an update in October on legislative efforts to protect the species, and an update on a potential range-wide conservation plan.

Climate change reducing habitat

In their presentations on Wednesday, the Center for Biological Diversity and the Department of Fish and Wildlife presented similar science related to threats to the western Joshua tree, but different conclusions on whether or not these threats warrant listing under the California Endangered Species Act.

Chuck Bonham, director of the California Department of Fish and Wildlife, led off the meeting by saying the western Joshua tree likely represents the "most complex petition presented to the commission" he's seen during his time as director.

The Center for Biological Diversity submitted a petition to list the species in 2019 to protect the trees from the threats of climate change, wildfires, and development. The tree's suitable habitat is expected to decline substantially by 2100 due to climate change, especially in the southern portions of its range — meaning the Joshua tree would largely be unable to survive in its namesake park by the end of this century.

Outside of the park, the western Joshua tree's habitat extends northeast through fast-growing high desert cities like Victorville, Hesperia, and Palmdale. Approximately 40% of the western Joshua tree's range is on private lands, which advocates say makes protecting the tree even more vital.

The California Department of Fish and Wildlife recognized that "there will be a substantial reduction in areas with suitable climate conditions for western Joshua tree in the foreseeable future," which in combination with other threats "is expected to have negative effects on the abundance of western Joshua tree and is cause for substantial concern."

But the department recommended against listing the tree as threatened, concluding that the "currently abundant and widespread" population lessens the overall impact of these threats and threat of extinction for the foreseeable future, which the department defined as through 2100.

"The question is not 'will climate change be bad for the Joshua tree?' The question is, 'How bad will it be? And how quickly? And the truth is we don't know yet. There's a lot of uncertainty and speculation when it comes to the timing and magnitude of climate change impacts on the species. This is a close call, the recommendation was not easy for the department," said Jeb Bjerke with the department's native plant program.

Bjerke noted that only one of the five peer reviewers agreed with the recommendation.

As the western Joshua tree loses its current suitable habitat, identifying and protecting areas known as "climate refugia," where Joshua trees may be able to thrive at higher elevations amid rising temperatures and climate change, will become even more important to the species' survival. But Bjerke noted that western Joshua trees would be unlikely to colonize these areas on their own, and would instead require human assistance to be moved into these areas of suitable habitat.

"Available scientific evidence could support the conclusion to either list the species or to not list the species, and it's reasonable to come to different conclusions based on the same set of facts, "Bjerke said. "Our recommendation was therefore based on what we consider to be the more likely outcome at the end of this century. With widespread distribution, high abundance, and lack of negative demographic trends, the western Joshua tree is likely to continue to persist and reproduce in many areas of California."

In the Center for Biological Diversity's presentation, Conservation Director Brendan Cummings said he agreed with the scientific evidence in the department's report, but disagreed with the conclusion.

Cummings noted studies in 2012 and 2019 that predicted "catastrophic" loss of suitable habitat in Joshua Tree National Park, with a 90- plus percent decline of the tree's range in the park. Those studies were modeled on a 3-degree rise in summer maximum temperatures, an increase that state climate reports have estimated could occur as soon as 2035 or 2040.

Cummings criticized the department's portrayal of climate change as a longer-term threat to the western Joshua tree with unknown impacts. Reading out loud one line from the department's report that says the department expects "that any changes in the range of the western Joshua tree that are ultimately caused by climate change will likely occur very slowly, perhaps over 1,000 years," he called it the "most disappointing sentence" of the report.

"This reflects a profound misunderstanding of climate change and how fast impacts are being felt," he said. "We don't have 1,000 years to protect Joshua trees, summer maximum temperatures that likely preclude recruitment will be here in two or three decades under the most optimistic scenarios. The western Joshua tree clearly is likely to become endangered in the foreseeable at a minimum in a significant portion of its range. You must list it as such."

People visit information booths during the Mojave Desert Land Trust's "Save the Western Joshua Tree" rally at the trust headquarters in Joshua Tree, Calif., on May 26, 2022.

High desert cities opposed listing: The commission received over 200 public comments during the meeting this week, including from elected officials representing the high desert, who largely commented against the listing. From the general public, comments in support of the listing were roughly double the number of commenters speaking against the listing.

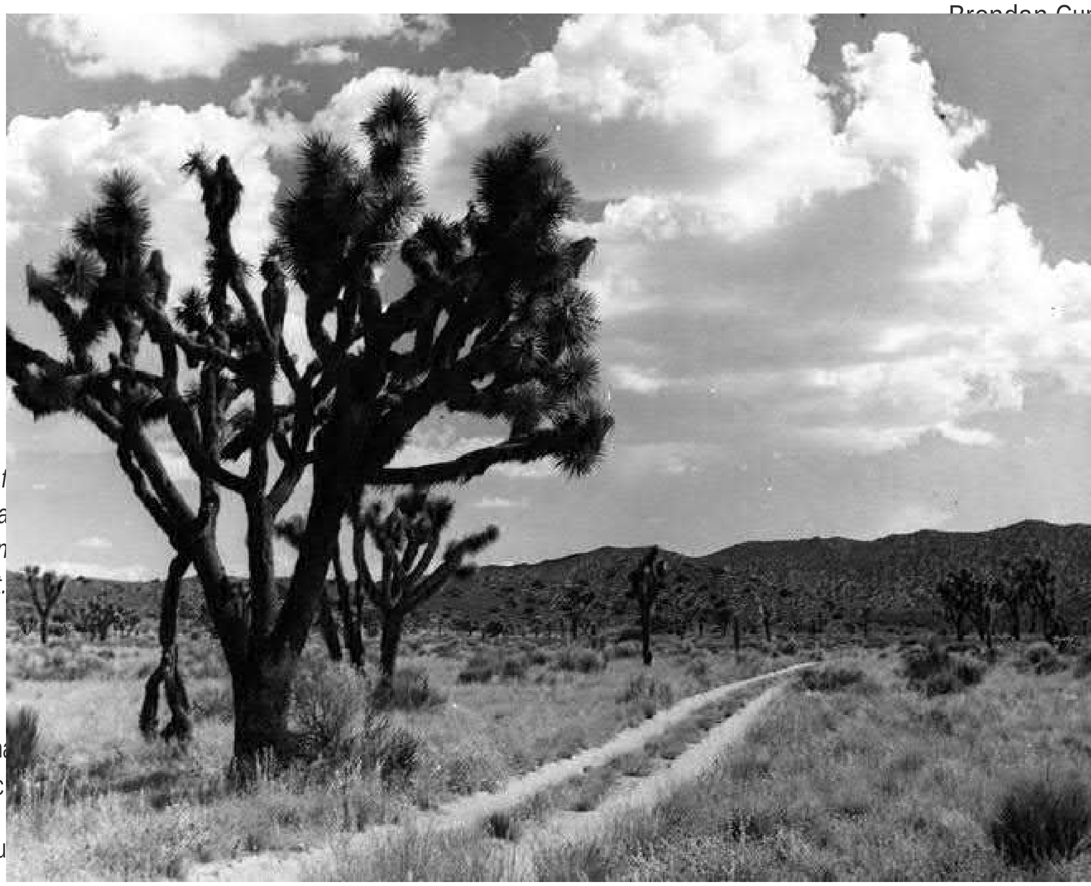
Supporters of the listing criticized the California Department Fish and Wildlife's characterization of how climate change could impact the western Joshua tree, calling it short-sighted, and the department's finding that the tree is "abundant and widespread."

Some commenters pointed to other endangered or extinct species that they said were once "abundant and widespread," from the desert tortoise to the giant sloth.

Opponents of the listing, including elected officials representing high desert cities, real estate and construction trade groups, construction unions, and chambers of commerce, as well as representatives of solar energy developers, argued that existing local protections are sufficient for the western Joshua tree, that the tree is currently abundant, and that the listing would stymie renewable energy and housing development. The Fish and Game Commission also received over 1,700 written public comments regarding the potential listing ahead of the meeting, with most comments in support of the petition and just over 250 opposed.

State should step in to protect Joshua trees

Brendan Cummings,Special to



ne CaliforniaFish and ssion failed to cometo ion on Thursday on stern Joshua tree as threatened under Endangered Species will be reconsidered

by the panel this f s as threatened, but commissioners Ja to work on a range-wide conservation h commissioner position is vacant.

Our state is widely cause of the threat of climate change.

That could have ch er the California Endangered Spec

Commissioners cou

change and ensuring that the iconic plant survives for future generations.

Or they could have followed the wishful thinking of the state Department of Fish and Wildlife, which in March discounted the objections of independent scientific peer reviewers to recommend against protecting Joshua trees.

A decision remains in limbo.

From my San Bernardino home in Joshua Tree, I've watched the slow-motion extinction of these sentinels of the high desert as they are killed off by climate change, development, and wildfire. These are problems for many species, but the Joshua tree is particularly vulnerable.

Reproduction and growth for these trees isn't easy. They only flower in certain years, then need to be pollinated by their symbiotic yucca moth. The tree's seeds need to be dispersed by rodents, without all of them being eaten. Those seeds lucky enough to sprout then must escape hungry jackrabbits and survive desiccating summers until they are robust enough to

withstand the Mojave Desert's demanding conditions.

And that was before climate change started making life so much harder.

In 2019, I petitioned the California Fish and Game Commission to protect western Joshua trees under the state's Endangered Species Act. Nearly two decades earlier, I led the legal effort at the Center for Biological Diversity that forced the Bush administration to list polar bears as threatened under the federal Endangered Species Act due to climate change.

If the Bush administration could recognize climate change and take steps to protect vulnerable species, surely California can,too. Sadly, the Department of Fish and Wildlife's recent report on western Joshua trees isn't what you would expect from a California agency in 2022.

It downplays the grave risks to these trees and ignores the science, inaccurately claiming there's no proven link between rising temperatures and Joshua tree declines and theorizing that "any changes in the range of western Joshua tree that are ultimately caused by climate change will likely occur very slowly, perhaps over thousands of years."

This reflects a profound misunderstanding of climate change and how quickly its effects are being felt. We don't have a thousand years to protect Joshua trees. Summer temperatures are rising so quickly that they will likely doom any new trees within two or three decades.

The department's report failed to account for exhaustive studies documenting the severe and accelerating harms of climate change. It ignored the fact that western Joshua trees in California are struggling through the worst drought in more than a millennium, and that such droughts could become the norm.

The report minimized the risk of fire, ignoring scientific warnings about irreversible effects and instead declaring that harm to

Joshua tree habitat from fire is "temporary."

Fueled by invasive grasses, more area burned in the Mojave Desert in 2005 than in the 25 previous years combined, and in 2020, thousands of acres of Joshua trees were lost to fire in the Mojave.

To make matters worse, the higher-elevation areas where Joshua trees are most likely to survive warming temperatures also are the most vulnerable to fire.

While the department's report is flawed, the good news is that the Fish and Game commissioners don't have to follow it. Their

vote is crucial to the survival of western Joshua trees, and it's a litmus test for how seriously California is taking climate change.

Brendan Cummings is the conservation director at the Center for Biological Diversity

Attachment 2

Geotechnical Engineering Investigation

GEOTECHNICAL
INVESTIGATION

RIDGECREST, CA

Krazan & ASSOCIATES, INC.

GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING
CONSTRUCTION TESTING & INSPECTION

PRELIMINARY
GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT
TENTATIVE TRACT 6751
RADER AVENUE & DOWNS STREET
RIDGECREST, CALIFORNIA

PROJECT NO. 022-07127
SEPTEMBER 11, 2007

Prepared for:

~~**MR. JESS MARIMUA**~~
SETON PACIFIC COMPANY ~~**NORTHERN CALIFORNIA UNIVERSAL ENTERPRISES**~~
300 B STREET
TURLOCK ~~**MODESTO**~~**, CALIFORNIA 95380**

Prepared by:

KRAZAN & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING DIVISION
2205 COY AVENUE
BAKERSFIELD, CALIFORNIA 93307
(661) 837-9200

Krazan & ASSOCIATES, INC.
SITE DEVELOPMENT ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
DAVID R. JAROSZ II
No. 2698
Expires June 30, 2008
GEOTECHNICAL
STATE OF CALIFORNIA

Krazan & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING
CONSTRUCTION TESTING & INSPECTION

September 11, 2007

KA Project No. 022-07127

Mr. Jess Marimua
Northern California Universal Enterprises
300 B Street
Modesto, California 95380

RE: Preliminary Geotechnical Engineering Investigation
Proposed Residential Development – Tentative Tract 6751
Rader Avenue & Downs Street
Ridgecrest, California

Dear Mr. Marimua:

In accordance with your request, we have completed a Preliminary Geotechnical Engineering Investigation for the above-referenced site. The results of our investigation are presented in the attached report.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (661) 837-9200.

REGISTERED PROFESSIONAL ENGINEER
DAVID R. JAROSZ II
No. 2698
Expires June 30, 2008
GEOTECHNICAL
STATE OF CALIFORNIA

Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

Dave R. Jarosz, II
Managing Engineer
RCE No. 60185/RGE No. 2698

DRJ:ch

Krazan & ASSOCIATES, INC.

GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING
CONSTRUCTION TESTING & INSPECTION

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September 11, 2007

KA Project 022-07127

PRELIMINARY GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT – TENTATIVE TRACT 6751
RADER AVENUE & DOWNS STREET
RIDGECREST, CALIFORNIA

INTRODUCTION

This report presents the results of our Preliminary Geotechnical Engineering Investigation for the proposed Residential Development, identified as Tentative Tract 6751 to be located in Ridgecrest, California. Discussions regarding site conditions are presented herein, together with conclusions and recommendations pertaining to site preparation, Engineered Fill, utility trench backfill, drainage and landscaping, foundations, concrete floor slabs and exterior flatwork, retaining walls, soil cement reactivity, and pavement design.

A site plan showing the approximate boring locations is presented following the text of this report. A description of the field investigation, boring logs, and the boring log legend are presented in Appendix A. Appendix A contains a description of the laboratory-testing phase of this study, along with the laboratory test results. Appendices B and C contain guides to earthwork and pavement specifications. When conflicts in the text of the report occur with the general specifications in the appendices, the recommendations in the text of the report have precedence.

PURPOSE AND SCOPE

This investigation was conducted to evaluate the soil and groundwater conditions at the site, to make geotechnical engineering recommendations for use in design of specific construction elements, and to provide criteria for site preparation and Engineered Fill construction.

Our scope of services was outlined in our proposal dated June 21, 2007 (KA Proposal No. P261-07) and included the following:

- A site reconnaissance by a member of our engineering staff to evaluate the surface conditions at the project site.
- A field investigation consisting of drilling 8 borings to depths ranging from approximately 10 to 50 feet for evaluation of the subsurface conditions at the project site.
- Performing laboratory tests on representative soil samples obtained from the borings to evaluate the physical and index properties of the subsurface soils.

- Evaluation of the data obtained from the investigation and an engineering analysis to provide recommendations for use in the project design and preparation of construction specifications.
- Preparation of this report summarizing the results, conclusions, recommendations, and findings of our investigation.

PROPOSED CONSTRUCTION

We understand that design of the proposed development is currently underway; structural load information and other final details pertaining to the structures are unavailable. On a preliminary basis, it is understood the proposed development will consist of approximately 21 acres to be developed into approximately 102 single-family residential lots. It is anticipated that the buildings will be single- or two-story wood-framed structures to be supported on conventional foundations and utilizing concrete slab-on-grade. Footing loads are anticipated to be light to moderate. On-site roadways and landscaping are also planned to be included with the development.

In the event these structural or grading details are inconsistent with the final design criteria, the Soils Engineer should be notified so that we may update this writing as applicable.

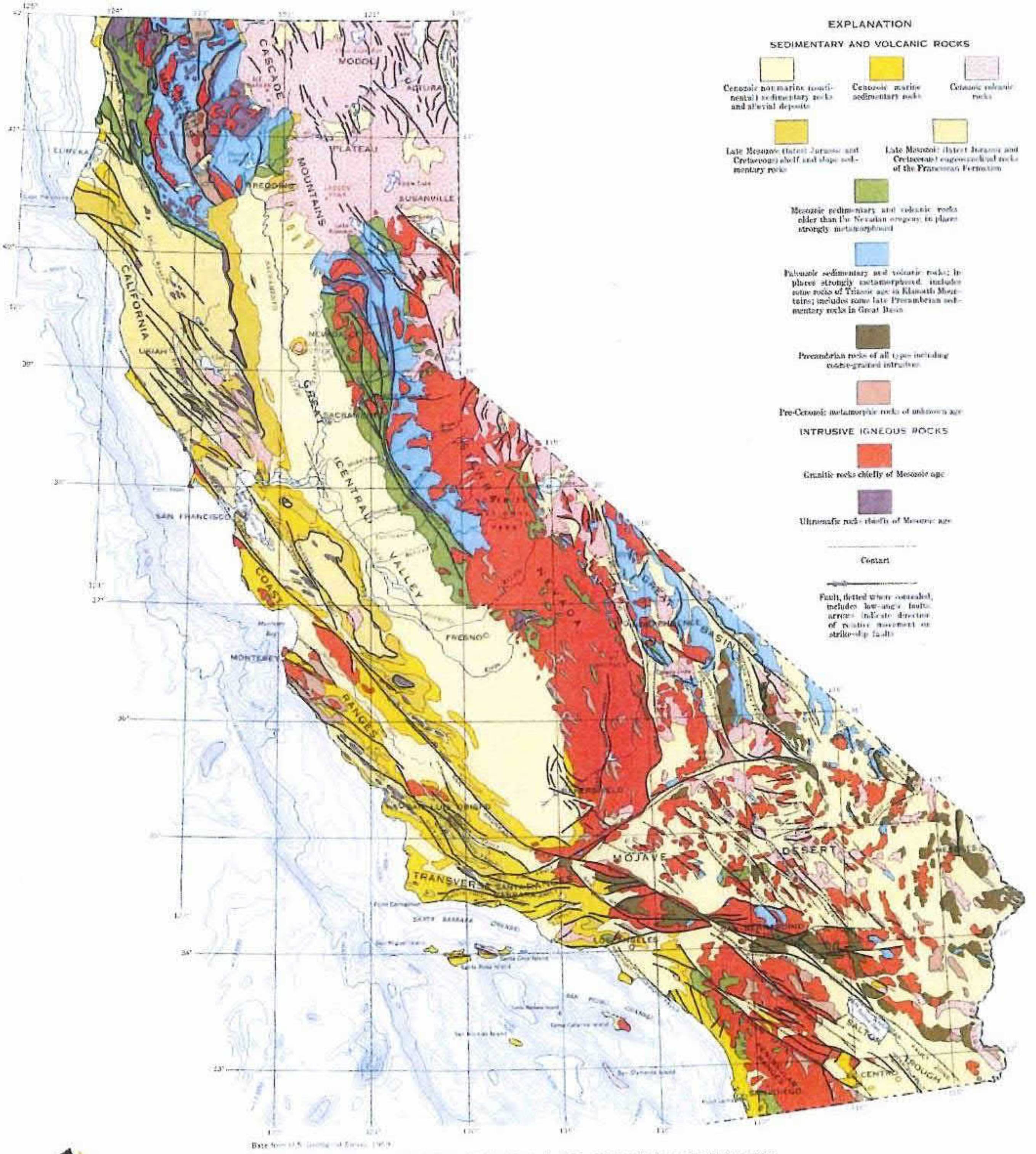
SITE LOCATION AND SITE DESCRIPTION

The site is irregular in shape and encompasses approximately 21 acres. The site is identified as Tentative Tract 6751 and is located southeast of the intersection of Rader Avenue and Downs Street in Ridgecrest, California. Residential developments are located north of Rader Avenue and west of Downs Street. The remainder of the site is surrounded by vacant land.

Presently, the site is predominately vacant with no visible on-site structures/dwellings. The site is covered with patches of shrubs and brush across the site. The surface soils have a loose consistency. Several bike trails, with small bumps, are located across the site. A fenced-in earthen canal is located along the southern border, with a bike trail situated just north of the canal fence line. A water line is located along the south property boundary. Water and telephone lines are located in the easement along Downs Street. An asphalt approach is located along the north property line. The site topography consists of relatively flat to very gentle slopes that generally trend down to the east.

GEOLOGIC SETTING

Ridgecrest is located in the southern portion of the Indian Wells Valley, a fault-block type basin situated in the southwest corner of the Basin and Range Geomorphic Provinces. Indian Wells Valley is surrounded on the west by the Sierra Nevada Range, on the north by the Coso Range, on the east by the Argus Range, and on the south by the El Paso Range. Sediments of the Indian Wells Valley consist of unconsolidated and semi-consolidated Quaternary alluvium derived from the surrounding mountain ranges. Mesozoic granitic rock comprises the majority of the surrounding mountain ranges, with some minor out crops of Quaternary volcanics and Paleozoic metasediments.



GEOLOGIC MAP OF CALIFORNIA

0 50 100 MILES

The mountain ranges surrounding Ridgecrest are geologically young and possess active and potentially active fault zones. Two well known fault zones, the South Sierra Nevada and the Garlock, are located within the project site vicinity. The Garlock Fault is located approximately 17 km south of the site. According to the 1997 Uniform Building Code, "Maps of Known Active Fault Near-Source Zones", the site is located approximately 2.0 km from the Little Lake Fault. Ridgecrest residents could feel the affects of a large seismic event on either of these fault zones. A few minor faults are located within the Indian Wells Valley. The vast majority of these faults are concealed and do not exhibit active surface traces. There are no known active fault traces in the project vicinity. Accordingly, the project area is not within an Earthquake Fault Zone. The site is located within a Seismic Zone 4.

FIELD AND LABORATORY INVESTIGATIONS

Subsurface soil conditions were explored by drilling 8 borings to depths ranging from approximately 10 to 50 feet below existing site grade, using a truck-mounted drill rig. In addition, 4 bulk subgrade soil samples were obtained from the proposed pavement areas for laboratory R-value testing. The approximate boring and bulk sample locations are shown on the site plan. During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties of the subsoils. Soil samples were retained for laboratory testing. The soils encountered were continuously examined and visually classified in accordance with the Unified Soil Classification System. A more detailed description of the field investigation is presented in Appendix A.

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory-testing program was formulated with emphasis on the evaluation of natural moisture, density, gradation, shear strength, consolidation potential, expansion potential, and moisture-density relationships of the materials encountered. In addition, chemical tests were performed to evaluate the corrosivity of the soils to buried concrete and metal. Details of the laboratory test program and results of the laboratory tests are summarized in Appendix A. This information, along with the field observations, was used to prepare the final boring logs in Appendix A.

SOIL PROFILE AND SUBSURFACE CONDITIONS

Based on our findings, the subsurface conditions encountered appear typical of those found in the geologic region of the site. In general, the surface soils consisted of 6 to 12 inches of very loose silty sand occasionally intermixed with traces of gravel and clay. These soils are disturbed, have low strength characteristics, and are highly compressible when saturated.

Beneath the loose surface soils, approximately 1 to 3 feet of loose to medium dense silty sand or silty sand/sandy silt was encountered. These soils were occasionally intermixed with traces of clay and gravel. Field and laboratory tests suggest that these soils are moderately strong and slightly to moderately compressible. Penetration resistance ranged from 14 to 36 blows per foot. Dry densities ranged from 104 to 117 pcf. Representative soil samples consolidated approximately 3 to 3½ percent under a 2 ksf load when saturated. A representative soil sample had an angle of internal friction of 34 degrees. Representative soil samples had Uniform Building Code Expansion Indices of 0 and 4.

Below 2 to 4 feet, alternating layers of medium dense to very dense silty sand, sandy silt, silty sand/sandy silt, and sand were encountered. These soils are intermixed with occasional trace amounts of gravel and traces of clay. Field and laboratory tests suggest that these soils are moderately strong and slightly compressible. These soils are slightly stronger than the upper soils and extended to the termination depth of our borings.

For additional information about the soils encountered, please refer to the logs of borings in Appendix A.

GROUNDWATER

Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Free groundwater was not encountered within a depth of 50 feet, the maximum depth explored.

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use, and climatic conditions, as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

SOIL LIQUEFACTION

Soil liquefaction is a state of soil particle suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. However, liquefaction has occurred in soils other than clean sand. Liquefaction usually occurs under vibratory conditions such as those induced by seismic events.

To evaluate the liquefaction potential of the site, the following items were evaluated:

1) Soil type

2) Groundwater depth

3) Relative density

4) Initial confining pressure

5) Intensity and duration of groundshaking

The soils encountered below 2 to 5 feet within the project site, predominately consisted of medium dense to very dense silty sand, sandy silt, silty sand/sandy silt, and sand. These sandy soils are occasionally intermixed with trace amounts of gravel and clay. Groundwater was not encountered below the site within the depths explored during our subsurface exploration. Information obtained from the California Department of Water Resources and previous investigations performed in the vicinity of the project site indicate that groundwater is present at depths greater than 50 feet below site grade. Due to the depth of groundwater and relatively medium dense to very dense nature of the on-site soils, liquefaction potential at the site is considered very low and measures to mitigate liquefaction potential are not necessary.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our field and laboratory investigations, along with previous geotechnical experience in the project area, the following is a summary of our evaluations, conclusions, and recommendations.

Administrative Summary

In brief, the subject site and soil conditions, with the exception of the upper moisture sensitive soils, appear to be conducive to the development of the project. Of primary importance in the development of this site is the removal of the upper moisture sensitive soils from the areas of proposed development. These soils are moderately compressible and/or collapsible under saturated conditions. Structures within the general vicinity have experienced excessive post-construction settlement when the foundation soils become near-saturated. Accordingly, mitigation measures are recommended to reduce the potential of excessive soil settlement. It is recommended that following stripping operations, the upper 3 feet of native soil be excavated, worked until uniform and free from large clods, moisture-conditioned to a minimum of 2 percent above optimum moisture-content, and recompacted to a minimum of 90 percent of density based on ASTM Test Method D1557. Over-excavation should extend to a minimum of 5 feet beyond structural elements. In addition, it is recommended that the proposed structures be supported by a minimum of 2 feet of Engineered Fill. The on-site native soils will be suitable for reuse as Engineered Fill, provided they are cleansed of excessive organics, debris, and fragments larger than 4 inches in maximum size. Prior to backfilling, the bottom of the excavation should be proof-rolled and observed by Krazan & Associates, Inc. to verify stability. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation. Fill material should be compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Residential developments are located north and west of the site. Associated with these developments are buried structures that may extend into the project site. Any buried structures or loosely backfilled excavations encountered within the site during construction should be properly removed and the resulting excavations backfilled. Disturbed areas caused by demolition activities should be removed or recompacted.

It is anticipated that the structural elements within the paved areas may settle if the subgrade soils become saturated. The settlement of the paved areas is related to the subsurface soil conditions. Therefore, it is anticipated that the paved areas may require annual maintenance. Utilities placed within the site should incorporate flexible connectors.

Shrubs are located across the site. Shrub removal operations should include roots greater than 1 inch in diameter. The resulting excavations should be backfilled with Engineered Fill, compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

An earthen canal is located along the southern border. If the existing canal or portions thereof, is to be relocated, piped underground, or otherwise improved or backfilled as part of the proposed development, all deleterious materials should be removed from the canal prior to backfilling. The resulting excavations should be cleaned to firm native ground and backfilled with Engineered Fill.

Sandy and gravelly soil conditions were encountered at the site. These cohesionless soils have a tendency to cave in trench wall excavations. Shoring or sloping back trench sidewalls may be required within these sandy and gravelly soils.

After completion of the recommended site preparation, the site should be suitable for shallow footing support. The proposed structure footings may be designed utilizing an allowable bearing pressure of 2,000 psf for dead-plus-live loads. Footings should have a minimum embedment of 12 inches.

Groundwater Influence on Structures/Construction

Based on our findings and historical records, it is not anticipated that groundwater will rise within the zone of structural influence or affect the construction of foundations and pavements for the project. However, if earthwork is performed during or soon after periods of precipitation, the subgrade soils may become saturated, "pump," or not respond to densification techniques. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material; or mixing the soil with an approved lime or cement product. Our firm should be consulted prior to implementing remedial measures to observe the unstable subgrade conditions and provide appropriate recommendations.

Site Preparation

General site clearing should include removal of vegetation; existing utilities; structures including foundations; basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. Site stripping should extend to a minimum depth of 2 to 4 inches, or until all organics in excess of 3 percent by volume are removed. Deeper stripping may be required in localized areas. These materials will not be suitable for use as Engineered Fill. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas.

The upper native soils are generally loose and slightly to moderately compressible. In order to minimize the potential for differential settlement and provide uniform support for the planned structures, it is recommended that following stripping operations, the upper 3 feet of native soil be excavated, worked until uniform and free from large clods, moisture-conditioned to a minimum of 2 percent above optimum moisture-content, and recompacted to a minimum of 90 percent of density based on ASTM Test Method D1557. In addition, it is recommended that the proposed structure foundations be supported by a minimum of 2 feet of Engineered Fill. Over-excavation should extend to a minimum of

5 feet beyond structural elements. The on-site native soils will be suitable for reuse as Engineered Fill, provided they are cleansed of excessive organics, debris, and fragments larger than 4 inches in maximum size. Prior to backfilling, the bottom of the excavation should be proof-rolled and observed by Krazan & Associates, Inc. to verify stability. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation. Fill material should be compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Within proposed pavement and exterior flatwork areas, following stripping operations, it is recommended that at a minimum the upper 24 inches of subgrade soils be excavated, worked until uniform and free from large clods, moisture-conditioned to a minimum of 2 percent above optimum moisture-content, and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Residential developments are located north and west of the site. Associated with these developments are buried structures that may extend into the project site. Any buried structures or loosely backfilled excavations encountered within the site during construction should be properly removed and the resulting excavations backfilled. Disturbed areas caused by demolition activities should be removed or recompacted. Excavations, depressions, or soft and pliant areas extending below plan finish subgrade level should be cleaned to firm undisturbed soil and backfilled with Engineered Fill. In general, any septic tanks, debris pits, cesspools, or similar structures should be entirely removed. Concrete footings should be removed to an equivalent depth of at least 3 feet below proposed footing elevations or as recommended by the Soils Engineer. Any other buried structures should be removed in accordance with the recommendations of the Soils Engineer. The resulting excavations should be backfilled with Engineered Fill compacted to at least 90 percent of maximum density based on ASTM Test Method D1557.

Shrubs are located across the site. Shrub removal operations should include roots greater than 1 inch in diameter and the resulting excavations backfilled with Engineered Fill compacted to at least 90 percent of maximum density based on ASTM Test Method D1557.

An earthen canal is located along the southern border. If the existing canal or portions thereof, is to be relocated, piped underground, or otherwise improved or backfilled as part of the proposed development, all deleterious materials should be removed from the canal prior to backfilling. The resulting excavations should be cleaned to firm native ground and backfilled with Engineered Fill.

The upper soils, during wet winter months, become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils, which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service as acceptance of earthwork construction is dependent upon compaction of the material and the stability of the material. The Soils Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section and the Engineered Fill section.

Engineered Fill

The organic-free, on-site, upper native soils are predominately silty sand, sandy silt, silty sand/sandy silt, and sand. These soils are intermixed with occasional trace amounts of gravel and clay. These soils will be suitable for reuse as Engineered Fill provided they are cleansed of excessive organics, debris, and fragments greater than 4 inches in maximum size.

The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since he has complete control of the project site at that time.

Imported Fill material should be predominately non-expansive granular material with a plasticity index less than 10 and a UBC Expansion Index less than 15. Imported Fill should be free from rocks and lumps greater than 4 inches in diameter. All Imported Fill material should be submitted for approval to the Soils Engineer at least 48 hours prior to delivery to the site.

Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned to a minimum of 2 percent above optimum moisture-content, and compacted to achieve at least 90 percent of maximum density based on ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required density or if soil conditions are not stable.

Drainage and Landscaping

The ground surface should slope away from building pad and pavement areas toward appropriate drop inlets or other surface drainage devices. It is recommended that adjacent exterior grades be sloped a minimum of 2 percent for a minimum distance of 5 feet away from structures. Subgrade soils in pavement areas should be sloped a minimum of 1 percent and drainage gradients maintained to carry all surface water to collection facilities and off-site. These grades should be maintained for the life of the project.

Utility Trench Backfill

Utility trenches should be excavated according to accepted engineering practices following OSHA (Occupational Safety and Health Administration) standards by a Contractor experienced in such work. The responsibility for the safety of open trenches should be borne by the Contractor. Traffic and vibration adjacent to trench walls should be minimized; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced, especially during or shortly following periods of precipitation.

Sandy and gravelly soil conditions were encountered at the site. These cohesionless soils have a tendency to cave in trench wall excavations. Shoring or sloping back trench sidewalls may be required within these sandy and gravelly soils.

Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 90 percent of maximum density based on ASTM Test Method D1557. The utility trench backfill placed in pavement areas should be compacted to at least 90 percent of maximum density based on ASTM Test Method D1557. Pipe bedding should be in accordance with pipe manufacturer's recommendations.

The Contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The Contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

Foundations

After completion of the recommended site preparation, the site should be suitable for shallow footing support. The proposed structures may be supported on a shallow foundation system bearing on a minimum of 2 feet of Engineered Fill. Spread and continuous footings can be designed for the following maximum allowable soil bearing pressures:

Load	Allowable Loading
Dead Load Only	1,500 psf
Dead-Plus-Live Load	2,000 psf
Total Load, including wind or seismic loads	2,650 psf

The footings should have a minimum embedment depth of 12 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower. Footings should have a minimum width of 12 inches, regardless of load.

The total settlement is not expected to exceed 1 inch. Differential settlement should be less than ½ inch. Most of the settlement is expected to occur during construction as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated.

Resistance to lateral footing displacement can be computed using an allowable friction factor of 0.40 acting between the base of foundations and the supporting subgrade. Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 350 pounds per cubic foot acting against the appropriate vertical footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. A ⅓ increase in the above value may be used for short duration, wind, or seismic loads. All of the above earth pressures are unfactored and are, therefore, not inclusive of factors of safety.

Floor Slabs and Exterior Flatwork

Concrete slab-on-grade floor should be underlain by a water vapor retarder. The water vapor retarder should be installed in accordance with ASTM Specification E 1643-98. According to ASTM Guidelines, the water vapor retarder should consist of a vapor retarder sheeting underlain by a minimum of 3 inches of compacted, clean, gravel of ¾-inch maximum size. To aid in concrete curing an optional 2 to 4 inches of granular fill may be placed on top of the vapor retarder. The granular fill should consist of damp clean sand with at least 10 to 30 percent of the sand passing the 100 sieve. The sand should be free of clay, silt, or organic material. Rock dust which is manufactured sand from rock crushing operations is typically suitable for the granular fill. This granular fill material should be compacted.

The exterior floors should be poured separately in order to act independently of the walls and foundation system. All fills required to bring the building pads to grade should be Engineered Fills.

Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor can travel through the vapor membrane and penetrate the slab-on-grade. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To minimize moisture vapor intrusion, it is recommended that a vapor retarder be installed in accordance with ASTM guidelines. It is recommended that the utility trenches within the structure be compacted, as specified in our report, to minimize the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the building is recommended. Positive drainage should be established away from the structure and should be maintained throughout the life of the structure. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed. In addition, ventilation of the structure (i.e. ventilation fans) is recommended to reduce the accumulation of interior moisture.

Lateral Earth Pressures and Retaining Walls

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of its height at the top may be designed using an equivalent fluid active pressure of 35 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 55 pounds per square foot per foot per depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The stated lateral earth pressures do not include the effects of hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the retaining walls; or loads imposed by construction equipment, foundations, or roadways. All of the above earth pressures are unfactored and are, therefore, not inclusive of factors of safety.

Retaining and/or below grade walls should be drained with either perforated pipe encased in free-draining gravel or a prefabricated drainage system. The gravel zone should have minimum width of 12 inches and should extend upward to within 12 inches of the top of the wall. The upper 12 inches of backfill should consist of native soils, concrete, asphaltic concrete, or other suitable backfill material to minimize surface drainage into the wall drain system. The aggregate should conform to Class II permeable materials graded in accordance with Section 16-1.025 of the CalTrans Standard Specifications (January 1988). Prefabricated drainage systems, such as Miradrain®, Enkadrain®, or equivalent substitute, are acceptable alternatives in lieu of gravel provided that they are installed in accordance with the manufacturer's recommendations. If a prefabricated drainage system is proposed, our firm should review the system for final acceptance prior to installation.

Drainage pipes should be placed with the perforations down and should discharge in a non-erosive manner away from foundations and other improvements. The pipes should be placed no higher than 6 inches above the heel of the wall in the center of the drainage blanket and should have a minimum diameter of 4 inches. Collector pipes may be either slotted of perforated. Slots should be no wider than 1/8-inch in width, while perforations should be no more than ¼-inch in diameter. If retaining walls are less than 6 feet high, the perforated pipe may be omitted in lieu of weep holes on 4 feet maximum spacing. The weep holes should consist of 4-inch diameter holes (concrete wall) or unmortared head joints (masonry walls) and not be higher than 18 inches above the lowest adjacent grade. Two 8-inch square overlapping patches of geotextile fabric (conforming to Section 88-1.03 of the CalTrans Standard Specifications for "edge drains") should be affixed to the rear wall opening of each weep-hole to retard soil piping.

During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall, or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand-operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

R-Value Test Results and Pavement Design

Four subgrade soil samples were obtained from the project site for R-Value testing at the locations shown on the attached site plan. The samples were tested in accordance with the State of California Materials Manual Test Designation 301. Results of the tests are as follows:

Sample	Depth	Description	R-Value at Equilibrium
1	12-24"	Silty Sand (SM)	59
5	12-24"	Silty Sand (SM)	56
6	12-24"	Silty Sand/Sandy Silt (SM-ML)	44
7	12-24"	Silty Sand /Sandy Silt (SM-ML)	46

These test results are moderate and indicate fair to good subgrade support characteristics under dynamic traffic loads. The following table shows the recommended pavement sections for various traffic indices based on an R-value of 44.

Traffic Index	Asphaltic Concrete	Class II Aggregate Base*	Compacted Subgrade**
4.0	2.0"	4.0"	24.0"
4.5	2.5"	4.0"	24.0"
5.0	2.5"	4.0"	24.0"
5.5	3.0"	4.0"	24.0"
6.0	3.0"	5.5"	24.0"
6.5	3.5"	5.5"	24.0"
7.0	4.0"	6.0"	24.0"
7.5	4.0"	7.0"	24.0"

** 95% compaction based on ASTM Test Method D1557 or CAL 216*
*** 90% compaction based on ASTM Test Method D1557 or CAL 216*

If traffic indices are not available, an estimated (typical value) index of 4.5 may be used for light automobile traffic and an index of 7.0 may be used for light truck traffic.

The following recommendations are for light-duty and heavy-duty Portland Cement Concrete pavement sections.

PORTLAND CEMENT PAVEMENT
LIGHT DUTY

Traffic Index	Portland Cement Concrete***	Class II Aggregate Base*	Compacted Subgrade**
4.5	5.0"	--	24.0"

HEAVY DUTY

Traffic Index	Portland Cement Concrete***	Class II Aggregate Base*	Compacted Subgrade**
7.0	6.5"	--	24.0"

** 95% compaction based on ASTM Test Method D1557 or CAL 216*
*** 90% compaction based on ASTM Test Method D1557 or CAL 216*
****Minimum compressive strength of 3000 psi*

Site Coefficient

The site coefficient, per Table 16-J, Uniform Building Code, is based upon the site soil conditions. It is our opinion that a site coefficient of soil type S_D (1997 UBC) is appropriate for building design at this site.

For seismic design of the structures, in accordance with the seismic provisions of the California Building Code (2001 CBC), we recommend the following parameters:

Seismic Item	Value	UBC Reference
Zone Factor	0.4	Table 16I
Source Type	B	Table 16U
Coefficient N_a	1.30	Table 16S
Coefficient N_v	1.60	Table 16T
Coefficient C_a	0.572	Table16Q
Coefficient C_v	1.024	Table 16R

Compacted Material Acceptance

Compaction specifications are not the only criteria for acceptance of the site grading or other such activities. However, the compaction test is the most universally recognized test method for assessing the performance of the Grading Contractor. The numerical test results from the compaction test cannot be used to predict the engineering performance of the compacted material. Therefore, the acceptance of compacted materials will also be dependent on the stability of that material. The Soils Engineer has the option of rejecting any compacted material regardless of the degree of compaction if that material is considered to be unstable or if future instability is suspected. A specific example of rejection of fill material passing the required percent compaction is a fill which has been compacted with an in situ moisture content significantly less than optimum moisture. This type of dry fill (brittle fill) is susceptible to future settlement if it becomes saturated or flooded.

Testing and Inspection

A representative of Krazan & Associates, Inc. should be present at the site during the earthwork activities to confirm that actual subsurface conditions are consistent with the exploratory fieldwork. This activity is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction testing and stability of the material. This representative can also verify that the intent of these recommendations is incorporated into the project design and construction. Krazan & Associates, Inc. will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

LIMITATIONS

Soils Engineering is one of the newest divisions of Civil Engineering. This branch of Civil Engineering is constantly improving as new technologies and understanding of earth sciences advance. Although your site was analyzed using the most appropriate and most current techniques and methods, undoubtedly there will be substantial future improvements in this branch of engineering. In addition to advancements in the field of Soils Engineering, physical changes in the site, either due to excavation or fill placement, new agency regulations, or possible changes in the proposed structure after the soils report is completed may require the soils report to be professionally reviewed. In light of this, the

Owner should be aware that there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that 2 years be considered a reasonable time for the usefulness of this report.

Foundation and earthwork construction is characterized by the presence of a calculated risk that soil and groundwater conditions have been fully revealed by the original foundation investigation. This risk is derived from the practical necessity of basing interpretations and design conclusions on limited sampling of the earth. The recommendations made in this report are based on the assumption that soil conditions do not vary significantly from those disclosed during our field investigation. If any variations or undesirable conditions are encountered during construction, the Soils Engineer should be notified so that supplemental recommendations may be made.

The conclusions of this report are based on the information provided regarding the proposed construction. If the proposed construction is relocated or redesigned, the conclusions in this report may not be valid. The Soils Engineer should be notified of any changes so the recommendations may be reviewed and re-evaluated.

This report is a Preliminary Geotechnical Engineering Investigation with the purpose of evaluating the soil conditions in terms of foundation design. The scope of our services did not include any Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands. Any statements, or absence of statements, in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potential hazardous and/or toxic assessment.

The Geotechnical Engineering information presented herein is based upon professional interpretation utilizing standard engineering practices and a degree of conservatism deemed proper for this project. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (661) 837-9200.

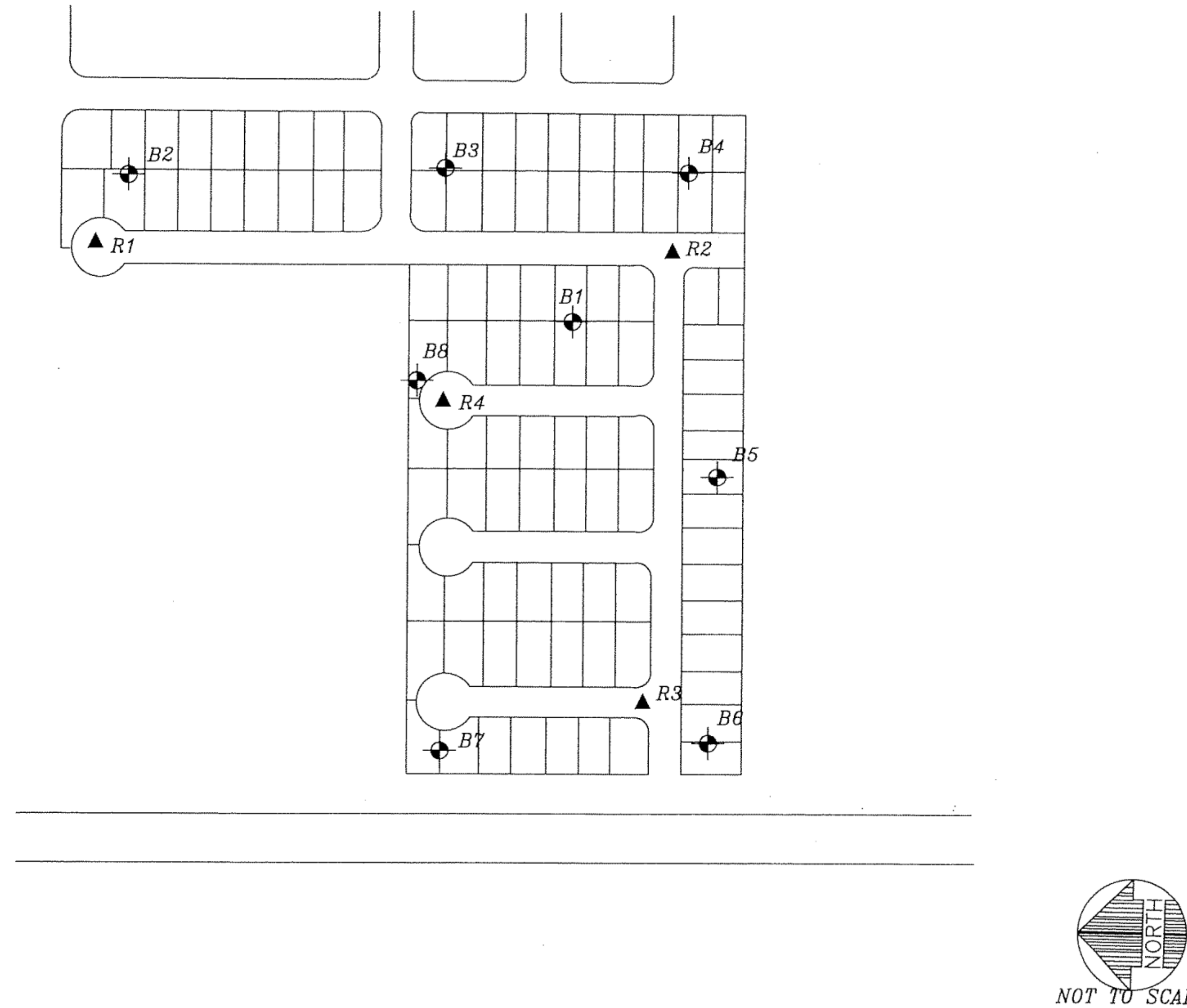
Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

REGISTERED PROFESSIONAL ENGINEER
DAVID R. JAROSZ II
No. 2698
Expires June 30, 2008
GEOTECHNICAL
STATE OF CALIFORNIA

Leopoldo Fabian
Project Engineer

David R. Jarosz, II
Managing Engineer
RCE No. 60185/RGE No. 2698

LF/DRJ:ch



APPROXIMATE BORING LOCATION

▲ APPROXIMATE R-VALUE LOCATION

RESIDENTIAL DEVELOPMENT RADER AVENUE AND DOWNS STREET REDGECREST, CA	Scale: AS SHOWN Drawn by: MN Project No. 02207127	Date: 8/07 Approved by: DJ Figure No.	Krazan SITE DEVELOPMENT ENGINEERS Offices Serving the Western United States

Appendix A

Log of Borings
&
Laboratory Testing

APPENDIX A

FIELD AND LABORATORY INVESTIGATIONS

Field Investigation

The field investigation consisted of a surface reconnaissance and a subsurface exploratory program. Eight 4½-inch exploratory borings were advanced. The boring locations are shown on the site plan.

The soils encountered were logged in the field during the exploration and, with supplementary laboratory test data, are described in accordance with the Unified Soil Classification System.

Modified standard penetration tests and standard penetration tests were performed at selected depths. This test represents the resistance to driving a 2½-inch and 1½-inch diameter core barrel, respectively. The driving energy was provided by a hammer weighing 140 pounds falling 30 inches. Relatively undisturbed soil samples were obtained while performing this test. Bag samples of the disturbed soil were obtained from the auger cuttings. The modified standard penetration tests are identified in the sample type on the boring logs with a full shaded in block. The standard penetration tests are identified in the sample type on the boring logs with the central portion of the block shaded. All samples were returned to our Clovis laboratory for evaluation.

Laboratory Investigation

The laboratory investigation was programmed to determine the physical and mechanical properties of the foundation soil underlying the site. Test results were used as criteria for determining the engineering suitability of the surface and subsurface materials encountered.

In situ moisture content, dry density, consolidation, direct shear, and sieve analysis tests were determined for the undisturbed samples representative of the subsurface material. These tests, supplemented by visual observation, comprised the basis for our evaluation of the site material.

The logs of the exploratory borings and laboratory determinations are presented in this Appendix.

UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)		
	Clean Gravels (Less than 5% fines)	
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	
	GM	Silty gravels, gravel-sand-silt mixtures
	GC	Clayey gravels, gravel-sand-clay mixtures
	Clean Sands (Less than 5% fines)	
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	SW	Well-graded sands, gravelly sands, little or no fines
	SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	
	SM	Silty sands, sand-silt mixtures
	SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve siza.)		
SILTS AND CLAYS Liquid limit less than 50%	ML	Inorganic silts and very fine sands, rock flour, silty of 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 AND CLAYS Liquid limit 50% or greater	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 silts
HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils

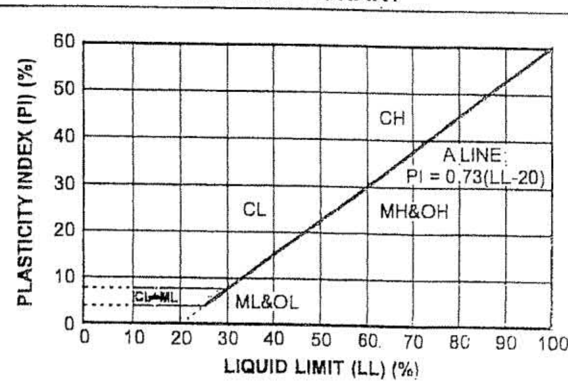
CONSISTENCY CLASSIFICATION

Description	Blows per Foot
Granular Soils	
Very Loose	< 5
Loose	5 – 15
Medium Dense	16 – 40
Dense	41 – 65
Very Dense	> 65
Cohesive Soils	
Very Soft	< 3
Soft	3 – 5
Firm	6 – 10
Stiff	11 – 20
Very Stiff	21 – 40
Hard	> 40

GRAIN SIZE CLASSIFICATION

Grain Type	*Standard Sieve Size*	*Grain Size in Millimeters*
Boulders	Above 12 inches	Above 305
Cobbles	3 to 12 inches	305 to 76.2
Gravel	3 inches to No. 4	76.2 to 4.76
Coarse-grained	3 to ¾ inches	76.2 to 19.1
Fine-grained	¾ inches to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
Coarse-grained	No. 4 to No. 10	4.76 to 2.00
Medium-grained	No. 10 to No. 40	2.00 to 0.042
Fine-grained	No. 40 to No. 200	0.042 to 0.074
Silt and Clay	Below No. 200	Below 0.074

PLASTICITY CHART



Log of Drill Hole B1

Project: Residential Development

Project No: 022-07127

Client: Northern California Universal Enterprises

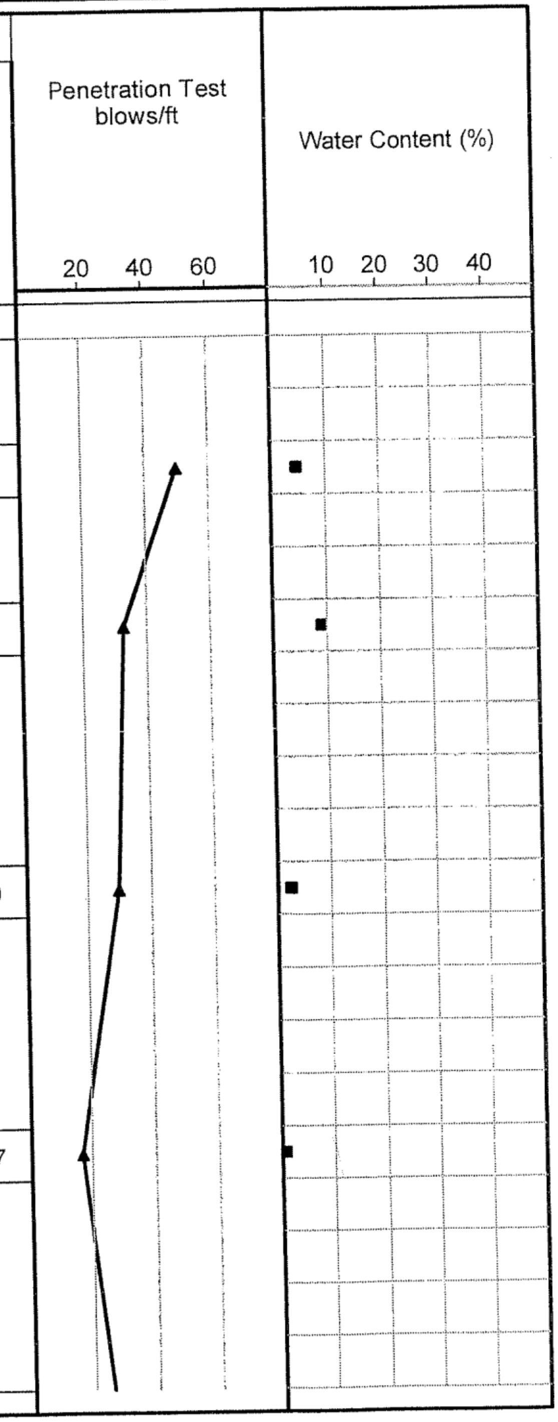
Figure No.: A-1

Location: Rader Avenue and Downs Street, Ridgecrest, California

Logged By: David Adams

Depth to Water> **Initial:** None **At Completion:** None

Depth (ft)	SUBSURFACE PROFILE – Description	SAMPLE – Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0	Ground Surface				
0–2	***SILTY GRAVELLY SAND (SM)*** Very loose, fine- to coarse-grained with trace CLAY; brown, damp, drills easily Loose below 12 inches				
2–4	***SILTY SAND (SM)*** Very dense, fine- to coarse-grained; reddish-brown, damp, drills easily	102.7	4.7		50+
4–9.5	***SANDY SILT (ML)*** Medium dense, fine- to medium-grained with trace CLAY; light brown, damp, drills easily	102.1	9.0		33
9.5–20	***SAND (SP)*** Medium dense, fine- to coarse-grained with trace GRAVEL and CLAY; brown, damp, drills firmly		2.5		30
		110.3	0.8		17



Drill Method: Solid Flight

Drill Rig: CME 55

Driller: Todd Seaman

Krazan and Associates

Drill Date: 8-13-07

Hole Size: 4½ Inches

Elevation: 50 Feet

Log of Drill Hole B1

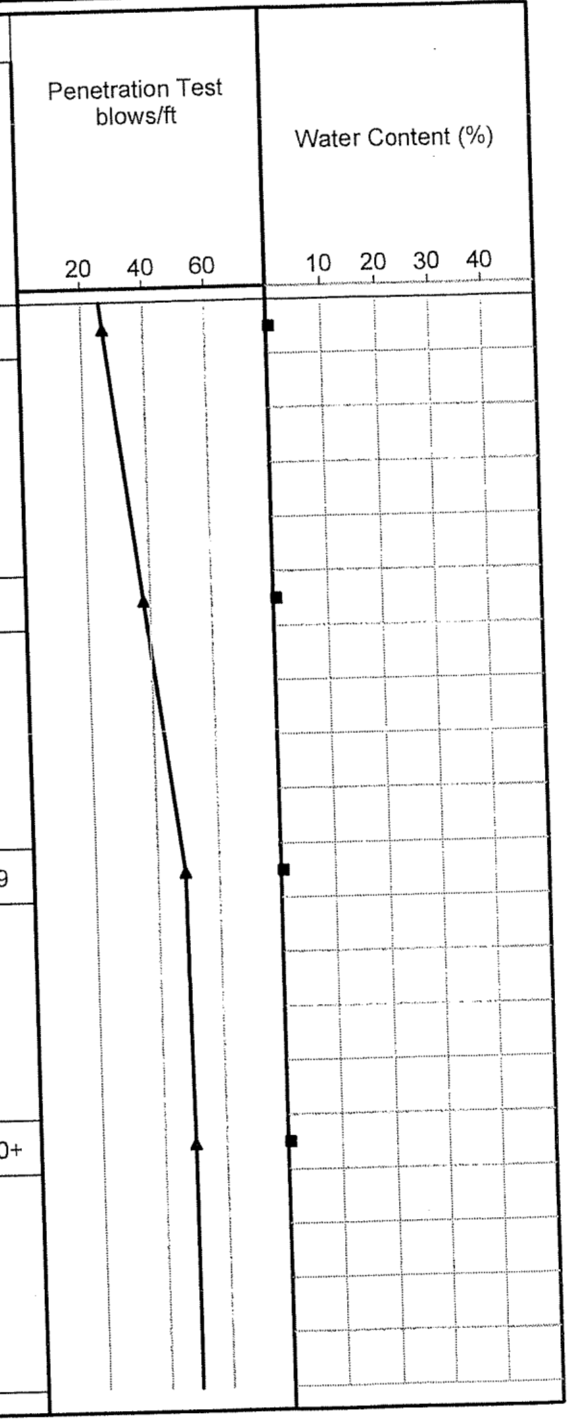
Project: Residential Development
Project No: 022-07127

Client: Northern California Universal Enterprises
Figure No.: A-1

Location: Rader Avenue and Downs Street, Ridgecrest, California
Logged By: David Adams

Depth to Water> **Initial:** None **At Completion:** None

SUBSURFACE PROFILE			SAMPLE			
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
			107.2	0.6		27
22						
24						
		SILTY SAND (SMl) Dense, fine- to coarse-grained; brown, damp, drills easily	106.3	0.7		38
26						
28						
30			98.6	0.5		49
32		***SAND (SP)*** Very dense, fine- to coarse-grained; brown, damp, drills easily				
34						
			104.4	0.5		50+
36						
38						
40						



Drill Method: Solid Flight
Drill Date: 8-13-07

Drill Rig: CME 55
Hole Size: 4½ Inches

Krazan and Associates

Driller: Todd Seaman
Elevation: 50 Feet

Sheet: 2 of 3

Log of Drill Hole B1

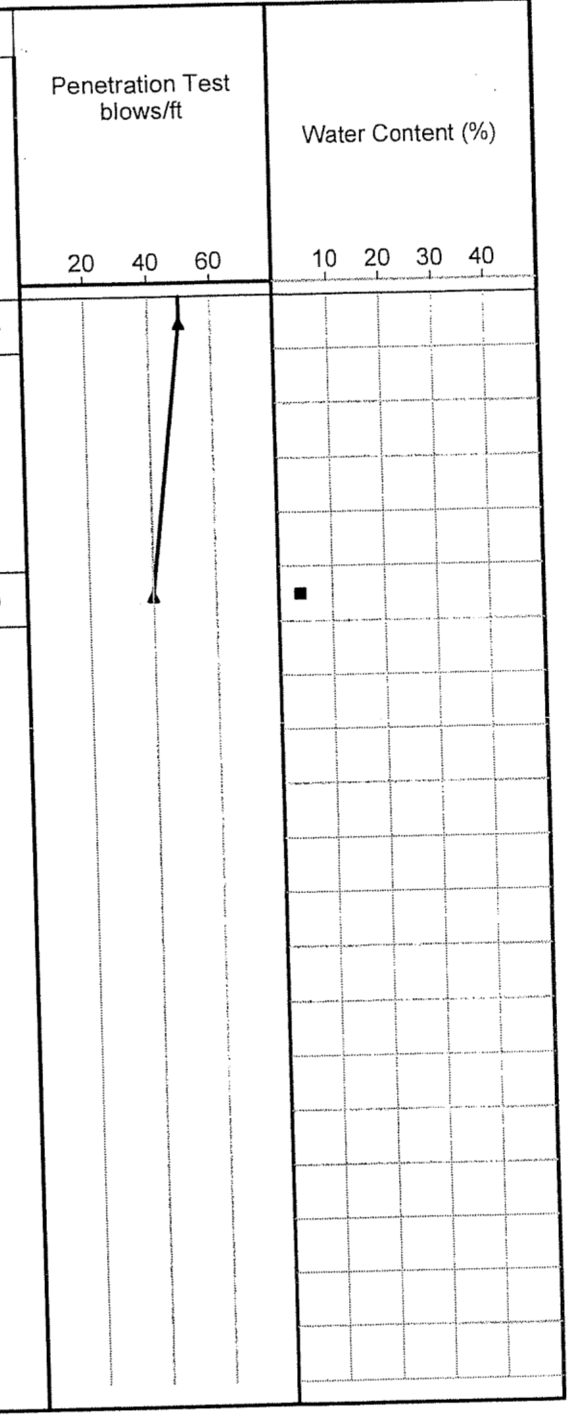
Project: Residential Development
Project No: 022-07127

Client: Northern California Universal Enterprises
Figure No.: A-1

Location: Rader Avenue and Downs Street, Ridgecrest, California
Logged By: David Adams

Depth to Water> **Initial:** None **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
						50+
42						
44		***SILTY SAND (SM)*** Dense, fine-grained; gray, damp, drills easily				
			94.0	4.0		40
46						
48						
50		End of Borehole				
52						
54						
56						
58						
60						



Drill Method: Solid Flight
Drill Date: 8-13-07

Drill Rig: CME 55
Hole Size: 4½ Inches

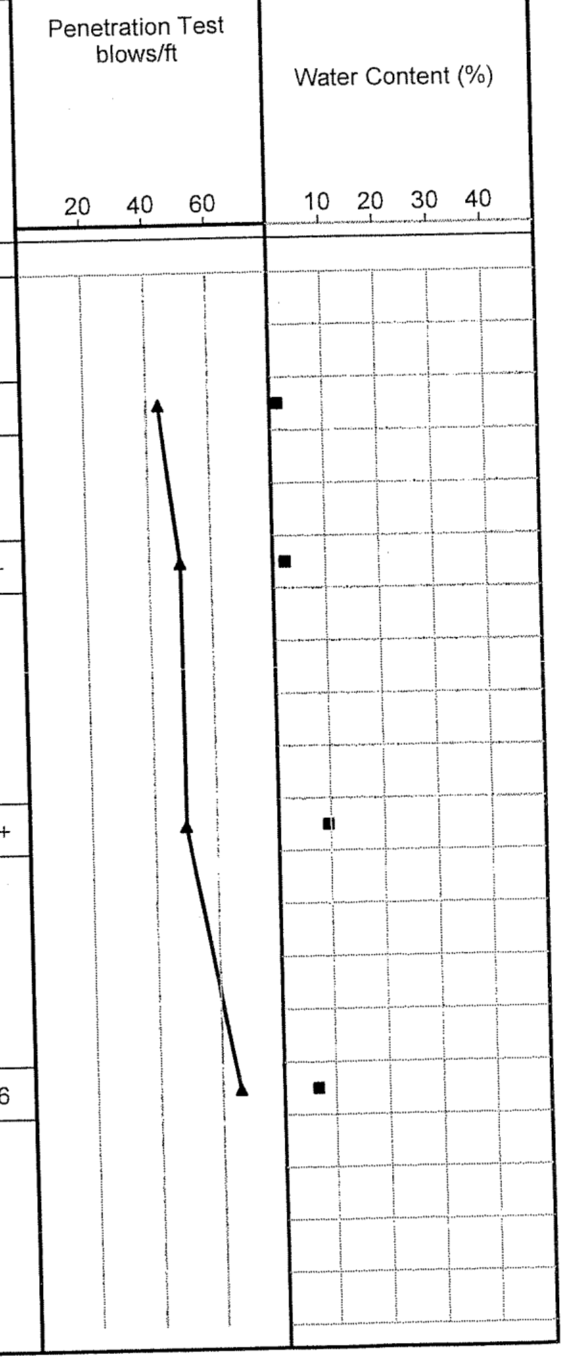
Driller: Todd Seaman
Elevation: 50 Feet

Krazan and Associates

Log of Drill Hole B2

Project: Residential Development
Project No: 022-07127
Client: Northern California Universal Enterprises
Figure No.: A-2
Location: Rader Avenue and Downs Street, Ridgecrest, California
Logged By: David Adams
Depth to Water> **Initial:** None **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0–8.5	SM	***SILTY SAND (SM)*** Very loose, fine- to coarse-grained with trace GRAVEL; brown, damp, drills easily. Loose below 12 inches. Dense below 2 feet				
2			115.5	1.6	■	44
5		Very dense and drills firmly below 5 feet	120.7	2.4	■	50+
8.5–14	ML	***SANDY SILT (ML)*** Very dense, fine- to medium-grained; light brown, damp, drills firmly				
10			88.0	9.6	■	50+
14–20	SP	***SAND (SP)*** Very dense, fine- to coarse-grained; brown, damp, drills firmly				
15			85.6	6.7	■	66
20						



Drill Method: Solid Flight
Drill Rig: CME 55
Driller: Todd Seaman

Krazan and Associates

Drill Date: 8-13-07
Hole Size: 4½ Inches
Elevation: 20 Feet
Sheet: 1 of 1

Log of Drill Hole B3

Project: Residential Development

Project No: 022-07127

Client: Northern California Universal Enterprises

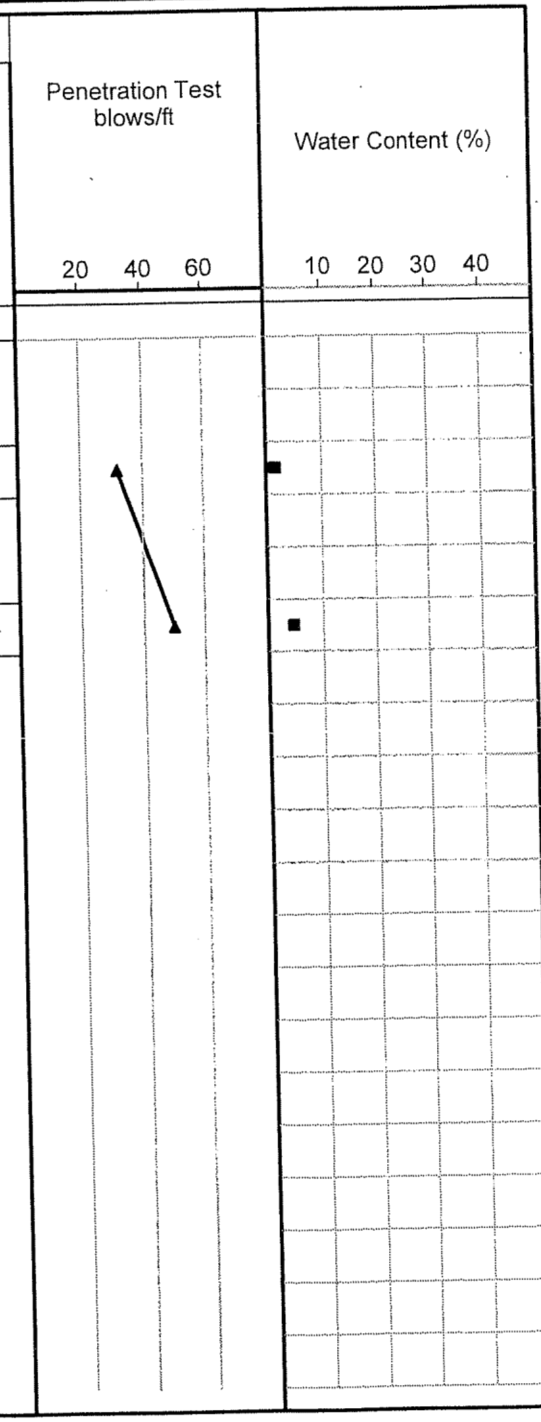
Figure No.: A-3

Location: Rader Avenue and Downs Street, Ridgecrest, California

Logged By: David Adams

Depth to Water> **Initial:** None **At Completion:** None

Depth (ft)	Description (Subsurface Profile)	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
	Ground Surface				
0	***SILTY SAND (SM)*** Very loose, fine- to coarse-grained; brown, damp, drills easily				
	Loose below 12 inches				
2	Medium dense below 2 feet		1.7		32
	With trace COBBLES below 3 feet				
5	Very dense below 5 feet	123.9	4.6		50+
6	***SANDY SILT (ML)*** Very dense, fine- to medium-grained; light brown, damp, drills firmly				
10	End of Borehole				



Drill Method: Solid Flight

Drill Rig: CME 55

Driller: Todd Seaman

Krazan and Associates

Drill Date: 8-13-07

Hole Size: 4½ Inches

Elevation: 10 Feet

Sheet: 1 of 1

Log of Drill Hole B4

Project: Residential Development
Project No: 022-07127

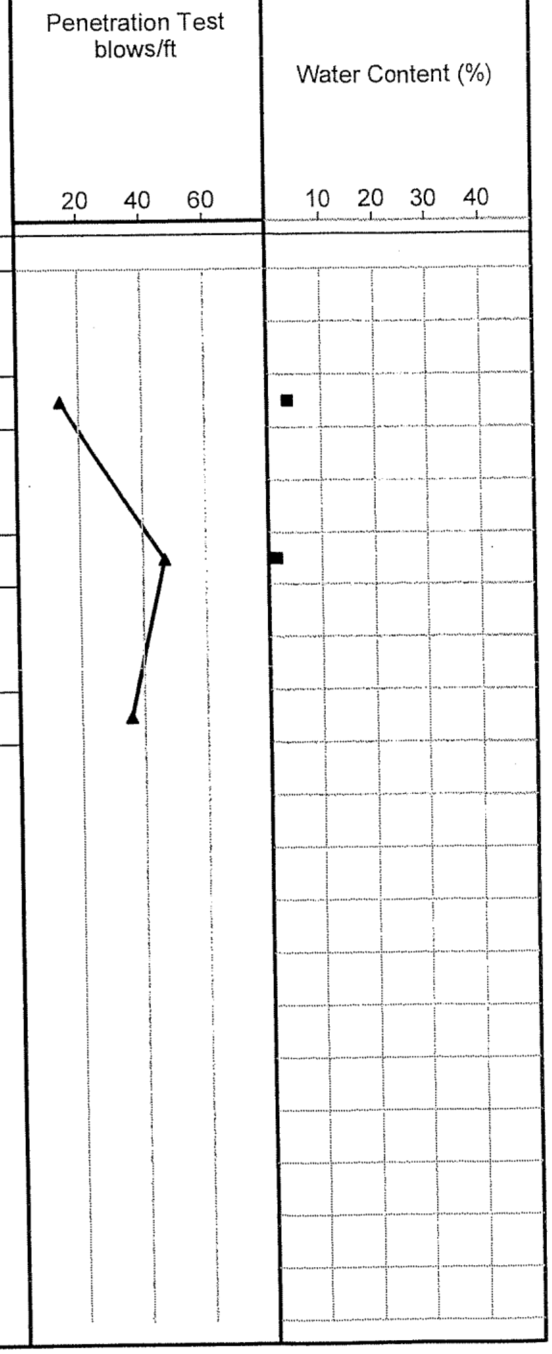
Client: Northern California Universal Enterprises
Figure No.: A-4

Location: Rader Avenue and Downs Street, Ridgecrest, California
Logged By: David Adams

Depth to Water> **Initial:** None **At Completion:** None

SUBSURFACE PROFILE			SAMPLE			
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0–3		***SILTY SAND (SM)*** Very loose, fine- to coarse-grained; brown, damp, drills easily Loose below 12 inches				
2–3				3.7	■	14
3–5.5		***SILTY SAND/SANDY SILT (SM/ML)*** Medium dense, fine- to medium-grained; light brown, damp, drills firmly				
5–6				1.5	■	47
5.5–15		***SILTY SAND (SM)*** Dense, fine- to coarse-grained with trace CLAY; brown, damp, drills firmly Medium dense below 8 feet				
8–9					■	36
15		End of Borehole				

Depth scale (ft): 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20



Drill Method: Solid Flight
Drill Date: 8-13-07

Drill Rig: CME 55
Krazan and Associates
Hole Size: 4½ Inches

Driller: Todd Seaman
Elevation: 15 Feet

Sheet: 1 of 1

Log of Drill Hole B5

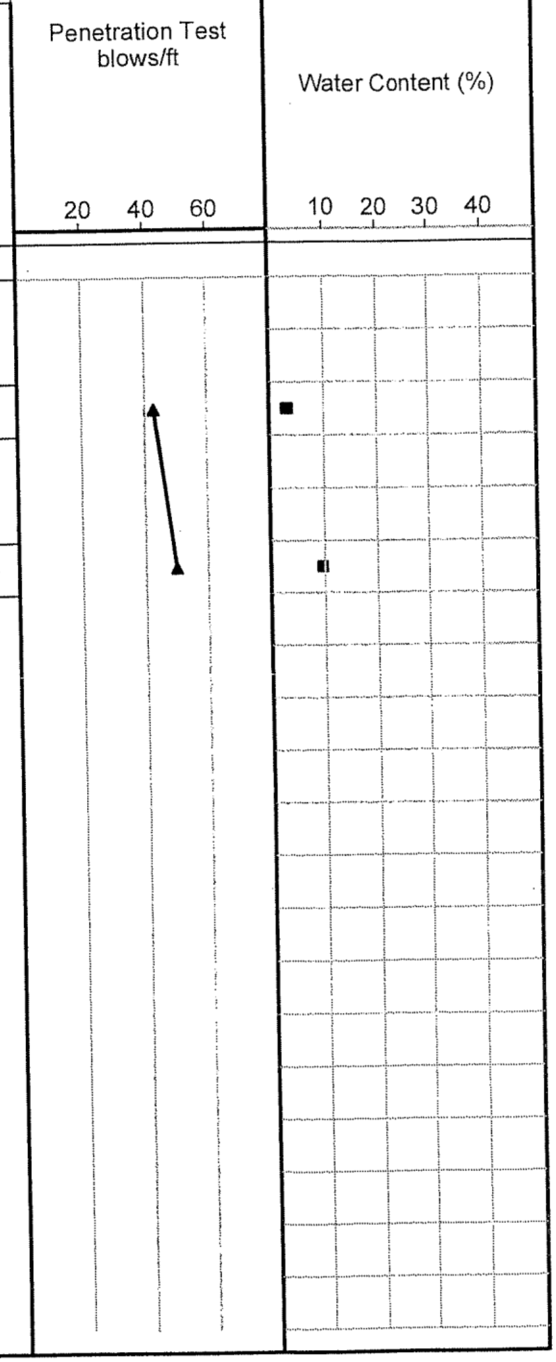
Project: Residential Development
Project No: 022-07127

Client: Northern California Universal Enterprises
Figure No.: A-5

Location: Rader Avenue and Downs Street, Ridgecrest, California
Logged By: David Adams

Depth to Water> **Initial:** None **At Completion:** None

Depth (ft)	Symbol	SUBSURFACE PROFILE – Description	SAMPLE – Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0		***SILTY SAND (SM)*** Very loose, fine- to coarse-grained with trace GRAVEL; brown, damp, drills easily. Loose below 12 inches. Dense and drills firmly below 2 feet				
2				3.3	■	43
5		***SANDY SILT (ML)*** Very dense, fine- to medium-grained; light brown, damp, drills firmly	94.4	9.7	■	50+
10		End of Borehole				



Drill Method: Solid Flight
Drill Date: 8-13-07

Drill Rig: CME 55
Hole Size: 4½ Inches

Driller: Todd Seaman
Elevation: 10 Feet

Krazan and Associates

Sheet: 1 of 1

Log of Drill Hole B6

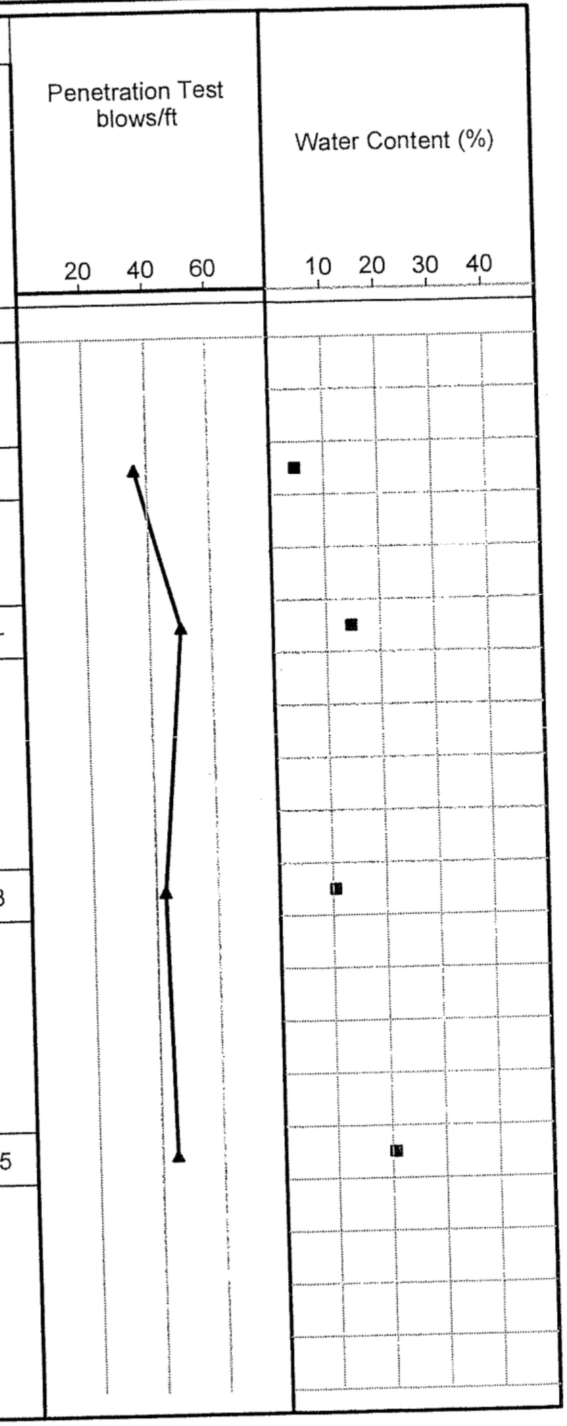
Project: Residential Development
Project No: 022-07127

Client: Northern California Universal Enterprises
Figure No.: A-6

Location: Rader Avenue and Downs Street, Ridgecrest, California
Logged By: David Adams

Depth to Water> **Initial:** None **At Completion:** None

Depth (ft)	Symbol	SUBSURFACE PROFILE: Description	SAMPLE: Dry Density (pcf)	SAMPLE: Moisture (%)	SAMPLE: Type	SAMPLE: Blows/ft.
0		Ground Surface				
0–9		***SILTY SAND (SM)*** Very loose, fine- to coarse-grained; brown, damp, drills easily. Loose below 12 inches. Medium dense below 2 feet				
2.5			104.2	4.8		36
		Very dense and drills firmly below 5 feet	92.5	14.7		50+
9–20		***SANDY SILT (ML)*** Dense, fine- to medium-grained; light brown, damp, drills firmly				
10			83.5	10.6		43
15			82.5	20.7		45
20						



Drill Method: Solid Flight
Drill Date: 8-13-07

Drill Rig: CME 55
Hole Size: 4½ Inches

Driller: Todd Seaman
Elevation: 20 Feet

Krazan and Associates

Sheet: 1 of 1

Log of Drill Hole B7

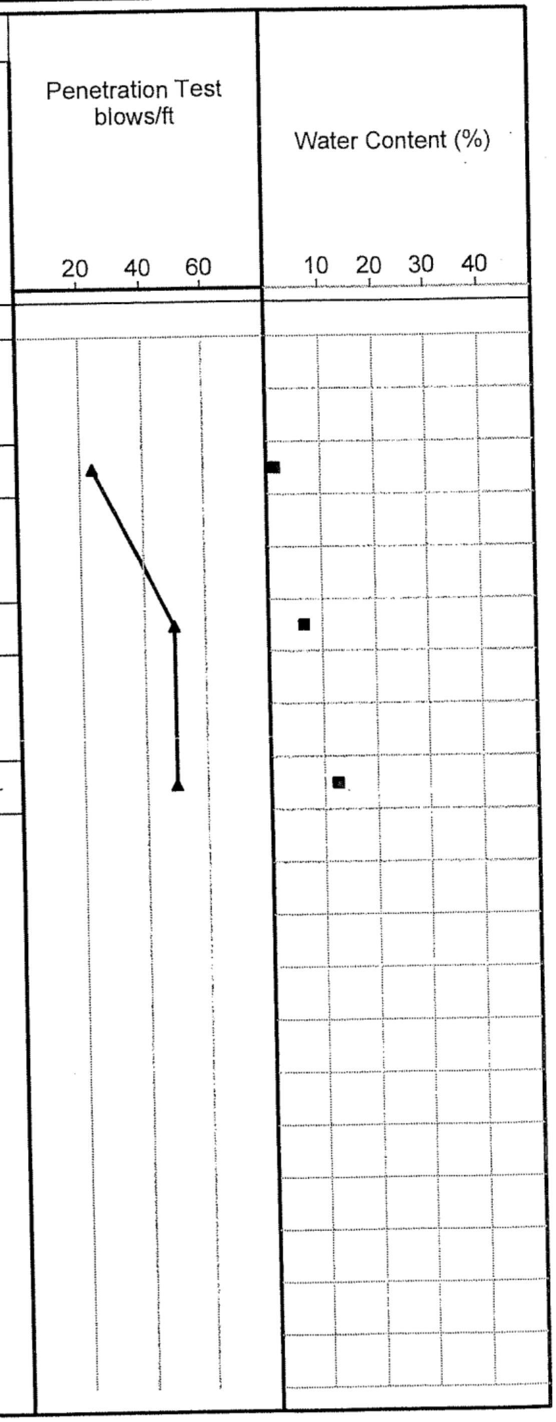
Project: Residential Development
Project No: 022-07127

Client: Northern California Universal Enterprises
Figure No.: A-7

Location: Rader Avenue and Downs Street, Ridgecrest, California
Logged By: David Adams

Depth to Water> **Initial:** None **At Completion:** None

SUBSURFACE PROFILE			SAMPLE			
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0		***SILTY SAND (SM)*** Very loose, fine- to coarse-grained; brown, damp, drills easily. Loose below 12 inches. Medium dense below 2 feet				
2			116.6	1.6	■	24
5		Very dense and drills firmly below 5 feet	102.9	6.6	■	50+
7		***SANDY SILT (ML)*** Very dense, fine- to medium-grained; light brown, damp, drills firmly				
8			91.2	12.6	■	50+
15		End of Borehole				



Drill Method: Solid Flight
Drill Date: 8-13-07

Drill Rig: CME 55
Hole Size: 4½ Inches

Driller: Todd Seaman
Elevation: 15 Feet

Krazan and Associates

Sheet: 1 of 1

Log of Drill Hole B8

Project: Residential Development

Project No: 022-07127

Client: Northern California Universal Enterprises

Figure No.: A-8

Location: Rader Avenue and Downs Street, Ridgecrest, California

Logged By: David Adams

Depth to Water> **Initial:** None **At Completion:** None

SUBSURFACE PROFILE			SAMPLE				Penetration Test blows/ft (20 40 60)	Water Content (%) (10 20 30 40)
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.		
0		Ground Surface						
0–5	SM/ML	***SILTY SAND/SANDY SILT (SM/ML)*** Very loose, fine- to coarse-grained; brown, damp, drills easily Loose below 12 inches Medium dense below 2 feet						
5–10	ML	***SANDY SILT (ML)*** Very dense, fine- to medium-grained; light brown, damp, drills firmly						
10		End of Borehole						

Depth scale: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

Drill Method: Solid Flight

Drill Rig: CME 55

Driller: Todd Seaman

Krazan and Associates

Drill Date: 8-13-07

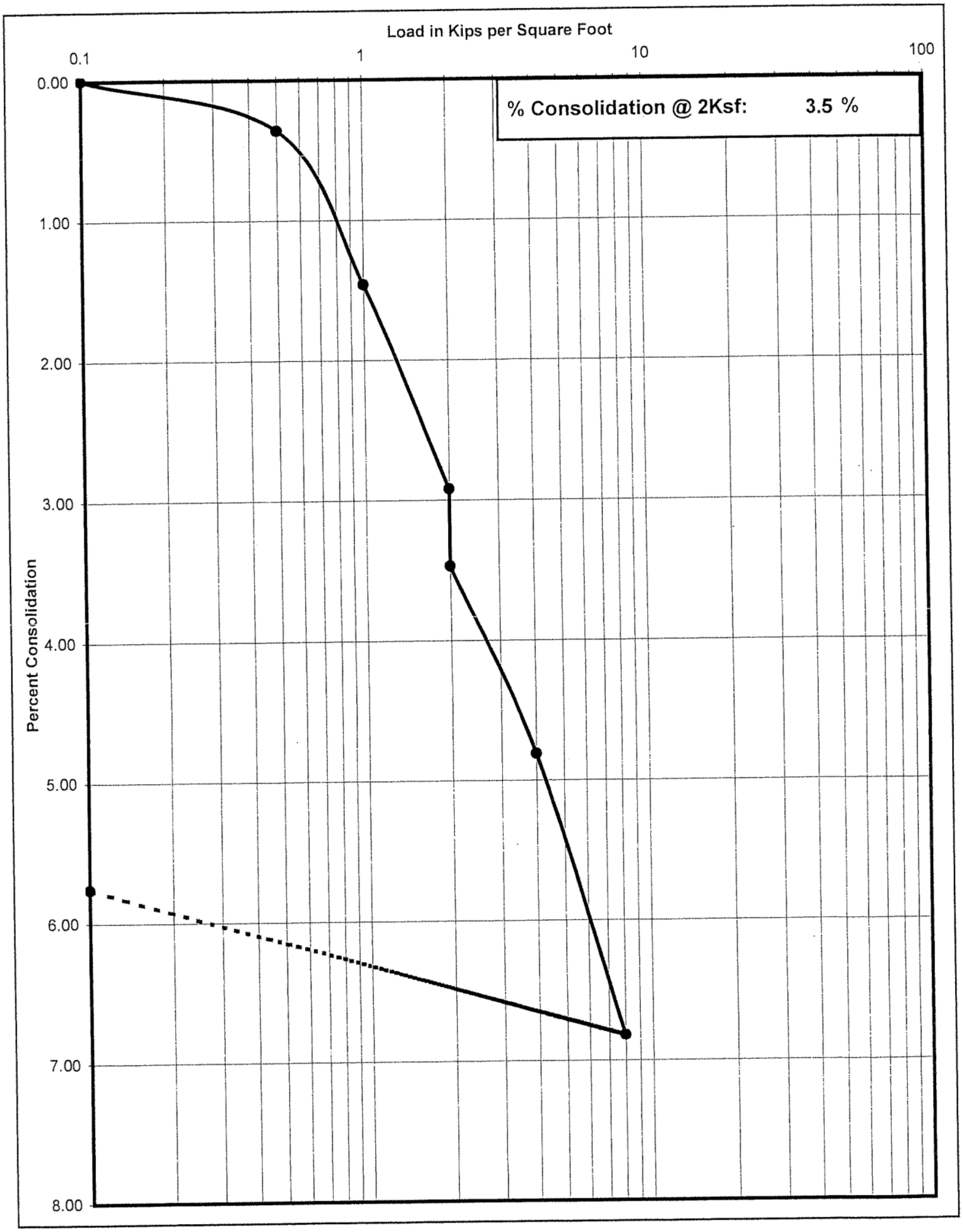
Hole Size: 4½ Inches

Elevation: 10 Feet

Sheet: 1 of 1

Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
2207127	B7 @ 2-3'	8/29/2007	SM



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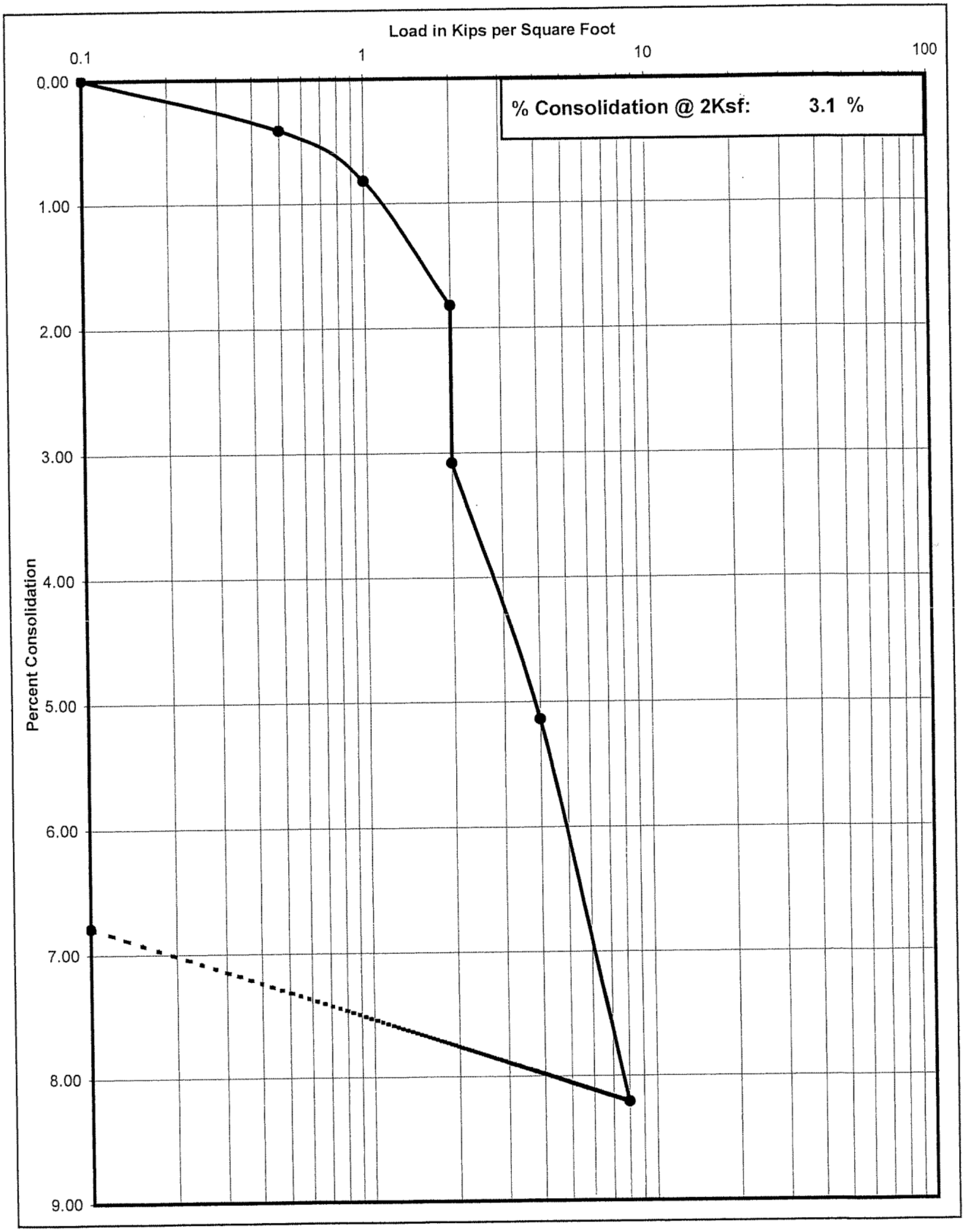
Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
2207127	B6 @ 2-3'	8/29/2007	SM



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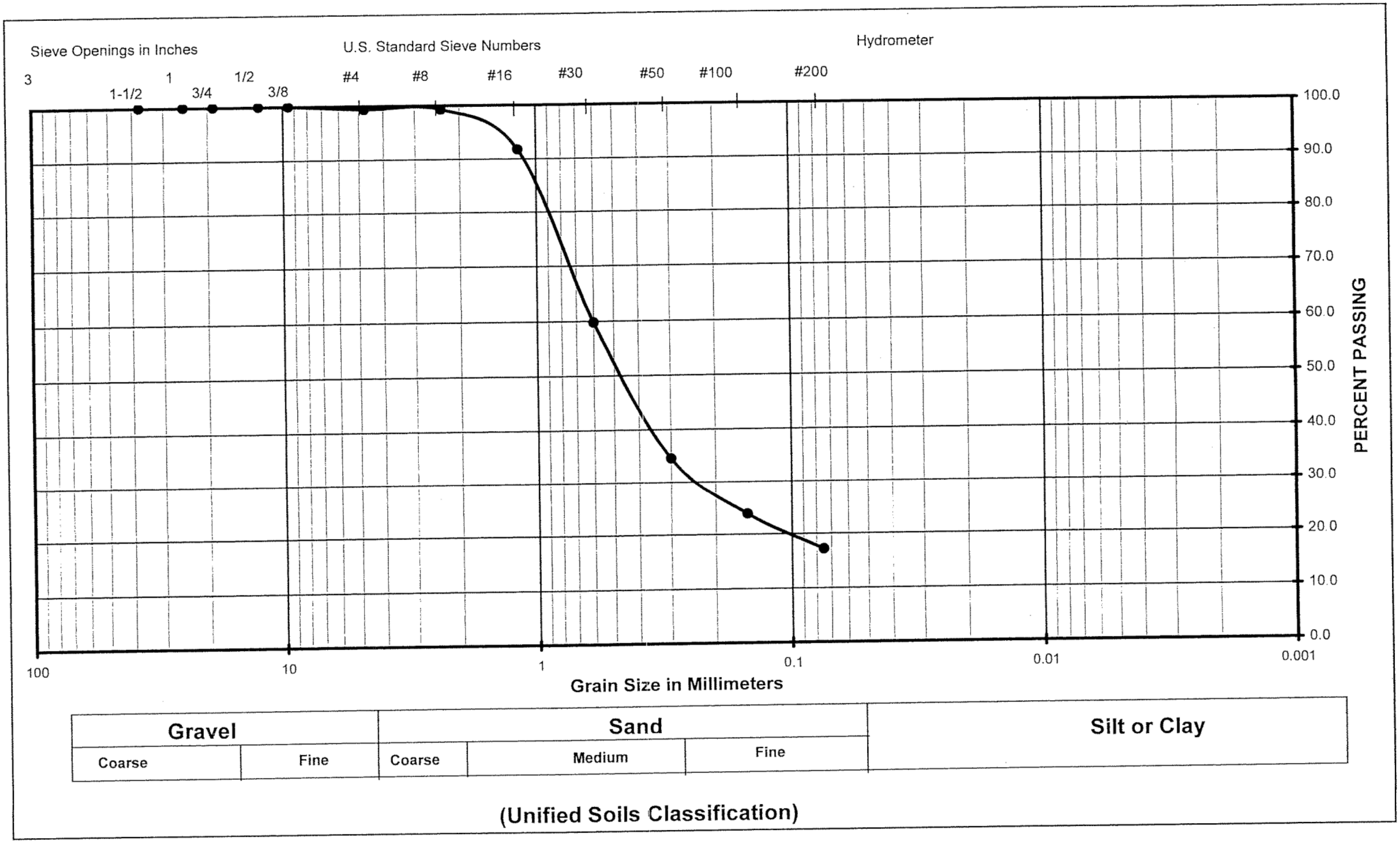
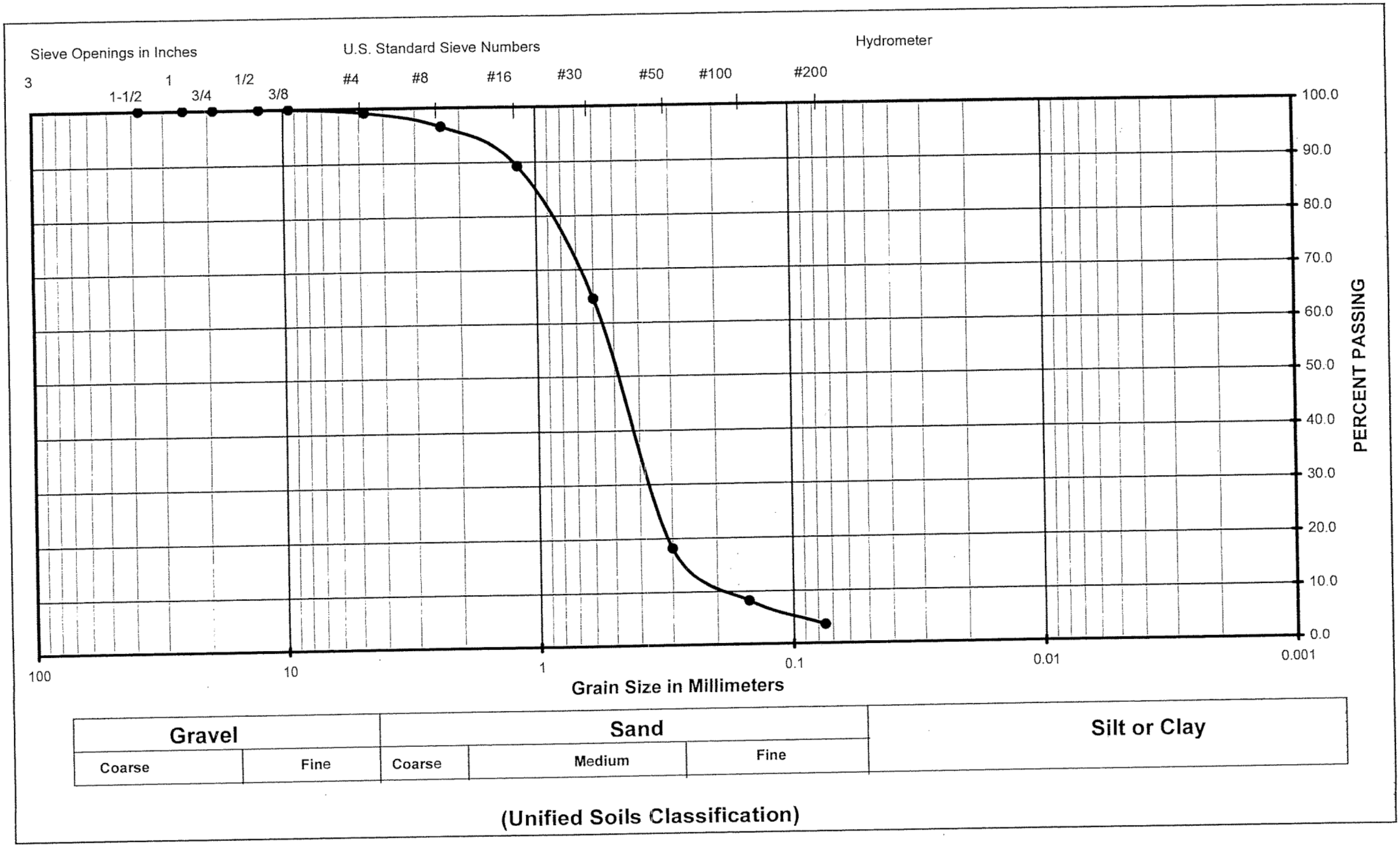
Grain Size Analysis



Project Name	Residential Development
Project Number	2207127
Soil Classification	SM
Sample Number	B1 @ 25-26'

Krazan Testing Laboratory

Grain Size Analysis



Project Name	Residential Development
Project Number	2207127
Soil Classification	SP
Sample Number	B1 @ 35-36'

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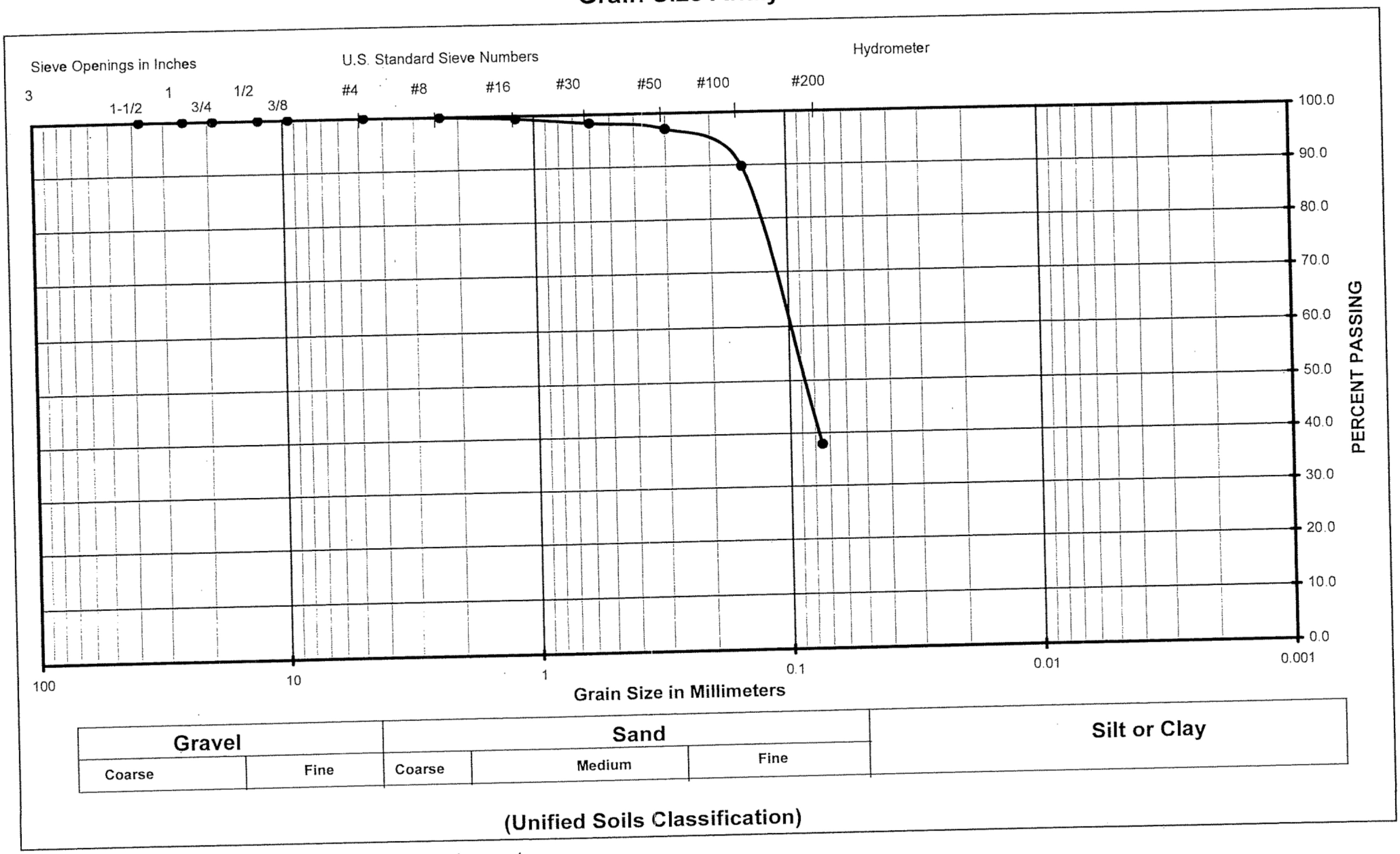
Grain Size Analysis



Project Name	Residential Development
Project Number	2207127
Soil Classification	SM
Sample Number	B1 @ 45-46'

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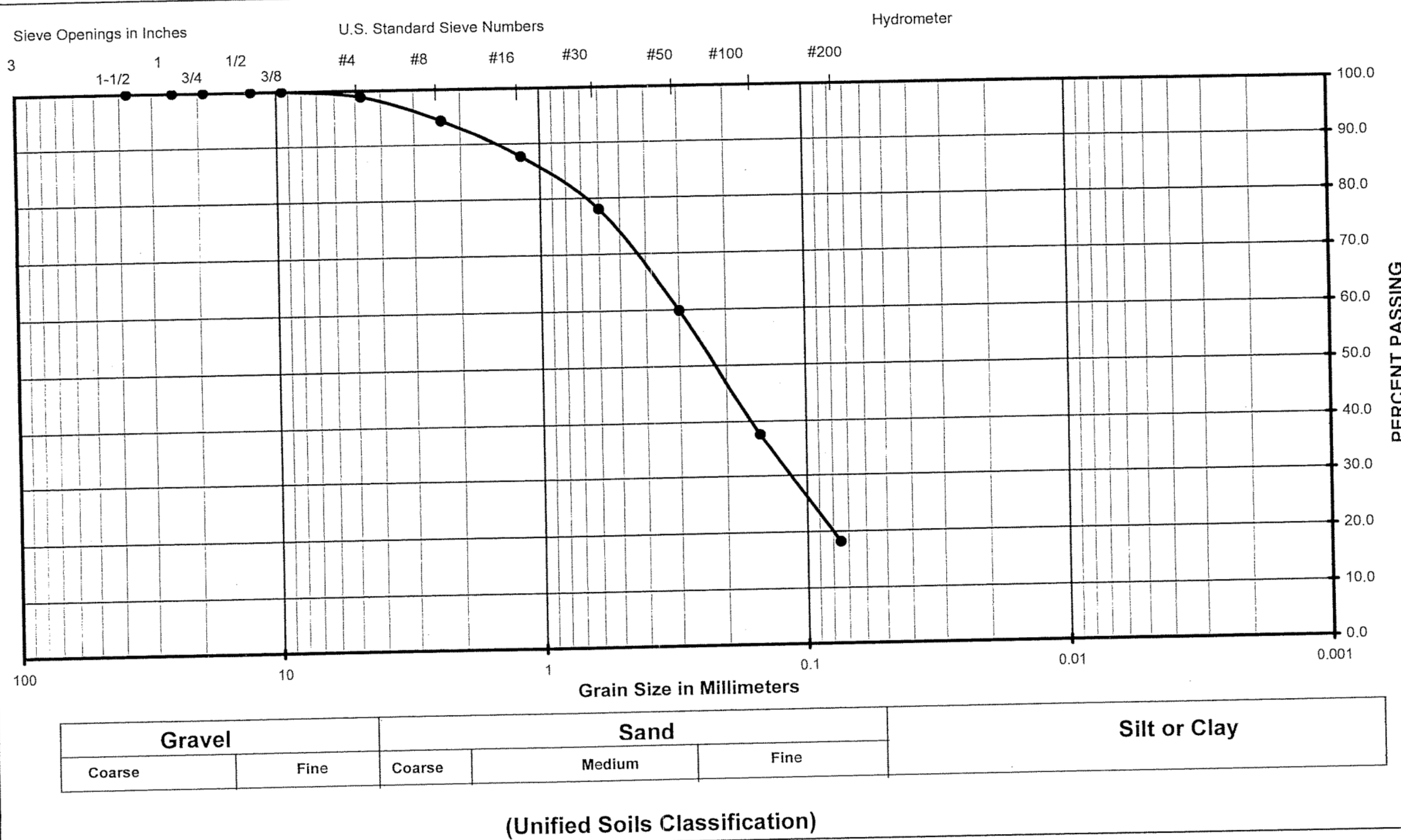
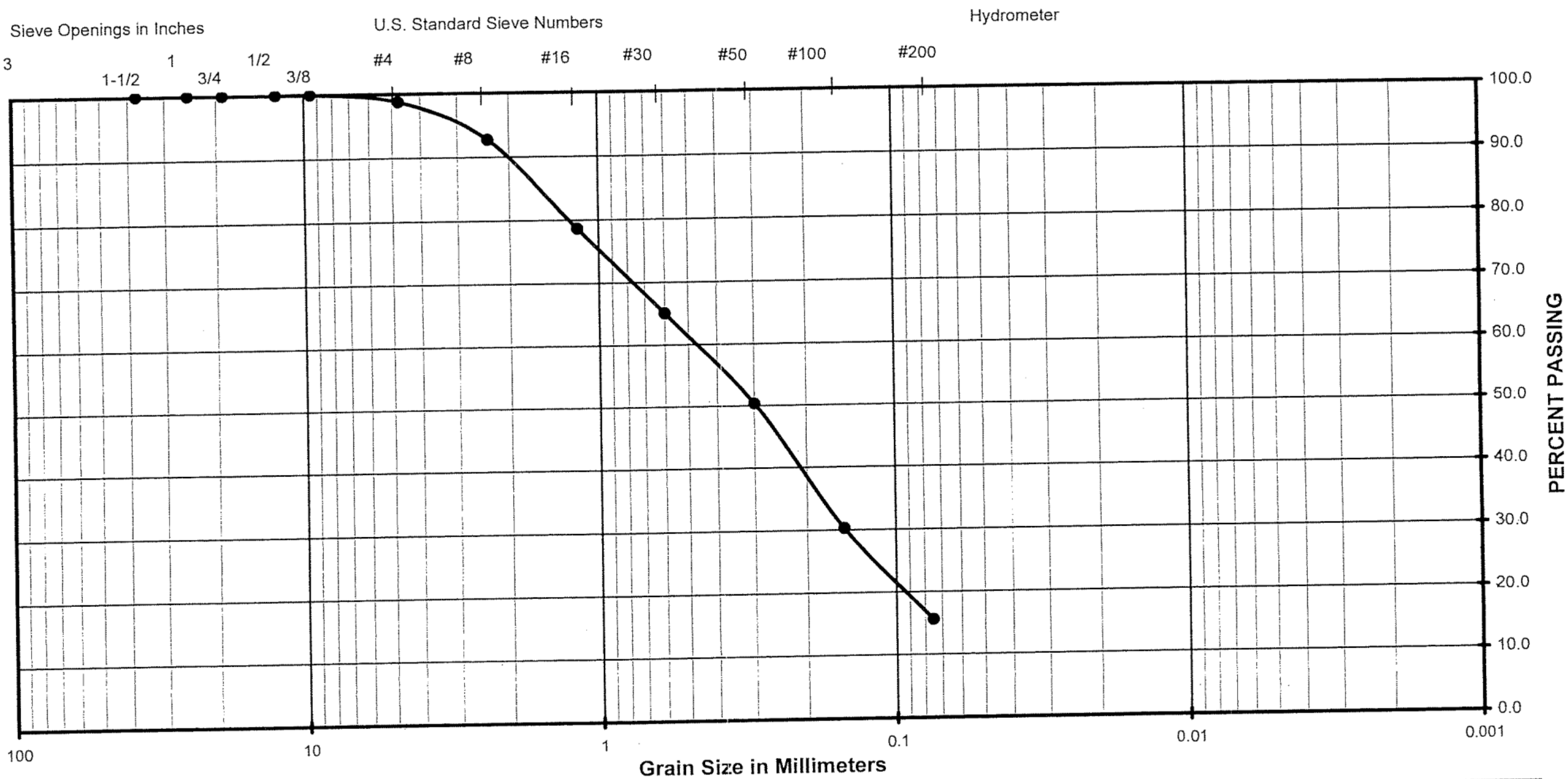
Grain Size Analysis



Project Name	Residential Development
Project Number	2207127
Soil Classification	SM
Sample Number	B6 @ 2-3'

Krazan Testing Laboratory

Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Residential Development
Project Number	2207127
Soil Classification	SM
Sample Number	B7 @ 2-3'

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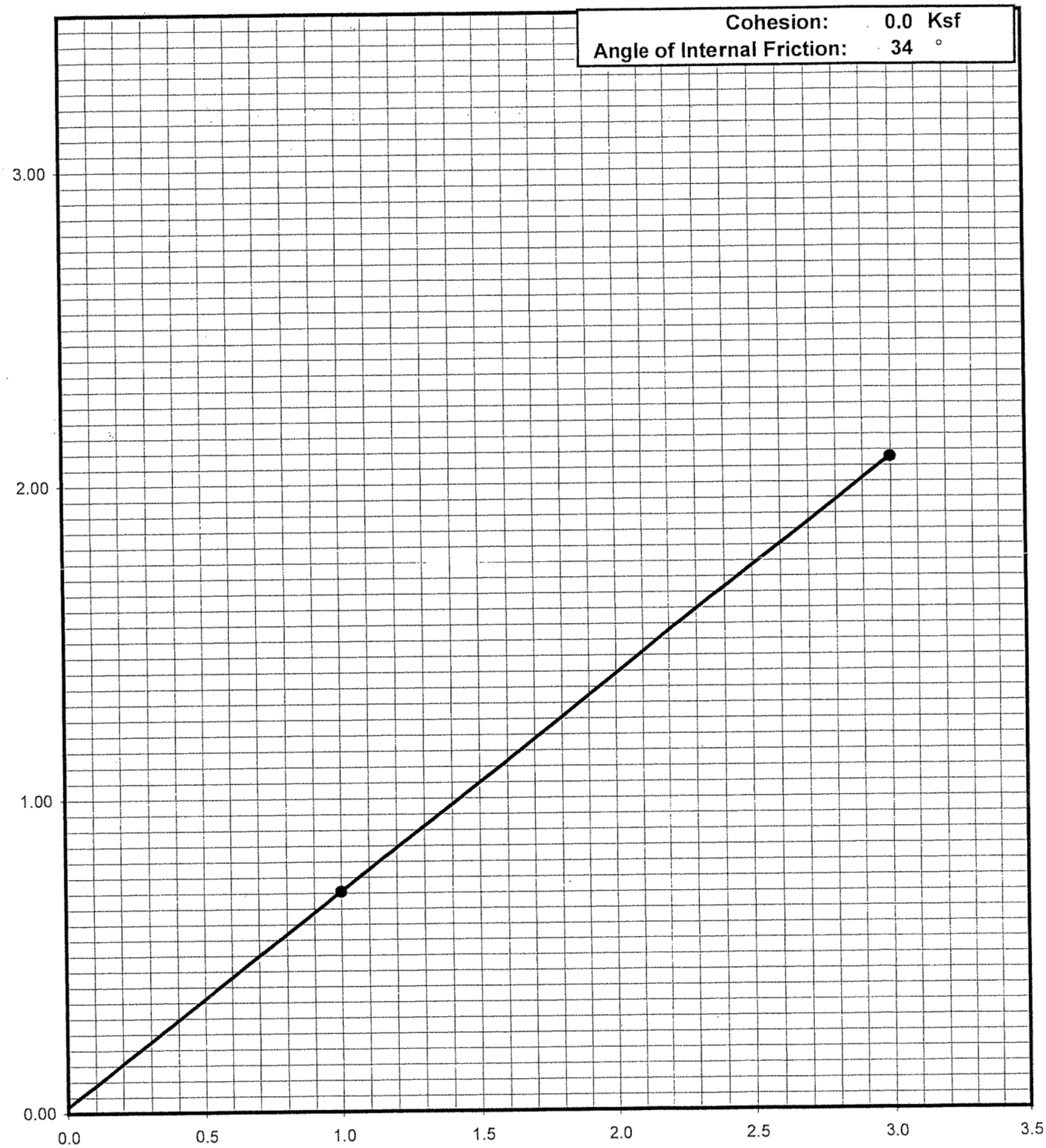
Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

Project Number	Boring No. & Depth	Soil Type	Date
2207127	B6 @ 2-3'	SM	8/29/2007



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Expansion Index Test

ASTM D - 4829/ UBC Std. 18-2

Project Number	: 2207127
Project Name	: Residential Development
Date	: 8/29/2007
Sample location/ Depth	: B1 @ 6-7'
Sample Number	: X1
Soil Classification	: ML

Trial #	**1**	**2**	**3**
Weight of Soil & Mold, gms	556.8		
Weight of Mold, gms	183.8		
Weight of Soil, gms	373.0		
Wet Density, Lbs/cu.ft.	112.5		
Weight of Moisture Sample (Wet), gms	300.0		
Weight of Moisture Sample (Dry), gms	261.8		
Moisture Content, %	14.6		
Dry Density, Lbs/cu.ft.	98.2		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	55.0		

Time	Inital	30 min	1 hr	6hrs	12 hrs	24 hrs
Dial Reading	0	--	--	--	--	0.004

Expansion Index $_{measured}$ = 4

Expansion Index $_{50}$ = 6.1

Expansion Index = 6

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

Krazan Testing Laboratory

Expansion Index Test

ASTM D - 4829/ UBC Std. 18-2

Project Number	: 2207127
Project Name	: Residential Development
Date	: 8/29/2007
Sample location/ Depth	: B4 @ 1-2'
Sample Number	: RV#2
Soil Classification	: SM

Trial #	1	2	3
Weight of Soil & Mold, gms	605.6		
Weight of Mold, gms	209.1		
Weight of Soil, gms	396.5		
Wet Density, Lbs/cu.ft.	119.6		
Weight of Moisture Sample (Wet), gms	300.0		
Weight of Moisture Sample (Dry), gms	275.5		
Moisture Content, %	8.9		
Dry Density, Lbs/cu.ft.	109.8		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	44.9		

Time	Inital	30 min	1 hr	6hrs	12 hrs	24 hrs
Dial Reading	0	--	--	--	--	0

Expansion Index $_{measured}$ = 0

Expansion Index $_{50}$ = 0.0

Expansion Index = 0

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

Krazan Testing Laboratory

Expansion Index Test

ASTM D - 4829/ UBC Std. 18-2

Project Number	: 2207127
Project Name	: Residential Development
Date	: 8/29/2007
Sample location/ Depth	: B8 @ 1-2'
Sample Number	: RV#4
Soil Classification	: SM

Trial #	**1**	**2**	**3**
Weight of Soil & Mold, gms	598.7		
Weight of Mold, gms	183.3		
Weight of Soil, gms	415.4		
Wet Density, Lbs/cu.ft.	125.3		
Weight of Moisture Sample (Wet), gms	300.0		
Weight of Moisture Sample (Dry), gms	278.3		
Moisture Content, %	7.8		
Dry Density, Lbs/cu.ft.	116.2		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	46.8		

Time	Inital	30 min	1 hr	6hrs	12 hrs	24 hrs
Dial Reading	0	--	--	--	--	0.0053

Expansion Index $_{measured}$ = 5.3

Expansion Index $_{50}$ = 4.0

Expansion Index = 4

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

Krazan Testing Laboratory

Atterberg Limits Determination
ASTM D-4318

Project Number : *02207127*
Project Name: *Residential Development*
Date: *8/29/2007*
Sample Number: *B1 @ 6-7'*

Plastic Limit	Liquid Limit	Plasticity Index
N.A.	*N.A.*	*Non-Plastic*

Krazan Testing Laboratory

Atterberg Limits Determination
ASTM D-4318

Project Number : *02207127*
Project Name: *Residential Development*
Date: *8/29/2007*
Sample Number: *RV#2*

Plastic Limit	Liquid Limit	Plasticity Index
N.A.	*N.A.*	*Non-Plastic*

Krazan Testing Laboratory

Atterberg Limits Determination

ASTM D-4318

Project Number : *02207127*
Project Name: *Residential Development*
Date: *8/29/2007*
Sample Number: *RV#4*

Plastic Limit	Liquid Limit	Plasticity Index
N.A.	*N.A.*	*Non-Plastic*

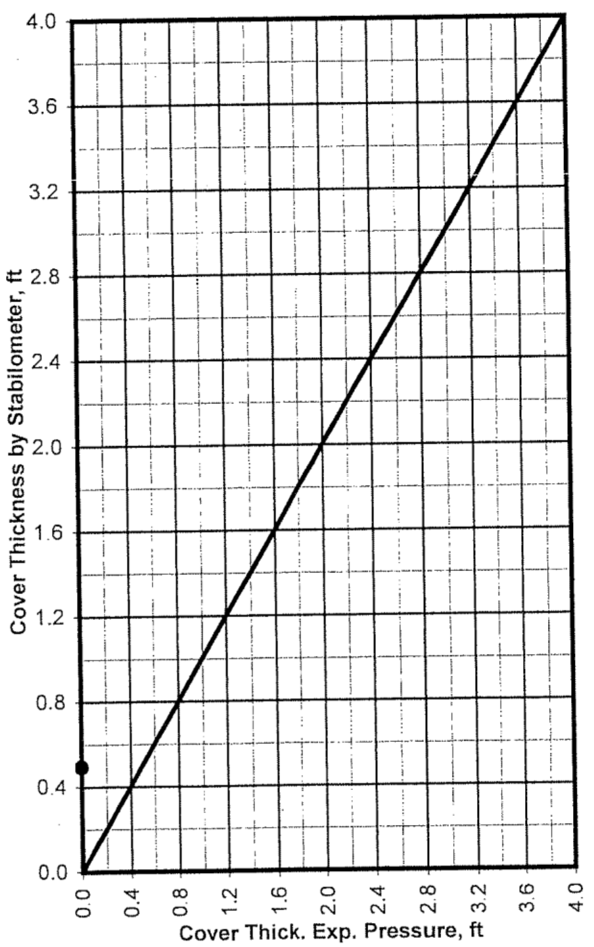
Krazan Testing Laboratory

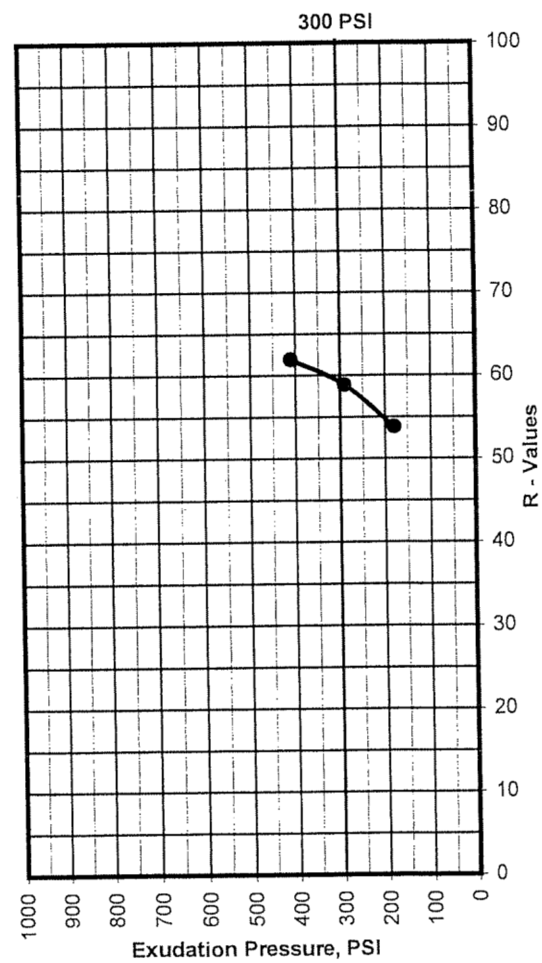
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	2207127
Project Name	:	Residential Development
Date	:	8/22/2007
Sample Location/Curve Number	:	RV#1
Soil Classification	:	SM

TEST	A	B	C
Percent Moisture @ Compaction, %	10.9	10.4	10.1
Dry Density, lbm/cu.ft.	123.9	123.7	123.6
Exudation Pressure, psi	180	290	410
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	54	59	62

R Value at 300 PSI Exudation Pressure	**59**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**





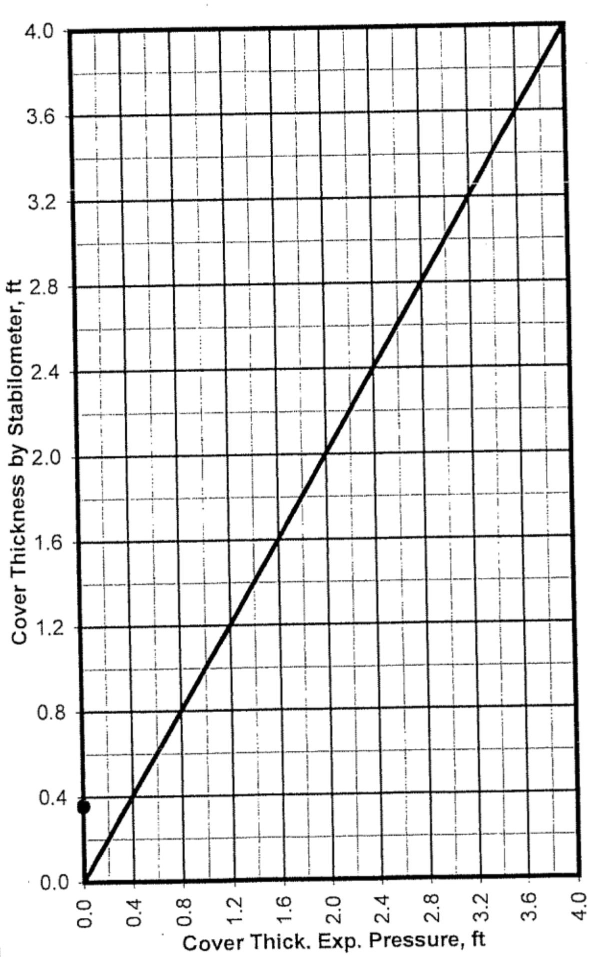
Krazan Testing Laboratory

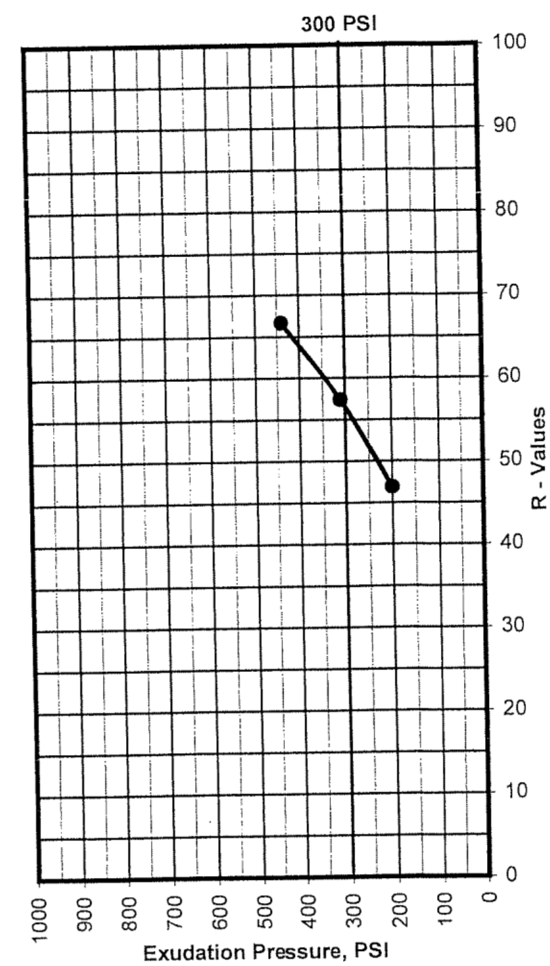
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	2207127
Project Name	:	Residential Development
Date	:	8/22/2007
Sample Location/Curve Number	:	RV#2
Soil Classification	:	SM

TEST	A	B	C
Percent Moisture @ Compaction, %	10.0	10.8	10.5
Dry Density, lbm/cu.ft.	126.7	126.1	126.0
Exudation Pressure, psi	440	200	310
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	67	47	57

R Value at 300 PSI Exudation Pressure	**56**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**





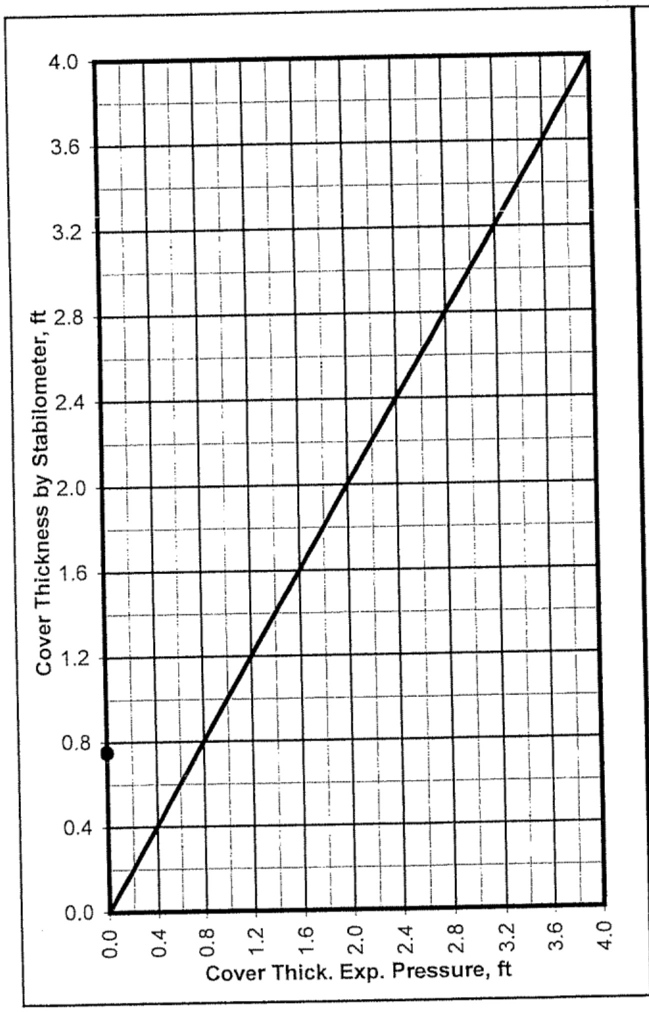
Krazan Testing Laboratory

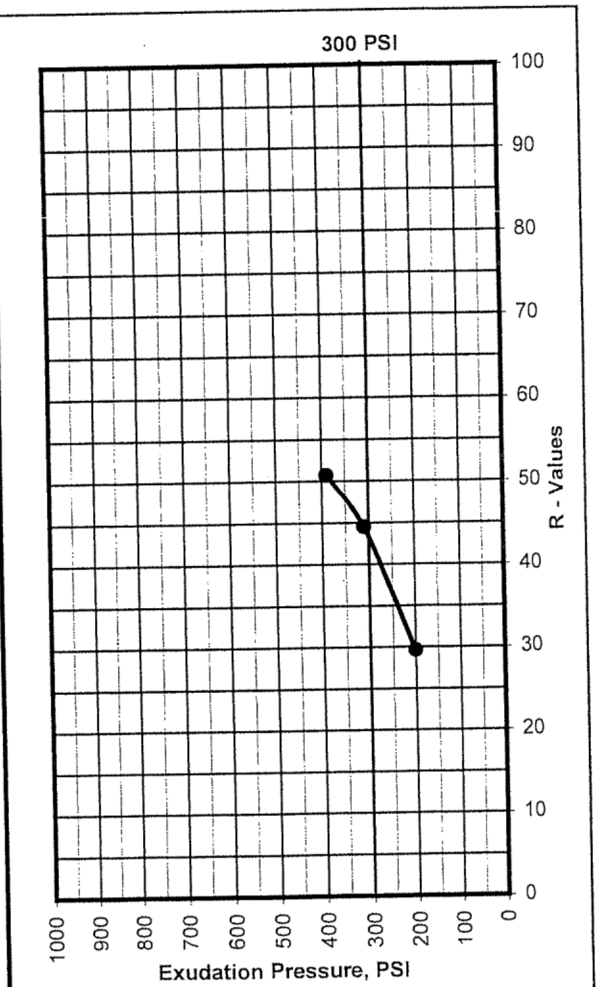
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	2207127
Project Name	:	Residential Development
Date	:	8/22/2007
Sample Location/Curve Number	:	RV#3
Soil Classification	:	SM-ML

TEST	A	B	C
Percent Moisture @ Compaction, %	13.6	12.9	12.1
Dry Density, lbm/cu.ft.	120.8	121.8	122.2
Exudation Pressure, psi	200	310	390
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	30	44	51

R Value at 300 PSI Exudation Pressure	**44**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**





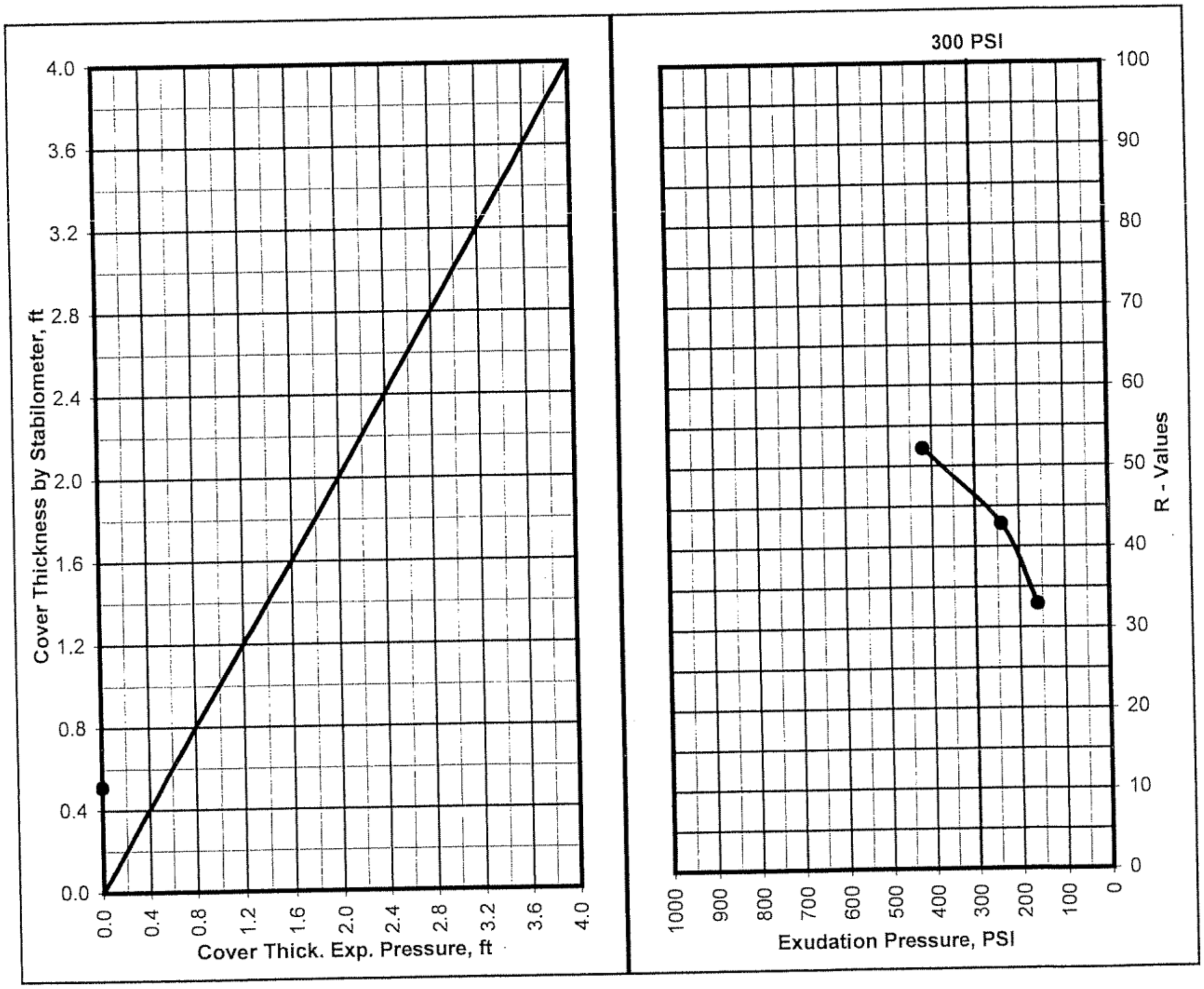
Krazan Testing Laboratory

R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	2207127
Project Name	:	Residential Development
Date	:	8/22/2007
Sample Location/Curve Number	:	RV#4
Soil Classification	:	SM-ML

TEST	A	B	C
Percent Moisture @ Compaction, %	10.7	11.7	12.5
Dry Density, lbm/cu.ft.	126.8	125.3	124.3
Exudation Pressure, psi	420	240	160
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	52	43	33

R Value at 300 PSI Exudation Pressure	**46**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



Krazan Testing Laboratory

Appendix B

General Earthwork Specifications

APPENDIX B

EARTHWORK SPECIFICATIONS

GENERAL

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including but not limited to the furnishing of all labor, tools, and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans, and disposal of excess materials.

PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of Krazan and Associates, Inc., hereinafter known as the Soils Engineer and/or Testing Agency. Attainment of design grades when achieved shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

TECHNICAL REQUIREMENTS: All compacted materials shall be densified to a density not less than 90 percent relative compaction based on ASTM Test Method D1557 or CAL-216, as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be as determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the soil report.

The Contractor shall make his own interpretation of the data contained in said report, and the Contractor shall not be relieved of liability under the Contract documents for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or windblown materials attributable to his work.

SITE PREPARATION

Site preparation shall consist of site clearing and grubbing and the preparations of foundation materials for receiving fill.

CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter, and all other matter determined by the Soils Engineer to be deleterious or otherwise unsuitable. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed building areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots larger than 1 inch. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations should not be permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

SUBGRADE PREPARATION: Surfaces to receive Engineered Fill, building or slab loads shall be prepared as outlined above, excavated/scarified to a depth of 12 inches, moisture-conditioned as necessary, and compacted to 90 percent relative compaction.

Loose soil areas, areas of uncertified fill, and/or areas of disturbed soils shall be moisture-conditioned as necessary and recompacted to 90 percent relative compaction. All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials shall be approved by the Soils Engineer prior to the placement of any of the fill material.

EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. However, compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer.

Both cut and fill areas shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill are as specified.

Appendix C

General Paving Specifications

APPENDIX C

PAVEMENT SPECIFICATIONS

1. **DEFINITIONS** - The term "pavement" shall include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term “Standard Specifications”: hereinafter referred to is the May 2006 Standard Specifications of the State of California, Department of Transportation, and the "Materials Manual" is the Materials Manual of Testing and Control Procedures, State of California, Department of Public Works, Division of Highways. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as defined in the applicable tests outlined in the Materials Manual.

2. **SCOPE OF WORK** - This portion of the work shall include all labor, materials, tools, and equipment necessary for, and reasonably incidental to the completion of the pavement shown on the plans and as herein specified, except work specifically noted as "Work Not Included."

3. **PREPARATION OF THE SUBGRADE** - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 90 percent. The finished subgrades shall be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

4. **UNTREATED AGGREGATE BASE** - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class II material, 1½ inches maximum size. The aggregate base material shall be spread and compacted in accordance with Section 26 of the Standard Specifications. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Soils Engineer prior to the placement of successive layers. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent.

5. **AGGREGATE SUBBASE** - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class II material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent, and it shall be spread and compacted in accordance with Section 25 of the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

6. ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades and dimensions shown on the plans. The viscosity grade of the asphalt shall be PG 64-10. The mineral aggregate shall be Type B, ½ inch maximum size, medium grading and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning and mixing of the materials shall conform to Section 39.

The prime coat, spreading and compacting equipment and spreading and compacting mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50° F. The surfacing shall be rolled with a combination of steel wheel and pneumatic rollers, as described in Section 39-6. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

7. FOG SEAL COAT - The fog seal (mixing type asphaltic emulsion) shall conform to and be applied in accordance with the requirements of Section 37.

Attachment 3

Traffic Study

City of Ridgecrest

TRAFFIC STUDY

FOR

VILLA CREST APARTMENTS

301 MULTI-FAMILY RESIDENTIAL UNITS

Located at
W. Radar Avenue
Ridgecrest, California
93555

PREPARED FOR:

SETON PACIFIC COMPANY
300 B Street
Turlock, CA 95380

PREPARED BY:

THE PERFECT SOLUTION
5102 E. Piedmont Road, #2252
Phoenix, AZ 85044
Tel: (760) 908-9233

November 21, 2018

Martin C. Lauber

Martin C. Lauber, TE 1634

<u>August 30, 2020</u>
Exp. Date

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EXECUTIVE SUMMARY

Based on the existing and project generated traffic volumes calculated to pass through each of the seven study intersections and five roadway segments, we do not recommend any changes to the City of Ridgecrest roadway network, to mitigate significant impacts.

Based on forecasted traffic volumes estimated in the year 2040, by applying the required 2% growth factor to existing traffic, the City may want to program traffic signals for the intersections of S. Downs Street at W. Upjohn and Bowman Road at S. Norma Street. Without signalization these intersections are forecasted to operating at unacceptable service levels. These improvements are not due to project traffic and are not the responsibility of the developer.

Based on our Traffic Engineering investigation completed for this project, it has been shown that there are no significant project impacts forecasted, therefor there is no need for any mitigation measures. Intersections and roadway segments remain at acceptable servicelevels with the addition of project traffic forecasted to impact the local street system today,in the Near-Term and in the year 2040.

I. INTRODUCTION

A. TRAFFIC STUDY SCOPE

This report has been prepared to quantify the localized impacts associated with the proposed improvements to the existing vacant lot located south of W. Radar Avenue between S. Downs Street and S. Norma Street, north of Bowman Road. The property is located within the City of Ridgecrest which lies in the very northeast corner of Kern County. Project generated trips will be analyzed along W. Radar Avenue between S. Downs Street and S. Norma Street, along S. Downs Street between W. Upjohn Avenue and Bowman Road, and along S. Norma Street between W. Radar Avenue and Bowman Road. Seven intersections and five roadway segments will be studied as require by the City of Ridgecrest. **Figure 1** (Project Location Map) identifies the location of this project within the north eastern portion of Kern County, relative to Interstate 395, State Routes 14 and 178. **Figure 2** (Project Vicinity Map) identifies the roadways in the immediate vicinity of the proposed project.

B. PROPOSED PROJECT DESCRIPTION

The proposed development will convert an existing vacant lot into a Multi-Family Residential development. The project will have a primary driveway accessing W. Radar Avenue at S. Gordon Street. It will also have a secondary driveway accessing W. Radar Avenue at Heather Court. The applicant has designed the site to accommodate 301 Apartments on approximately 21 acres of land.

All parking will be provided on-site with the appropriate percentage of parking for the disabled. Both proposed driveways would be unrestricted allowing for full traffic movements at each. The internal street system will provide for access to all parking within proximity to all Dwelling Units. 302 covered parking spaces will be provided throughout the development. The loop configuration of drive isles will provide for enough emergency vehicle access to the main portion of the lot and a turnaround area will be provided near the end of the pan handle portion of the property.

Building set-backs and non-obstructive landscaping will allow for more than the minimum intersection sight distances at both proposed driveway on W. Radar Avenue. Landscaping adjacent to both driveways should be limited to 30 inches in height. Parking is currently allowed along the dirt shoulder of the project frontage and should not change except to the west of each driveway. One hundred feet of red curb should be painted to the west of both driveways to ensure adequate sight distances for vehicles exiting the site. The two 22-foot-wide driveway isles should provide proper clearances for delivery truck turning movements at the projects main entrance. The 30-foot-wide driveway at the secondary driveway should provide for two 15 foot lanes and will not need a centerline painted stripe.

Figure 3 (Site Plan) reflects the proposed site plan layout of the development and shows the circulation system, parking, and apartment building positioning and retention area. All internal access lanes are shown to have a width of 30 feet wide with parking isles being 25 feet wide.


Indian Wells
Inyokern
BUS
395
178
14
Ridgecrest
PROJECT LOCATION

FIGURE 1

PROJECT LOCATION MAP

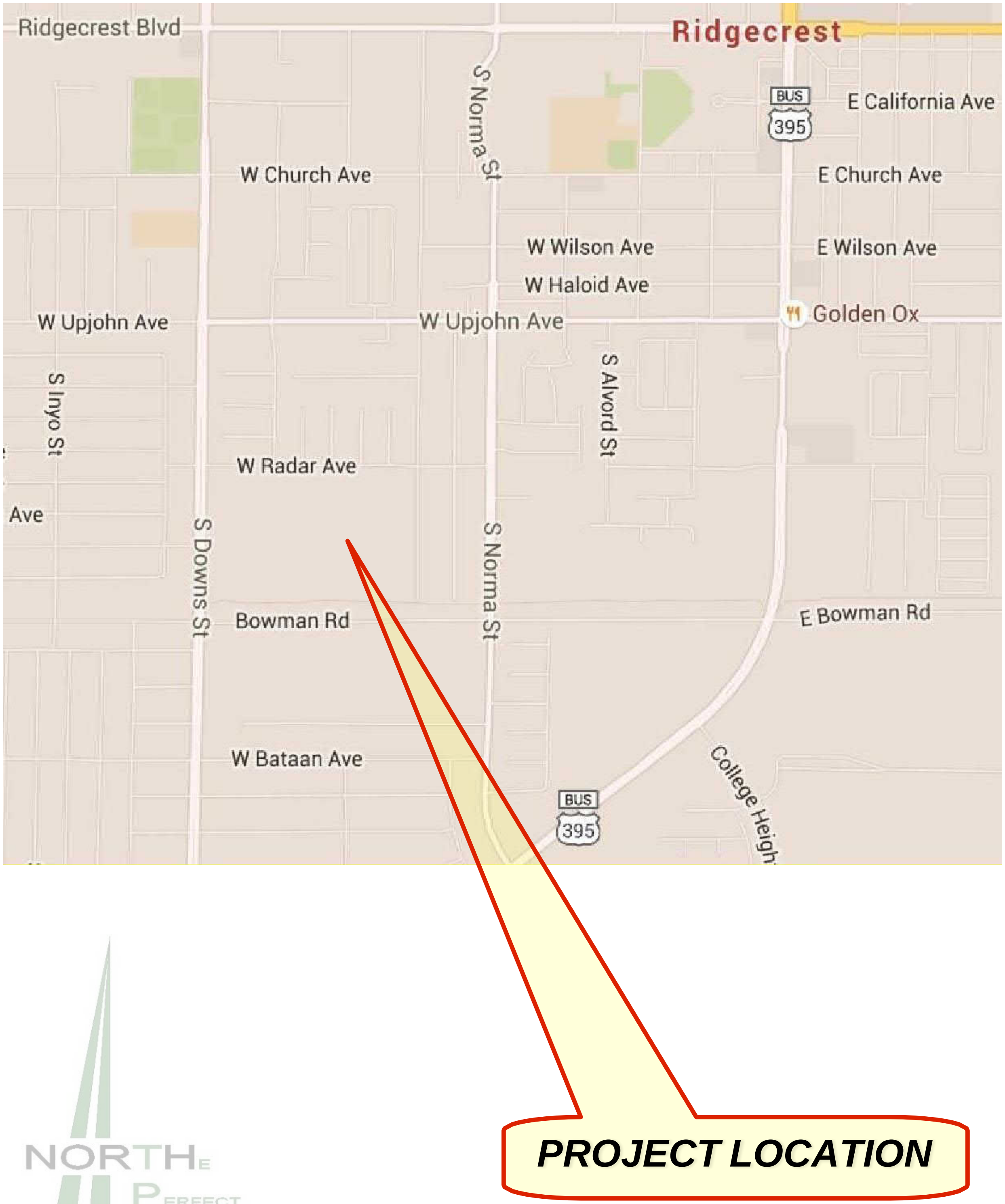

Ridgecrest Blvd
Ridgecrest
BUS 395
E California Ave
S Norma St
W Church Ave
E Church Ave
W Wilson Ave
E Wilson Ave
W Haloid Ave
W Upjohn Ave
W Upjohn Ave
Golden Ox
S Inyo St
S Alvord St
W Radar Ave
Ave
S Downs St
S Norma St
Bowman Rd
E Bowman Rd
W Bataan Ave
BUS 395
College Heigh
PROJECT LOCATION

FIGURE 2

PROJECT VICINITY MAP

FIGURE 3
SITE PLAN

II EXISTING CONDITIONS

A. SITE LOCATION

The project site is located on the northeastern portion of Kern County, within the City of Ridgecrest, California. This site is approximately 80 miles northeast of downtown Bakersfield, 65 miles northwest of Barstow, and about 50 miles due north of Edwards AFB, in California. The project site is located on the west side of the central portion of the City of Ridgecrest. The property lies to the southeast of the intersection of S. Downs Street and W. Radar Avenue.

B. ACCESS & CIRCULATION

Access to the proposed project will be from W. Radar Avenue at S. Gordon Street and Heather Court. The project will have two driveways onto W. Radar Avenue. The main entrance to the subdivision will be across from S. Gordon Street and the secondary accesswill be directly across from Heather Court.

The internal circulation system will provide access to all on-site parking. The loop configuration of drive isles will provide for clear emergency vehicle access to the main portion of the subdivision and a turnaround area will be provided near the end of the pan handle portion of the property. The location of the proposed driveways will create four-way intersections from two existing three-way intersections. This will allow for standard unrestricted turn movements at both entrances.

C. STREETS AND HIGHWAYS

Figure 4 (Existing Lane Configurations) shows the existing lane configurations and intersection controls at all seven study intersections. The roadway segment ADTs are also shown for each direction of travel.

W. Radar Avenue: W. Radar Avenue is a Collector Road that runs east/west directly north of the proposed project from S. Sunset Street to S. Norma Street. It currently has half street improvements on its north side of the street between S. Downs Street and S. Sunset Street. Those improvements include; concrete curbs, gutters and contiguous sidewalks. On the north side of W. Radar Avenue between S. Sunset Street and S. Norma Street and on the entire south side has only one lane of asphalt without edge treatment.

No Parking signs are posted on the north side of W. Radar Avenue between S. Downs Street and S. Sunset Street. There are no posted speed limits on this section of roadway and one section may qualifies for a residential prima facia speed limit of 25 mph.

S. Downs Street: S. Downs Street is a four lane Arterial that runs north/south from the US 395 in the south to W. Inyokern Road (Route 178) to the north. It is constructed to its ultimate width over most of its length except between W. Upjohn Avenue and W. Ridgecrest Boulevard. Parking is restricted to provide for Class II bike lanes along the build-out segments, within our study area.

S. Downs Street is posted 40 mph north of Upjohn Avenue and 45 mph south of Upjohn Avenue. Throughout our study area on-street parking is prohibited and concrete curbs, gutters are constructed, and contiguous sidewalks are provided only adjacent to developed parcels.

S. Norma Street: S. Norma Street is a two-lane divided Minor Arterial that runs north/south from the US 395 in the south to W. Inyokern Road (Route 178) to the north. S. Norma Street has a raided median between Upjohn Avenue and Bowman Road that runs across its intersection with W. Radar Avenue which restricts left turns. It is constructed to its ultimate width over most of that length except near Bowman Road. A wide striped parking lane in each direction allows for parking and provide enough room for bicyclist.

S. Norma Street is posted 40 mph north of Bowman Road and south of W. Upjohn Avenue. Throughout our study area S. Norma Street has concrete curbs, gutters and contiguous sidewalks are provided.

W. Upjohn Avenue: W. Upjohn Avenue is a Secondary Arterial that runs east/west at the north limits of our project study area. It will be a four-lane facility at build-out and currently is partially constructed and varies from 2 to 4 lanes near S. Downs Street.

Near S. Downs Street there are 40 mph posted speed limits on both directions of Upjohn Avenue. Parking is restricted along both partially and fully improved section of roadway. Class II bike lanes are striped east of S. Downs Street adjacent to fully improved, half street section. Concrete curbs, gutters and sidewalks are provided contiguous to developed properties.

Bowman Road: Bowman Road is an Arterial that runs east/west at the south end of our study area. It is currently a two-lane roadway except for localized widening at intersections. It will ultimately have four lanes with Class II bike lanes.

Bowman Road is posted 45 mph east of S. Downs Avenue and there are no posted speedlimits to the west of S. Downs Street. In the study area there are dirt shoulders lacking curbs, gutters and sidewalk without provisions for on-street bicycles. There is a paved Class I bike path to the east of S. Downs Street Paralleling Bowman Road about 140 to 200 feet to the north. There is also a dirt trail to the west of Downs in about the same placement, to the north of Bowman Road.

Existing AM & PM peak hour turning movement volumes were field measured at all existing study intersections in October of 2018 and are shown in **Figure 5** (Existing AM Peak Hour Volumes) and **Figure 6** (Existing PM Peak Hour Volumes). Five Roadway Segments were counted over a 48-hour period to capture a complete sample of the Average Daily Traffic (ADT). These volumes fell on mid-week days. See **Appendix "A"** (Traffic Counts) for all traffic count data sheets.

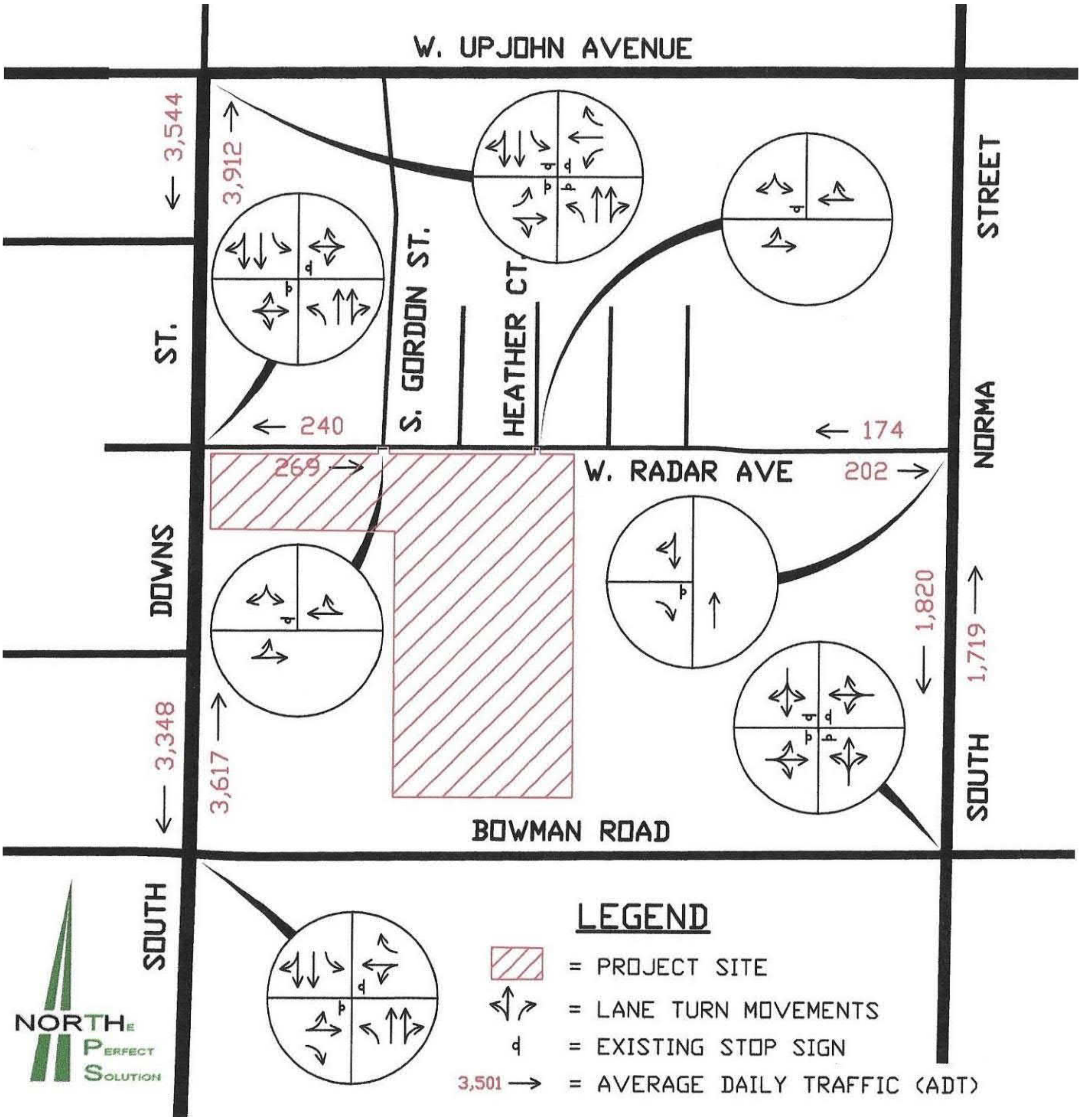


FIGURE 4

EXISTING INTERSECTION LANE CONFIGURATION

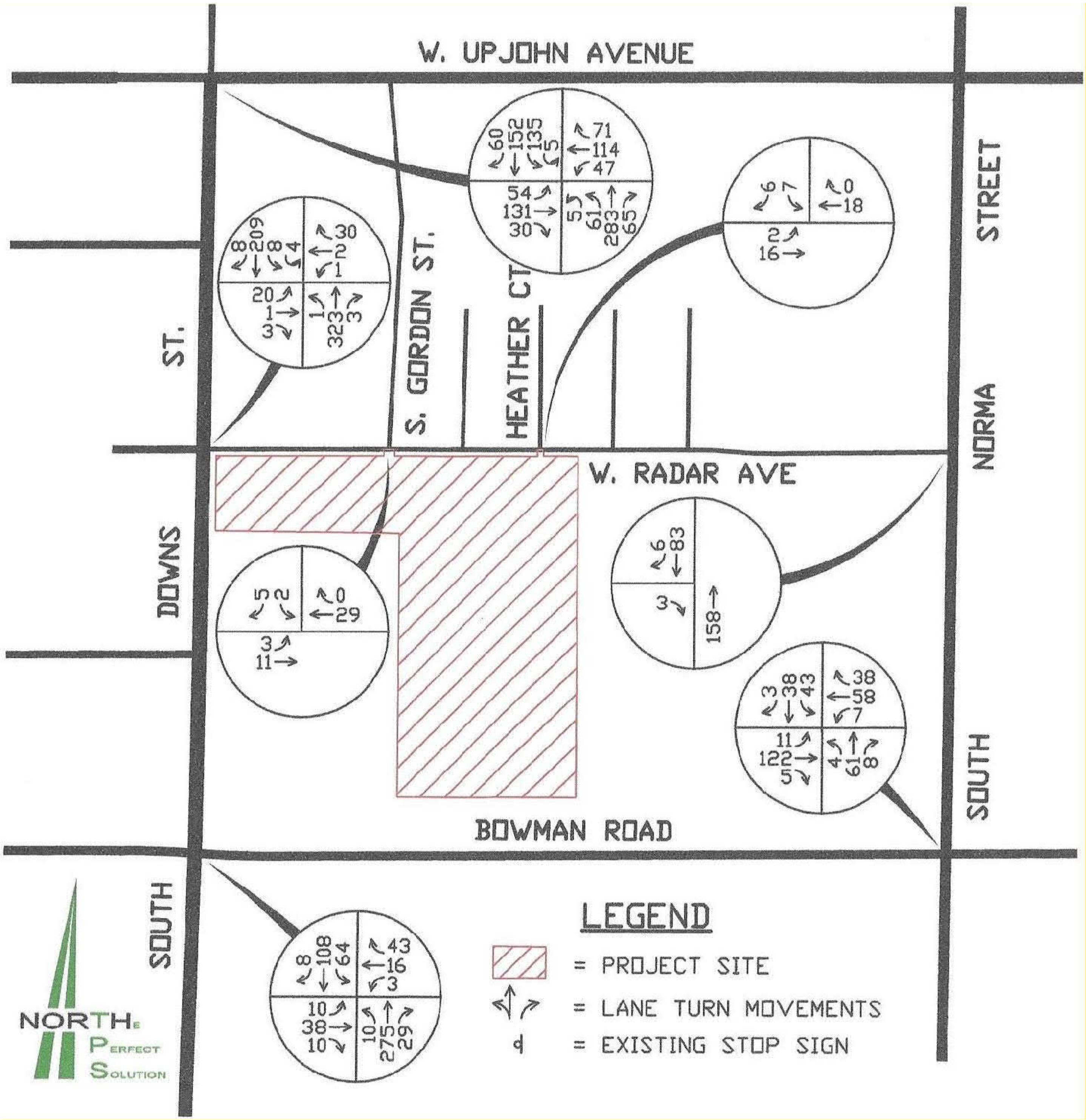


FIGURE 5

EXISTING AM PEAK HOUR VOLUMES

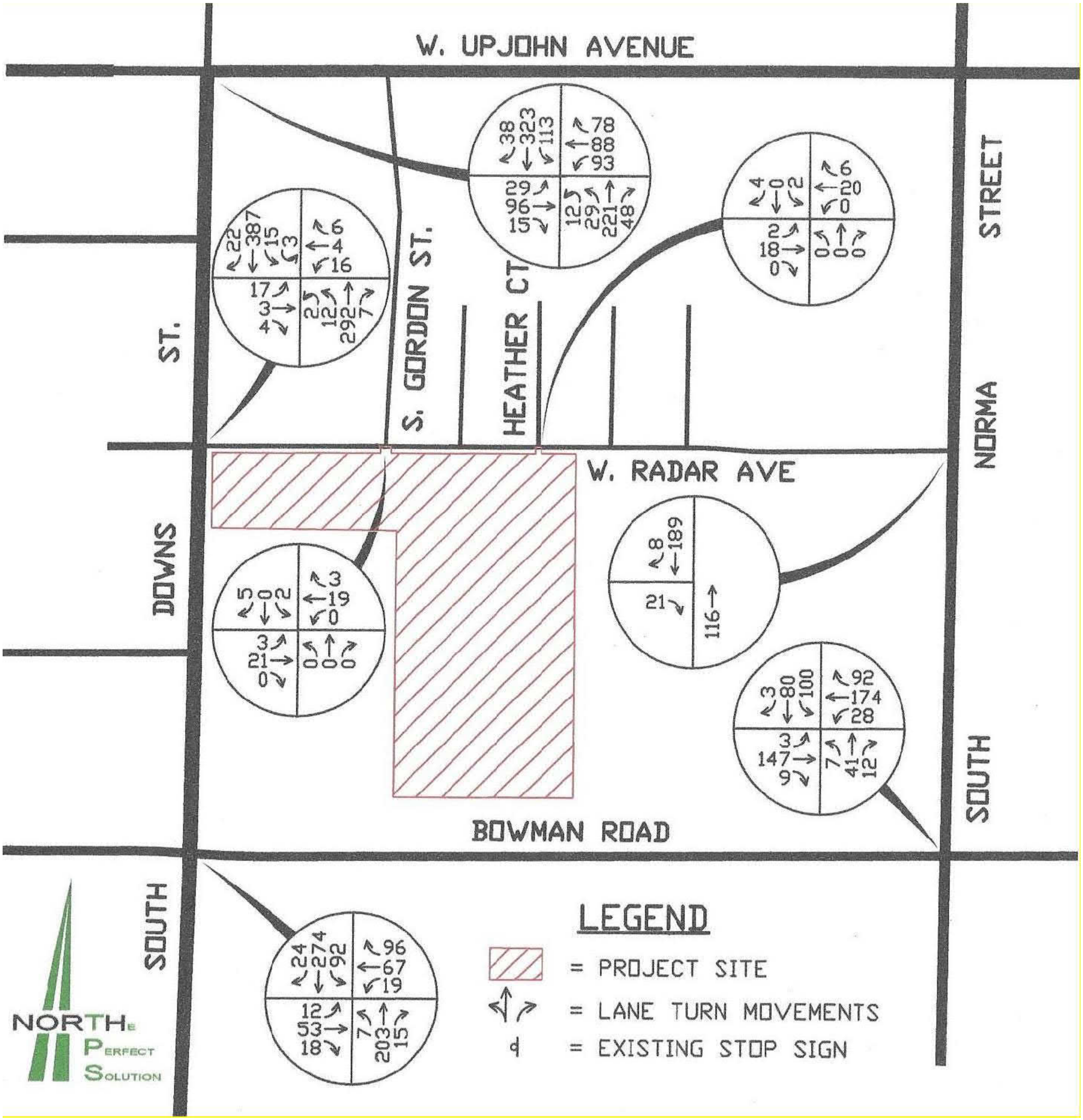


FIGURE 6

EXISTING PM PEAK HOUR VOLUMES

III. PROJECT TRAFFIC

A. PROJECT TRIP GENERATION

The daily trip generation and design hour volumes shown in **Table 1** (Project Trip Generation), were calculated using the INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) – Trip Generation, An ITE Informational Report - 8th Edition *(ITE Land Use Code 220)*. Average rates and directional splits for Apartments were used for this analysis. The number of *Dwelling Units* were used as the independent variable, for both *Weekly* and *PeakHour Trip Rates*. See **Appendix "B"** (*ITE* Trip Generation Rates), an ITE Informational Report - 8th Edition, for Apartments. We did not reduce Driveway Trips due to Pass-By or Diverted Trips.

Table 1

Project Trip Generation

TRIP GENERATION RATES & CALCULATIONS SUMMARY

DAILY TRIP GENERATION (a)

Land Use	**Daily**	**AM Peak Hour**			**PM Peak Hour**			**% Pass-by / Diverted**		
		Trips per Dwelling Unit	% In	% Out	Trips per Dwelling Unit	% In	% Out	Daily	AM	PM
Apartments	6.65 trips per Dwelling Unit	0.51	20%	80%	0.62	65%	35%	0%	0%	0%

DRIVEWAY TRIPS

Land Use	**# Units**	**Daily**	**AM Peak Hour**			PM Peak Hour		
			Total	In	Out	Total	In	Out
Apartments (220)	301 Dwelling Units	2,002	154	31	123	197	127	69
Diverted Trips – (0%)		*0*	*0*	*0*	*0*	*0*	*0*	*0*
Pass-By Trips – (0%)		*0*	*0*	*0*	*0*	*0*	*0*	*0*
Total Driveway Trip Increase		2,002	154	31	123	197	127	69

NOTE: Trip generation rates are based on the INSTITUTE OF TRANSPORTATION ENGINEER (ITE) – Trip Generation an ITE Informational Report - 8th Edition *(ITE Code 220)*. Driveway Trips reflect the total project traffic. Primary Trips reflect trip generation after pass-by and diverted traffic is subtracted from Driveway Trips.

B. TRIP DISTRIBUTION & ASSIGNMENT

The project trip distribution was assumed to be reflected in the existing traffic patterns. **Table 2** (Project Trip Distribution) represents the estimated traveled directions for traffic accessing the proposed project site. These assumptions were used to assign project trafficto the existing street system. Existing Traffic Counts were closely reviewed to determinelocal travel patterns and those were used to help estimate potential project trip patterns. It should be noted that the intersection of W. Radar Avenue and S. Norma Street has restricted turn movements. Eastbound to northbound and northbound to westbound left turns are restricted by a raised center median along S. Downs Avenue. This will create different travel patterns for vehicles entering and exiting the project site.

Table 2 (Project Trip Distribution) identifies the basic compass directions and key roadways used as a basis for assigning project generated trips to the local street system.

Table 2
Project Trip Distribution

Direction	Trip Percentages	Roadways		Trip Percentages
		Outbound	Inbound	
North	50%	S. Downs Street	S. Downs Street	30%
		S. Gordon Street	S. Gordon Street	10%
		S. Sunset Street	S. Norma Street	10%
East	35%	W. Radar Ave. to S. Norma Street	Bowman Road to S. Downs Street	35%
South	15%	S. Downs Street	S. Downs Street	15%

Traffic volumes estimated to be generated by the project were then assigned to the local street systems based on the distribution percentages as shown above. **Figure 7** (Project AM Peak Hour Volumes) and **Figure 8** (Project PM Peak Hour Volumes) show how the forecasted traffic may travel through each of the study intersections.

These figures also indicate that the scope of the traffic analysis covers those intersections that have been determined to be potentially significantly impacted by project traffic. Locally accepted traffic impact guidelines suggest using 50 peak hour trips through an intersection to determine the scope of the traffic analysis study area, in an area currently experiencing acceptably service levels. The City of Ridgecrest determined the scope of our study by requiring seven (7) intersections and five (5) roadway segments be studied.

Traffic volume increases from public or private projects that results in one or more of the following criteria will be considered to have a significant traffic impact, or level of service drop, to warrant mitigation:

The additional ADT generated by the proposed project will significantly increase congestion on a signalized intersection currently operating at LOS E or LOS F, or will cause a signalized intersection to operate at a LOS E or LOS F as identifiedin Table A below. None of the study intersections are currently signal controlled.

Table A

Measures of Significant Project Impacts to Congestion Intersections

Allowable Increases on Congested Roadways

Level of Service	Intersections	Roadway Segments
LOS D	Delay of 2 seconds or more of overall delay	V/C increase of 0.02 or more
LOS E	Delay of 2 seconds or more of overall delay	V/C increase of 0.02 or more
LOS F	Delay of 2 seconds or more of overall delay	V/C increase of 0.02 or more

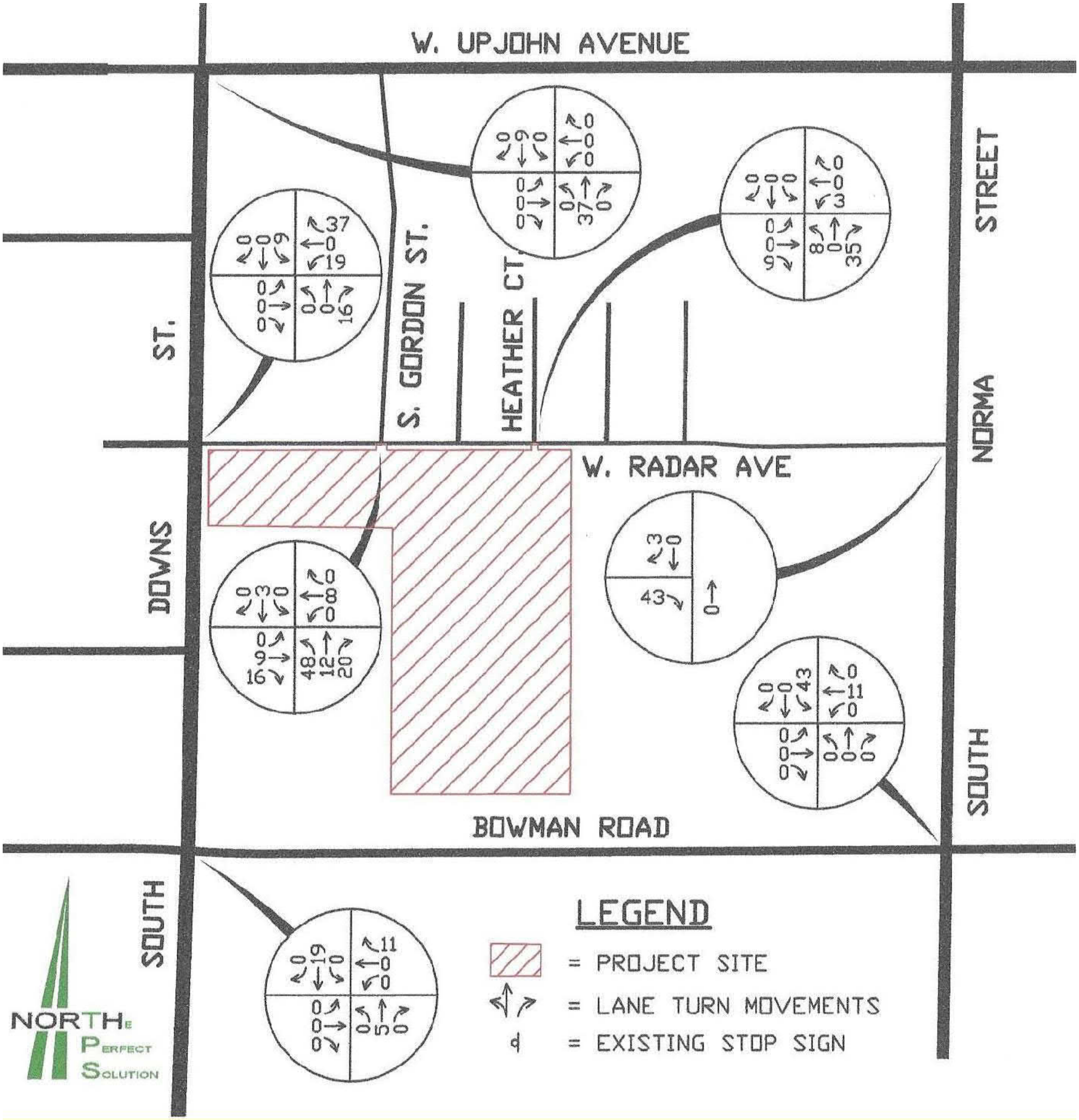


FIGURE 7

PROJECT AM PEAK HOUR VOLUMES

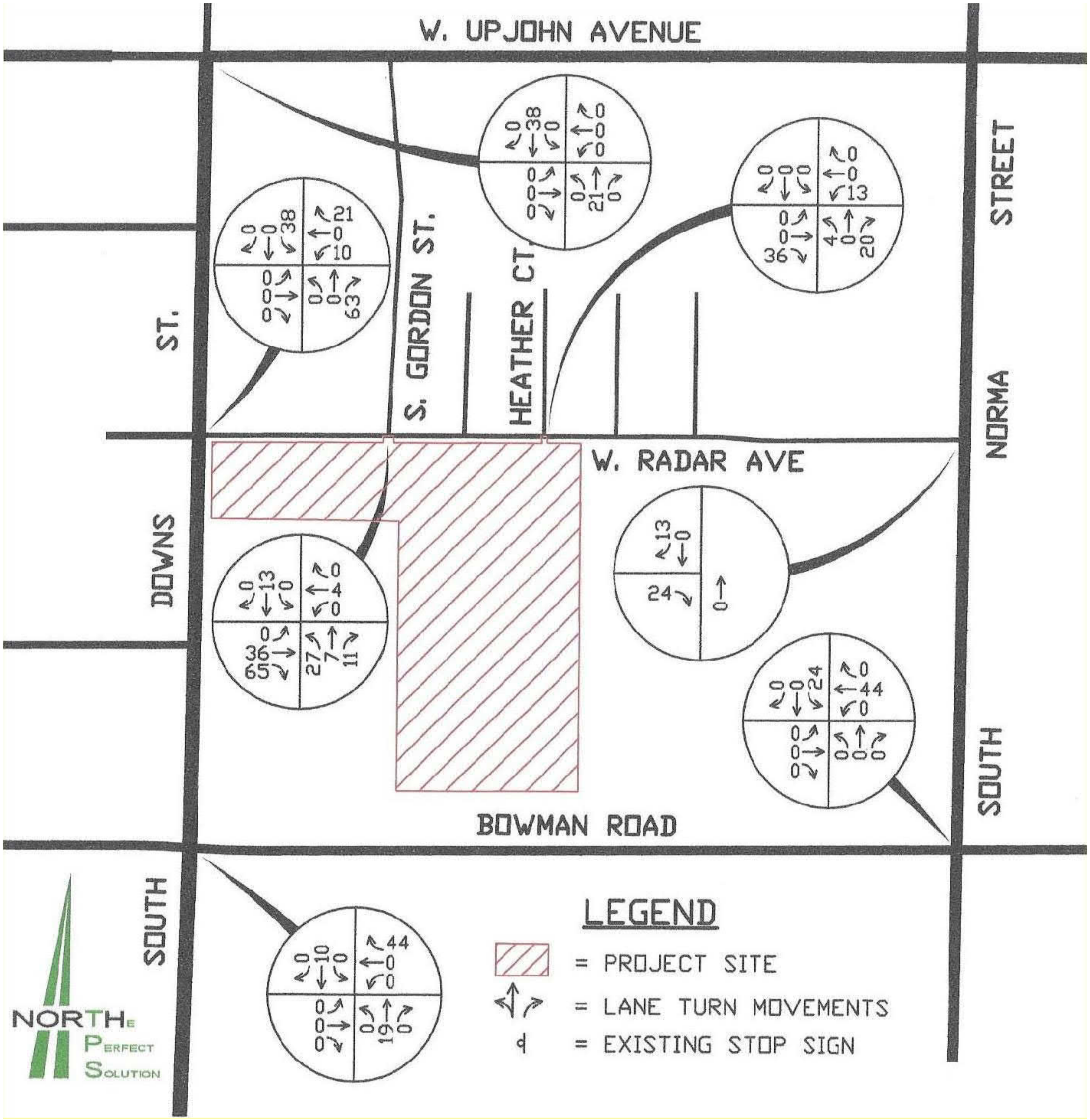


FIGURE 8

PROJECT PM PEAK HOUR VOLUMES

IV. TRAFFIC ANALYSIS & IMPACT

A. EXISTING ANALYSIS

1. INTERSECTIONS

We utilized the *Synchro 10 Intersection Analysis* software package to identify existing levels-of-service, at the seven existing study intersections. The intersections listed in **Table 3** (Existing Intersection Levels of Service) were identified as having a potential for creating significant impacts by the estimated project generated trips, utilizing project trip assignments. The typical threshold used for studying intersections that may be significantly impacted is 50 or more peak hour trips through a particular intersection.

The *Synchro 10 Intersection Analysis* software utilizes the capacity analysis methodology in the *Transportation Research Board's Highway Capacity Manual (HCM)* for stop-controlled intersections. Output from the *Synchro 10* program identifies the calculated intersection levels-of-service (LOS) as defined in the table below. The Existing AM and PM peak hour levels-of-service for the seven intersections in the study are presented in **Table 3** (Existing Intersection Levels of Service). The Intersection peak hour level of service goal for the City of Ridgecrest is **LOS C or Better**. The LOS values were calculated using intersection capacity utilization (ICU) method for none signalized intersections. For the cumulative analysis we calculated intersection delay to define the LOS values.

LEVEL OF SERVICE DESCRIPTIONS STOP CONTROLLED INTERSECTIONS

Intersection Capacity Utilization (ICU)	Level of Service	Expect Intersection Congestion
≤ 55%	A	Has no congestion
> 55% and ≤ 64%	B	Has very little congestion
> 64% and ≤ 73%	C	Has no major congestion
> 73% and ≤ 82%	D	Normally has no congestion
> 82% and ≤ 91%	E	On the verge of being congested
> 91%and ≤ 100%	F	Experiences congestion periods of 15 to 60 consecutive minutes

LEVEL OF SERVICE DESCRIPTIONS for SIGNAL CONTROLLED INTERSECTIONS

Average Total Delay (Seconds/Vehicle)	Level of Service	Expect Delay to Minor Street Traffic
≤ 10	A	Little or no delay
> 10.1 and ≤ 20	B	Short traffic delays
> 20.1 and ≤ 35	C	Average traffic delays
> 35.1 and ≤ 55	D	Long traffic delays
> 55.1 and ≤ 80	E	Very long traffic delays
> 0	F	Extreme traffic delays

The Levels-of-Services shown in **Table 3** (Existing Intersection Levels of Service) reflect acceptable service levels with no to very little congestion at all of the existing intersections. The highest ICU percentage calculated was 59.2% at the intersection of Bowman Road at S. Norma Street. See **Appendix "B"** (Synchro 10 – Level of Service Calculations) for all of the Synchro 10 Level-of-Service output reports.

Traffic volumes documented throughout the study area have not identifies any roadway or intersection control shortcomings.

Table 3

Existing Intersection Levels of Service

STUDY INTERSECTION	EXISTING			
	AM		PM	
	LOS	ICU PERCENTAGE	LOS	ICU PERCENTAGE
1. S. Downs Street at W. Upjohn Avenue	A	45.3 %	A	35.8 %
2. S. Downs Street at W. Radar Avenue	A	24.8 %	A	25.3 %
3. W. Radar Avenue at S. Gordon Street	A	13.3 %	A	14.6 %
4. W. Radar Avenue at Heather Street	A	13.3 %	A	13.3 %
5. W. Radar Avenue at S. Norma Street	A	15.0 %	A	20.4 %
6. S. Downs Street at Bowman Road	A	31.6 %	A	32.9 %
7. Bowman Road at S. Norma Street	A	27.9 %	B	55.2 %

2. ROADWAY SEGMENTS

Roadway segment Level of Service (LOS) standards and thresholds provide the basis foranalysis of roadway segment performance. The analysis of roadway segment Level of Service is based on the functional classification of the roadway, the maximum capacity, roadway geometric, and existing or forecast Average Daily Traffic (ADT) volumes. Thechart below presents the roadway segment capacity and Level of Service standards utilized to analyze project roadways.

Roadway Capacity Standards

Functional Classification	No. of Lanes	Level of Service				
		A	B	C	D	E
Prime Arterial	6	< 36,000	< 42,000	< 48,000	< 54,000	< 60,000
Major Arterial - Divided Roadway	4	< 24,000	< 28,000	< 32,000	< 36,000	< 40,000
Secondary Arterial - Undivided Roadway	4	< 15,000	< 17,500	< 20,000	< 22,500	< 25,000
Minor Arterial - Undivided Roadway	2	< 9,000	< 10,500	< 12,500	<15,000	<17,000
Collector - With continuous left turn lane	2	< 5,500	< 7,000	< 10,000	< 13,000	<15,000

The actual capacity of a roadway facility varies according to its physical attributes. Typically, the specific performance and Level of Service of a roadway segment is heavily influenced by local conditions such as adjacent parking, mid-block driveways and lane widths. Since some of the roadway segments are not fully constructed to their ultimate width and lane configurations, we used standard capacities based on the actual number ofexisting lanes, not ultimate lane numbers. Within the City of Ridgecrest, and for this traffic analysis, **LOS C or better** is considered acceptable for roadway segments.

All five roadway segments studied currently fall in the LOS A range and show a very little to no congestion. **Table 4** (Existing Roadway Segments) identifies the current levels-of-service for the five (5) roadway links studied.

Table 4
Existing Roadway Segments

Roadway Segment - *Classification*	ADT	LOS	Volume/ Capacity
South Downs Street – *Major Arterial* between W. Upjohn Ave. and W. Radar Ave.	7,456	A	7,456 / 40,000 = 0.19
South Downs Street – *Major Arterial* between W. Radar Ave. and Bowman Rd.	6,965	A	6,965 / 40,000 = 0.17
West Radar Avenue – *Collector Street* between S. Downs Street and S. Gordon St.	509	A	509 / 15,000 = 0.03
West Radar Avenue – *Collector Street* between Heather Ct. and S. Norma St.	376	A	376 / 15,000 = 0.03
South Norma Street – *Minor Arterial* between W. Radar Ave. and Bowman Rd.	3,539	A	3,539 / 17,000 = 0.21

B. EXISTING PLUS PROJECT ANALYSIS

1. INTERSECTIONS

Existing plus Project AM & PM peak hour turning movement volumes were created by adding project turning movement volumes to existing volumes and are shown in **Figure 9** (Existing plus Project AM Peak Hour Volumes) and **Figure 10** (Existing plus Project PM Peak Hour Volumes).

The Levels-of-Service shown in **Table 5** (Existing plus Project Intersection Levels of Service) reflect the impacts of project generated trips upon existing traffic volumes and shows a slight decrease in intersection capacity which have not come close to unacceptable values. See **Appendix "B"** (Synchro 10 – Level of Service Calculations) for all of the Synchro 10 Level-of-Service output reports.

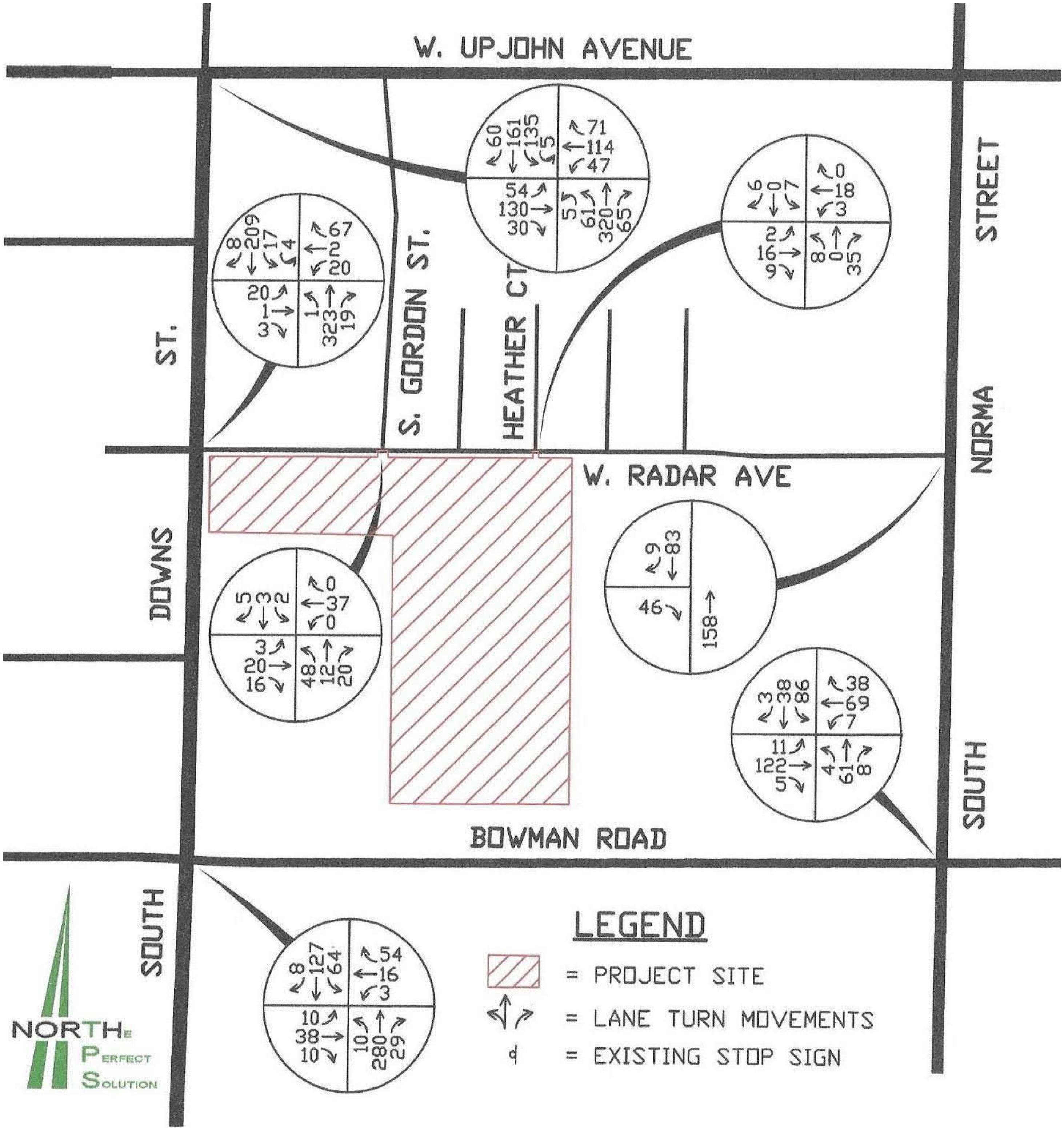


FIGURE 9

EXISTING PLUS PROJECT AM PEAK HOUR VOLUMES

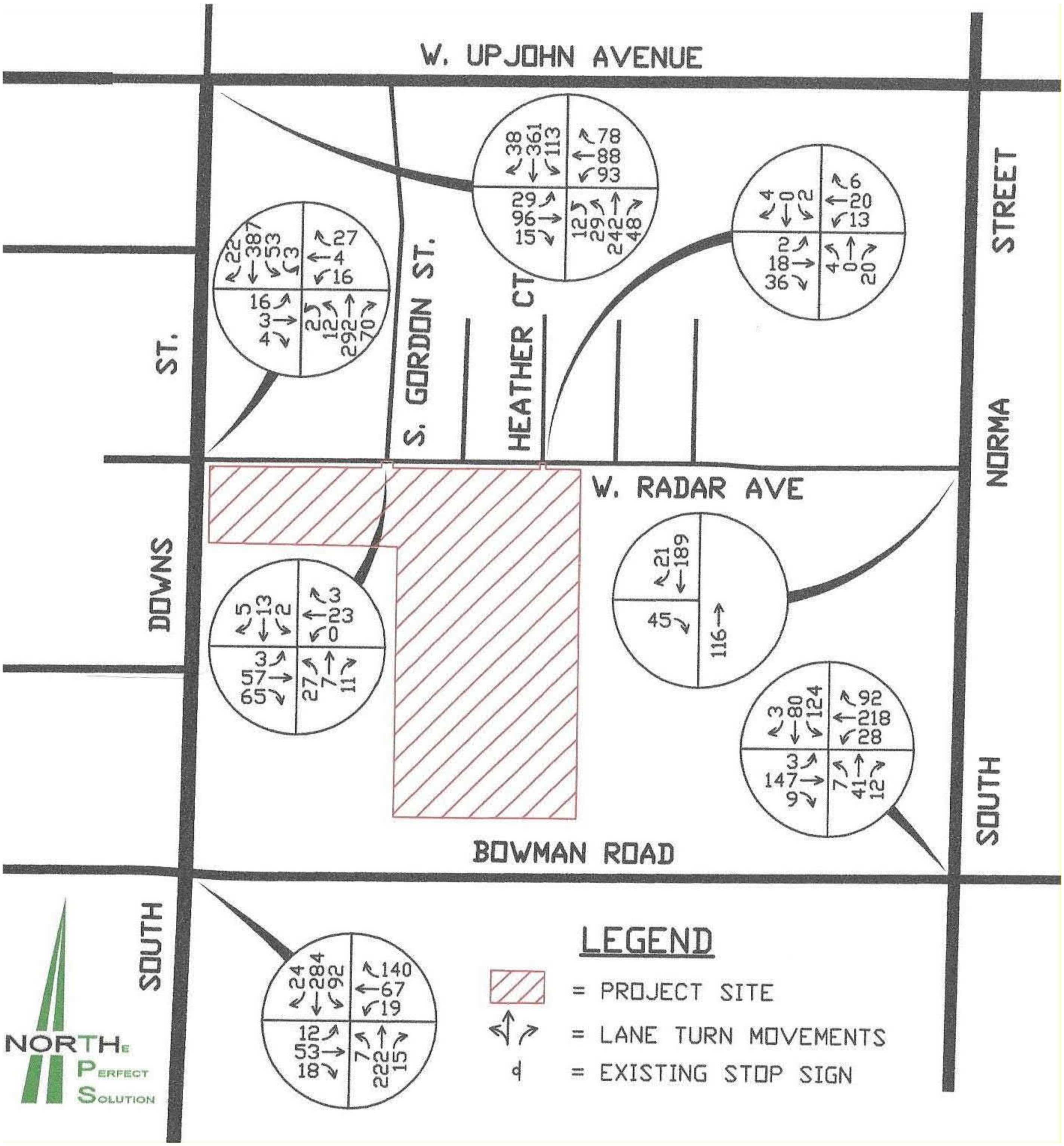


FIGURE 10

EXISTING PLUS PROJECT PM PEAK HOUR VOLUMES

Table 5

Existing Plus Project Intersection Levels of Service

STUDY INTERSECTION	EXISTING PLUS PROJECT			
	AM		PM	
	LOS	**ICU** PERCENTAGE	LOS	**ICU** PERCENTAGE
1. S. Downs Street at W. Upjohn Avenue	A	46.2 %	A	36.3 %
2. S. Downs Street at W. Radar Avenue	A	28.2 %	A	28.4 %
3. W. Radar Avenue at S. Gordon Street	A	22.4 %	A	25.4 %
4. W. Radar Avenue at Heather Street	A	13.3 %	A	17.9 %
5. W. Radar Avenue at S. Norma Street	A	15.2 %	A	21.2 %
6. S. Downs Street at Bowman Road	A	31.7 %	A	33.2 %
7. Bowman Road at S. Norma Street	A	30.4 %	B	59.2 %

2. ROADWAY SEGMENTS

For the purposes of this traffic analysis, the roadway geometries at the project opening day were assumed to be the same as the existing conditions, besides the widening of W. Radar Avenue adjacent to the project site. The Levels-of-Services shown in **Table 6** (Existing Plus Project Roadway Segment - Levels of Service) reflect slightly higher volumes while maintaining acceptable service levels nearly the same as existing conditions.

Table 6

Existing Plus Project Roadway Segments - Levels of Service

Roadway Segment - *Classification*	ADT	LOS	Volume/ Capacity
South Downs Street – *Major Arterial* between W. Upjohn Ave. and W. Radar Ave.	8,056	A	8,056 / 40,000 = 0.20
South Downs Street – *Major Arterial* between W. Radar Ave. and Bowman Rd.	7,615	A	7,615 / 40,000 = 0.19
West Radar Avenue – *Collector Street* between S. Downs Street and S. Gordon St.	1,759	A	1,759 / 15,000 = 0.12
West Radar Avenue – *Collector Street* between Heather Ct. and S. Norma St.	825	A	825 / 15,000 = 0.06
South Norma Street – *Minor Arterial* between W. Radar Ave. and Bowman Rd.	3,889	A	3,889 / 17,000 = 0.23

C. NEAR-TERM

The Near-Term scenario was created by adding traffic forecasted to be generated by other approved projects in the vicinity of this project site that will contribute trips to the study area street system. The only project identified by the City of Ridgecrest to contribute future Near-Term trip is the Red Rock Villas project located on the east side of S. Downs Street between W. Radar Avenue and Bowman Road. Project traffic was then added to calculate the roadway and intersection operations on opening day.

1. INTERSECTIONS

Near-Term AM & PM peak hour turning movement volumes were created by adding Red Rock Villa's project turning movement volumes to existing volumes and was used to create the Near-Term plus project scenario.

2. ROADWAY SEGMENTS

For the purposes of this traffic analysis, the roadway geometries at the project Near-Term were assumed to be the same as the existing conditions.

D. NEAR-TERM PLUS PROJECT

1. INTERSECTIONS

Near-Term plus Project AM & PM peak hour turning movement volumes were created by adding project turning movement volumes to Near-Term volumes and are shown in **Figure 11** (Near-Term plus Project AM Peak Hour Volumes) and **Figure 12** (Near-Term plus Project PM Peak Hour Volumes).

The Levels-of-Service shown in **Table 7** (Near-Term plus Project Intersection Levels of Service) reflect the impacts of project generated trips upon Near-Term traffic volumes and shows a slight decrease in intersection capacity which have not approached unacceptable values. See **Appendix "B"** (Synchro 10 – Level of Service Calculations) for all the Synchro 10 Level-of-Service output reports.

Table 7

Near Term plus Project
Intersection Levels of Service

STUDY INTERSECTION	NEAR TERM PLUS PROJECT			
	AM		PM	
	LOS	ICU PERCENTAGE	LOS	ICU PERCENTAGE
1. S. Downs Street at W. Upjohn Avenue	A	46.3 %	A	37.3 %
2. S. Downs Street at W. Radar Avenue	A	28.4 %	A	29.0 %
3. W. Radar Avenue at S. Gordon Street	A	22.4 %	A	25.4 %
4. W. Radar Avenue at Heather Street	A	13.3 %	A	17.8 %
5. W. Radar Avenue at S. Norma Street	A	15.2 %	A	21.2 %
6. S. Downs Street at Bowman Road	A	32.1 %	A	33.5 %
7. Bowman Road at S. Norma Street	A	30.4 %	B	59.3%

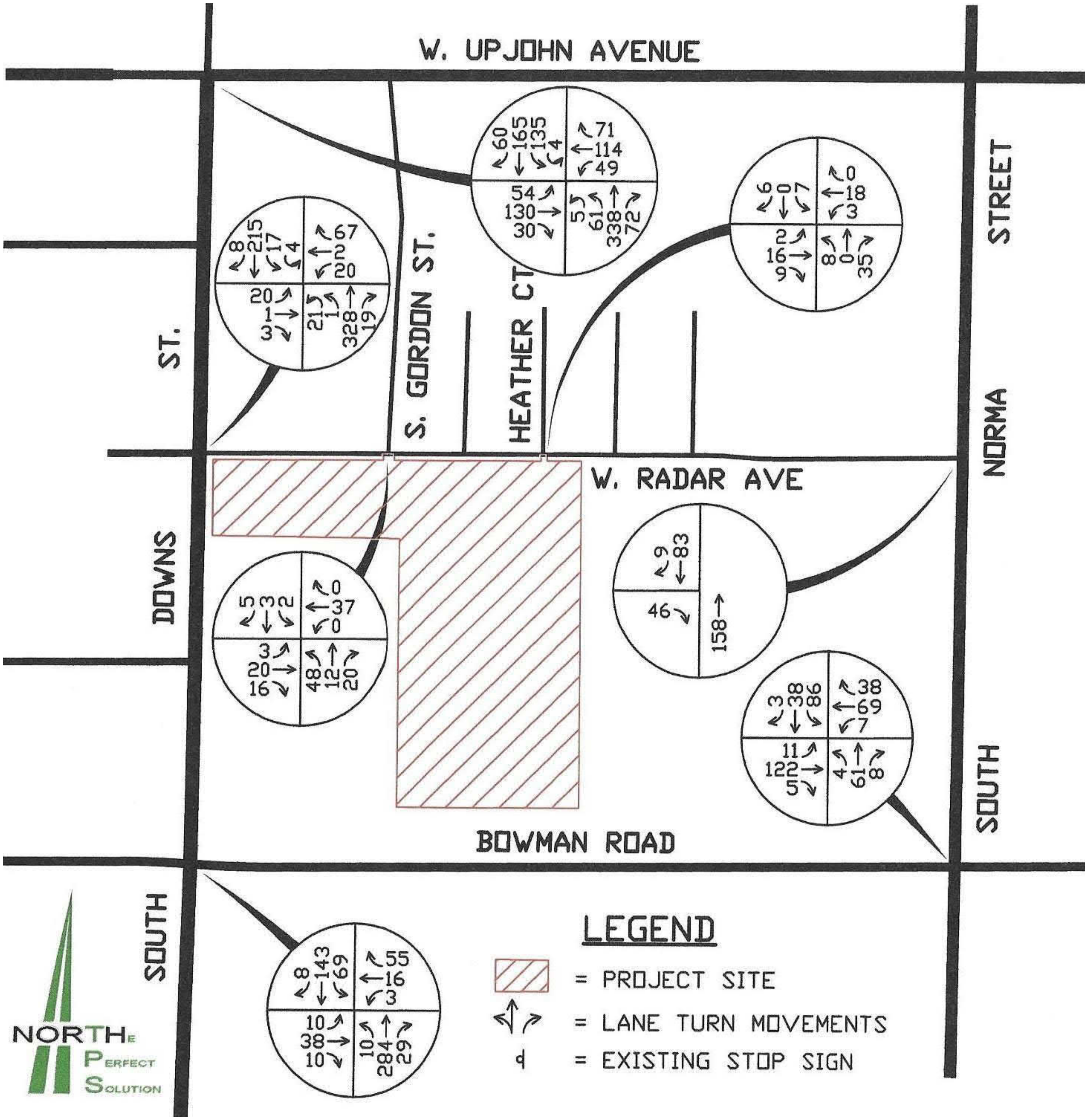


FIGURE 11

NEAR TERM PLUS PROJECT AM PEAK HOUR VOLUMES

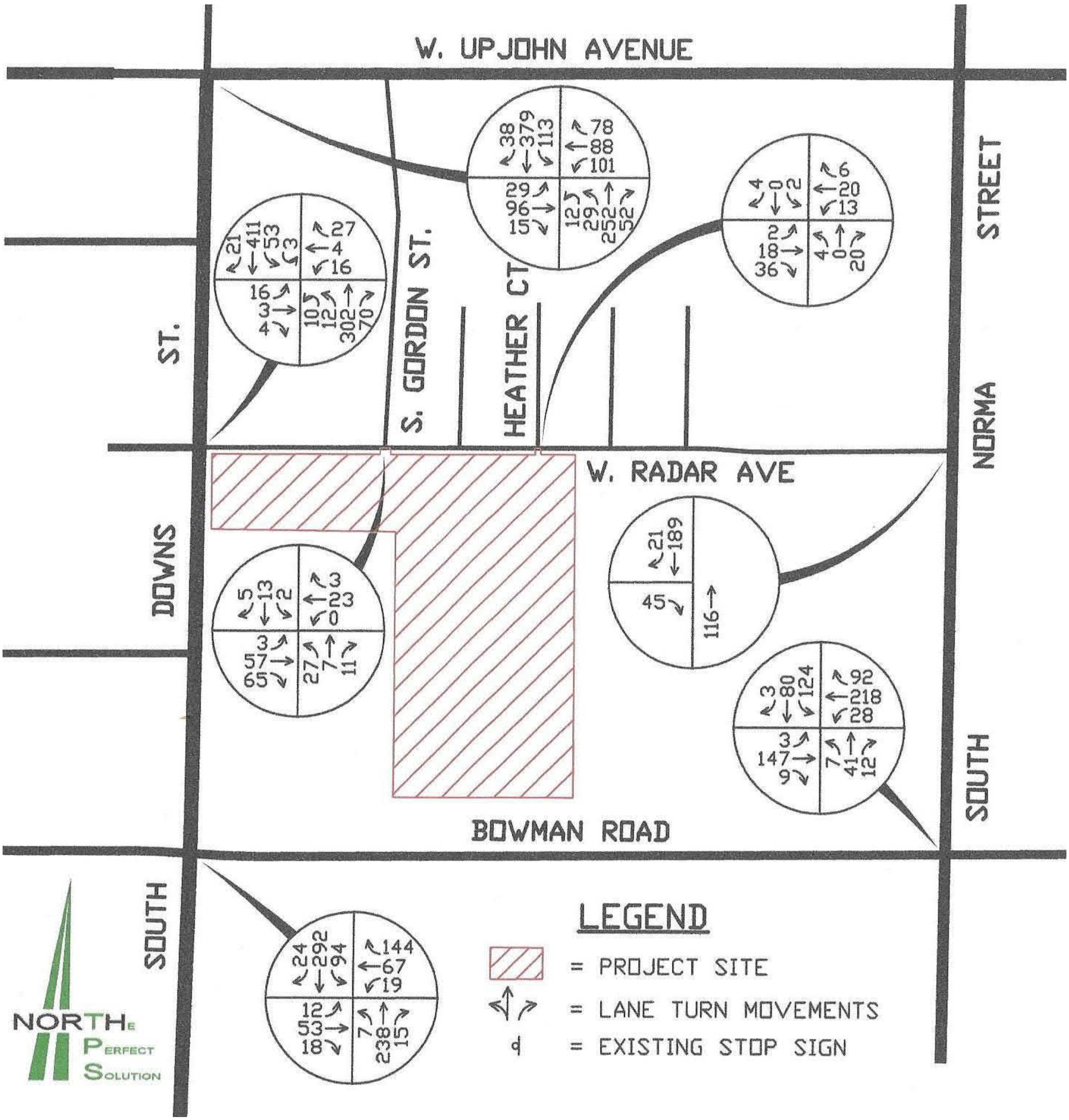


FIGURE 12

NEAR TERM PLUS PROJECT PM PEAK HOUR VOLUMES

2. ROADWAY SEGMENTS

For the purposes of this traffic analysis, the roadway geometries at the project opening day were assumed to be the same as the existing conditions, besides the widening of W.Radar Avenue adjacent to the project site. The Levels-of-Services shown in **Table 8** (Near-Term Plus Project Roadway Segment - Levels of Service) reflect slightly higher volumes while maintaining acceptable service levels from the Near-Term conditions.

Table 8

Near-Term Plus Project Roadway Segments - Levels of Service

Roadway Segment - *Classification*	ADT	LOS	Volume/ Capacity
South Downs Street – *Major Arterial* between W. Upjohn Ave. and W. Radar Ave.	8,466	A	8,466 / 40,000 = 0.21
South Downs Street – *Major Arterial* between W. Radar Ave. and Bowman Rd.	7,950	A	7,950 / 40,000 = 0.20
West Radar Avenue – *Collector Street* between S. Downs Street and S. Gordon St.	1,759	A	1,759 / 15,000 = 0.12
West Radar Avenue – *Collector Street* between Heather Ct. and S. Norma St.	825	A	825 / 15,000 = 0.06
South Norma Street – *Minor Arterial* between W. Radar Ave. and Bowman Rd.	3,889	A	3,889 / 17,000 = 0.23

E. CUMULATIVE

The Cumulative scenario was created by factoring Existing volumes by a growth factor of 2% per year. When comparing average daily traffic (ADT) counts, taken in April of 2016 with those collected in October of 2018, 2.5 years later, we found and annual increase in traffic of about 2 percent. This growth rate of 2.0 percent has been applied for a period of 22 years to approximate volumes in the year 2040.

1. INTERSECTIONS

Cumulative AM & PM peak hour turning movement volumes were created by increasing Near-Term volumes by a growth factor of 1.55 and are shown in **Figure 13** (Cumulative AM Peak Hour Volumes) and **Figure 14** (Cumulative PM Peak Hour Volumes).

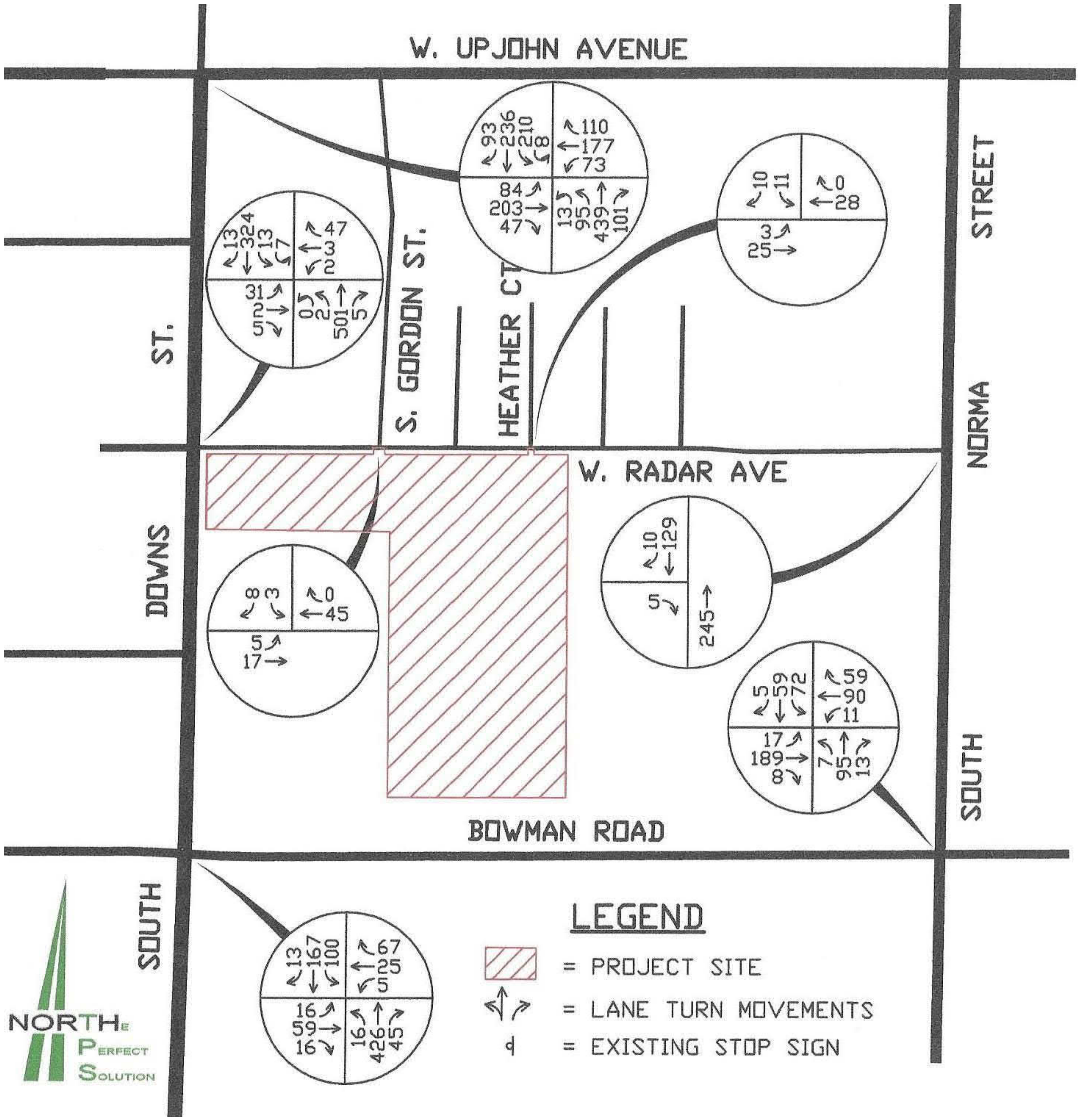


FIGURE 13

CUMULATIVE (2040) AM PEAK HOUR VOLUMES

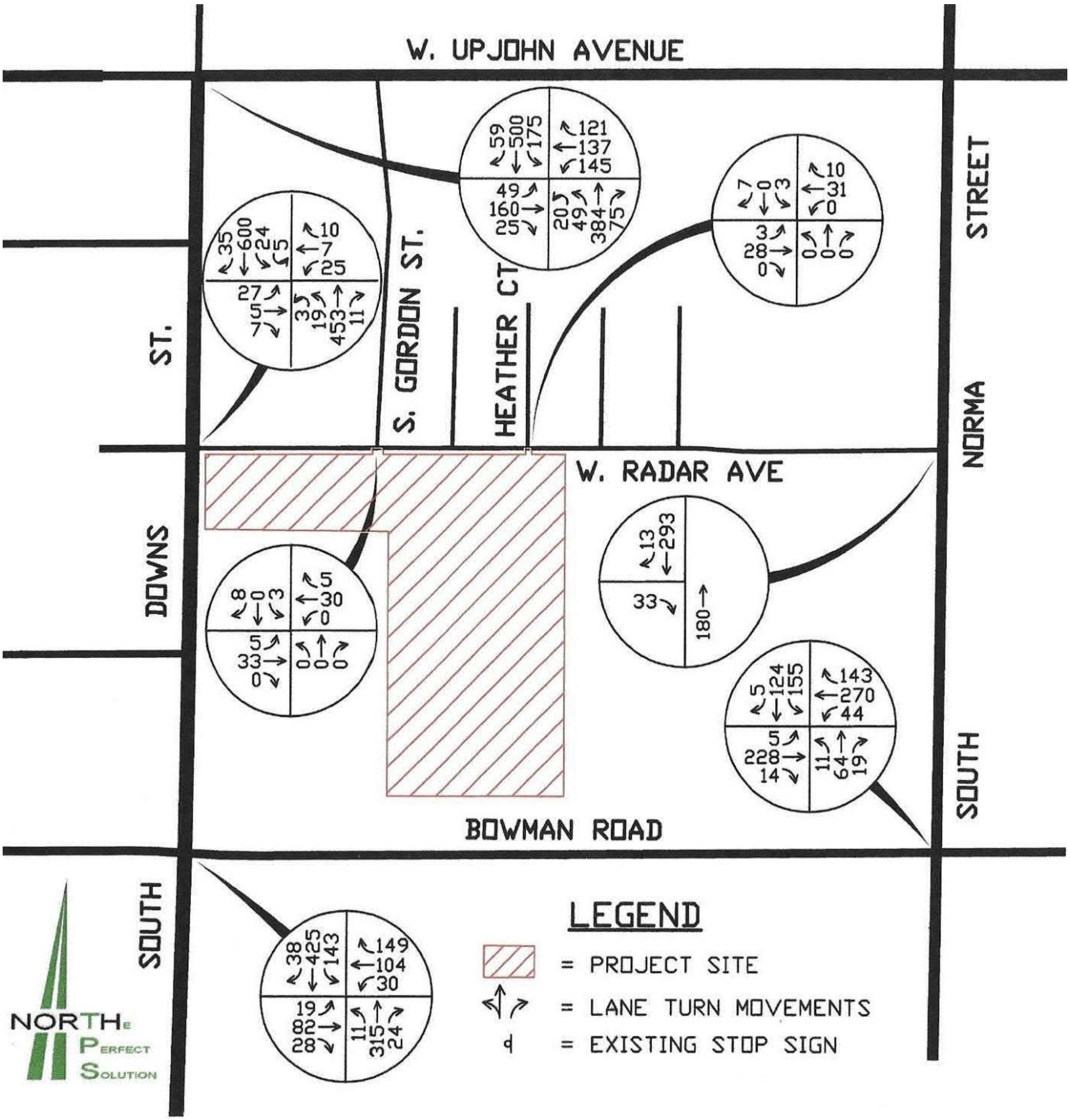


FIGURE 14

CUMULATIVE (2040) PM PEAK HOUR VOLUMES

The Levels-of-Service shown in **Table 9** (Cumulative Intersection Levels of Service) reflect the forecasted increase in traffic between today and the year 2040 and shows a slight decrease in intersection capacity which have not come close to unacceptable values. See **Appendix "B"** (Synchro 10 – Level of Service Calculations) for all the Synchro 10 Level-of-Service output reports. It was assumed that the intersections of Downs Street ay Upjohn and Bowman Road at Norma Street will have been signalized. Both intersections are forecasted to operate at unacceptable service levels (D, E and H) due toan expanding community as predicted by the City of Ridgecrest growth factor.

Table 9

Cumulative

Intersection Levels of Service

STUDY INTERSECTION	CUMULATIVE			
	AM		PM	
	LOS	Capacity or Delay	LOS	Capacity or Delay
1. S. Downs Street at W. Upjohn Avenue	C	30.7 Sec.	C	25.2 Sec.
2. S. Downs Street at W. Radar Avenue	A	42.4 %	A	45.1 %
3. W. Radar Avenue at S. Gordon Street	A	18.1 %	A	19.9 %
4. W. Radar Avenue at Heather Street	A	15.9 %	A	16.2 %
5. W. Radar Avenue at S. Norma Street	A	23.3 %	A	35.1 %
6. S. Downs Street at Bowman Road	A	51.9 %	A	59.7 %
7. Bowman Road at S. Norma Street	A	6.3 Sec.	B	18.4 Sec.

2. ROADWAY SEGMENTS

For the purposes of this traffic analysis, the roadway geometries at the project opening day were assumed to be the same as the existing conditions. The Levels-of-Services shown in **Table 10** (Cumulative Roadway Segment - Levels of Service) reflect higher volumes while maintaining acceptable service levels from the existing conditions.

Table 10

Cumulative Roadway Segments - Levels of Service

Roadway Segment - *Classification*	ADT	LOS	Volume/ Capacity
South Downs Street – *Major Arterial* between W. Upjohn Ave. and W. Radar Ave.	11,966	A	11,966 / 40,000 = 0.30
South Downs Street – *Major Arterial* between W. Radar Ave. and Bowman Rd.	11,131	A	11,131 / 40,000 = 0.28
West Radar Avenue – *Collector Street* between S. Downs Street and S. Gordon St.	789	A	789 / 15,000 = 0.05
West Radar Avenue – *Collector Street* between Heather Ct. and S. Norma St.	583	A	583 / 15,000 = 0.04
South Norma Street – *Minor Arterial* between W. Radar Ave. and Bowman Rd.	5,485	A	5,485 / 17,000 = 0.32

F. CUMULATIVE PLUS PROJECT

1. INTERSECTIONS

Cumulative plus Project AM & PM peak hour turning movement volumes were created by adding project turning movement volumes to cumulative volumes and are shown in **Figure 15** (Cumulative plus Project AM Peak Hour Volumes) and **Figure 16** (Cumulative plus Project PM Peak Hour Volumes).

The Levels-of-Service shown in **Table 11** (Cumulative plus Project Intersection Levels of Service) reflect the impacts of project generated trips upon cumulative traffic volumes and shows a slight decrease in intersection capacity which have not come close to unacceptable values. See **Appendix "B"** (Synchro 10 – Level of Service Calculations) for all the Synchro 10 Level-of-Service output reports.

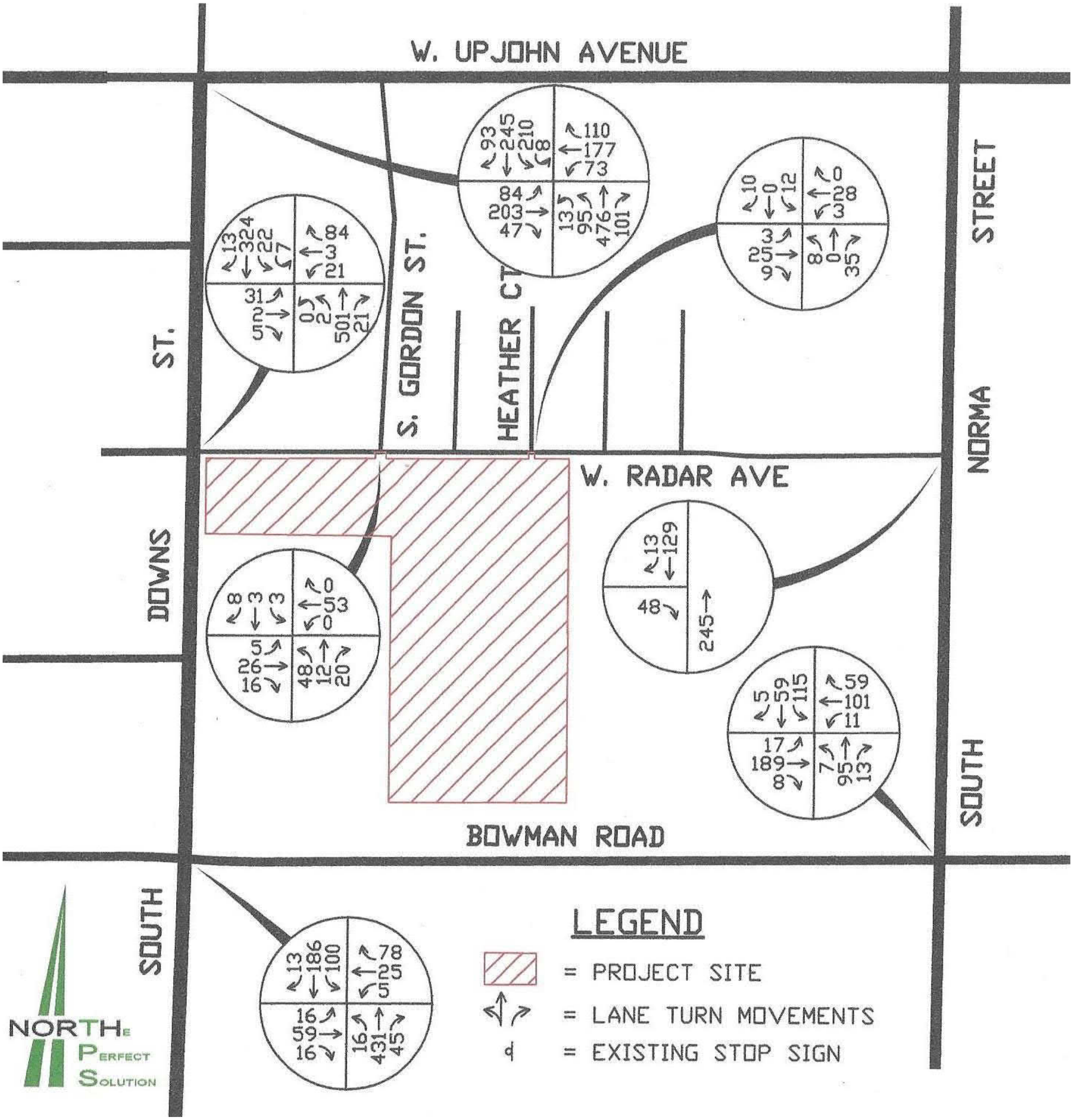


FIGURE 15

CUMULATIVE PLUS PROJECT AM PEAK HOUR VOLUMES

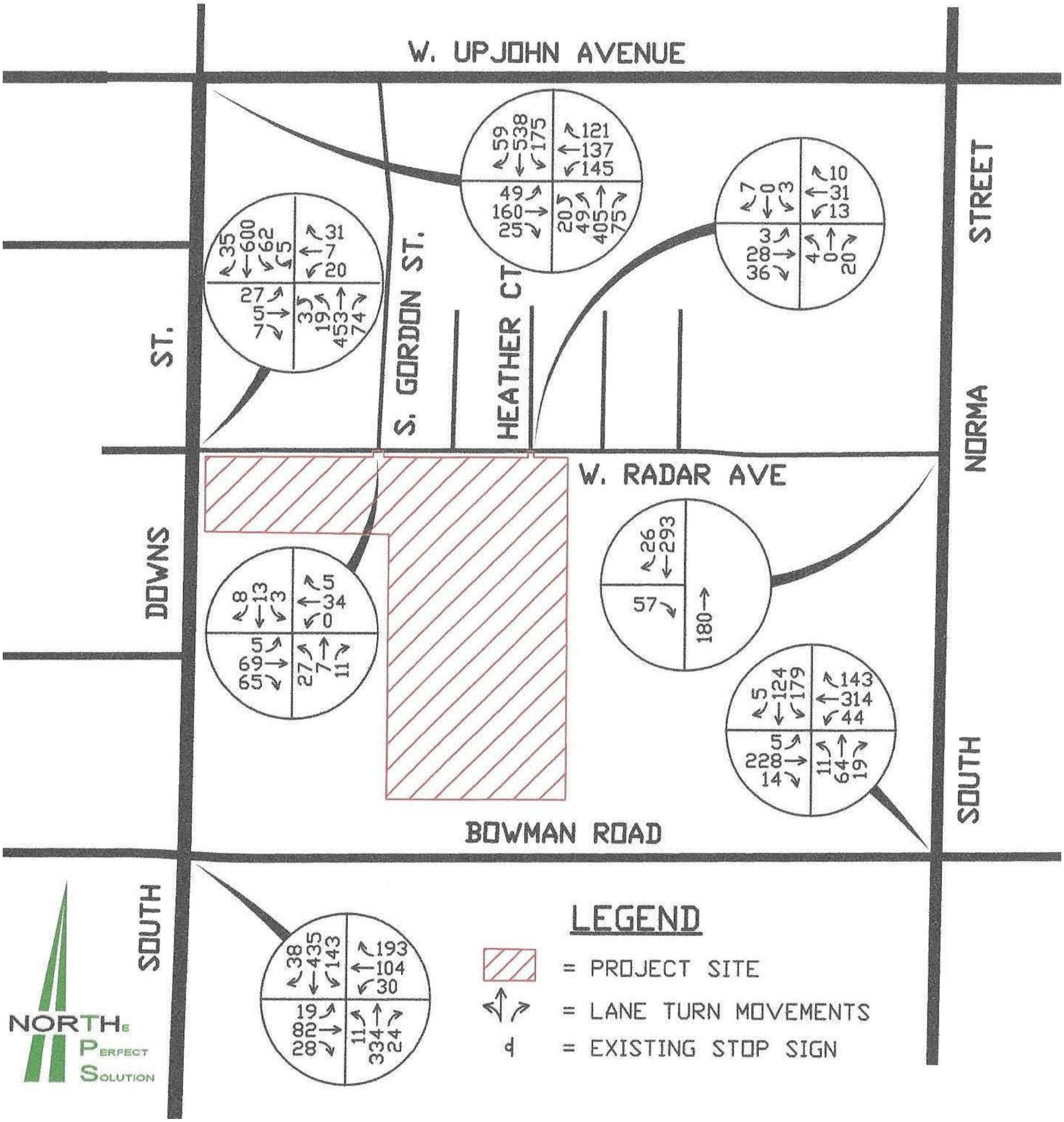


FIGURE 16

CUMULATIVE PLUS PROJECT PM PEAK HOUR VOLUMES

Table 11

Cumulative Roadway Segments - Levels of Service

STUDY INTERSECTION	CUMULATIVE PLUS PROJECT			
	AM		PM	
	LOS	Capacity or Delay	LOS	Capacity or Delay
1. S. Downs Street at W. Upjohn Avenue	B	15.6 Sec.	B	13.6 Sec.
2. S. Downs Street at W. Radar Avenue	A	34.7 %	A	35.1 %
3. W. Radar Avenue at S. Gordon Street	A	24.0 %	A	27.1 %
4. W. Radar Avenue at Heather Street	A	13.3 %	A	17.8 %
5. W. Radar Avenue at S. Norma Street	A	17.8 %	A	27.2 %
6. S. Downs Street at Bowman Road	A	39.6 %	A	41.7 %
7. Bowman Road at S. Norma Street	A	8.8 Sec.	A	8.1 Sec.

2. ROADWAY SEGMENTS

For the purposes of this traffic analysis, the roadway geometries in the year 2040 were assumed to be the same as the existing conditions, besides the widening of W. Radar Avenue adjacent to the project site. The Levels-of-Services shown in **Tables 12** (Cumulative Plus Project Roadway Segment - Levels of Service) reflect slightly higher volumes while maintaining acceptable service levels from the existing conditions.

Table 12

Cumulative Plus Project Roadway Segments - Levels of Service

Roadway Segment - *Classification*	ADT	LOS	Volume/ Capacity
South Downs Street – *Major Arterial* between W. Upjohn Ave. and W. Radar Ave.	12,566	A	12,566 / 40,000 = 0.31
South Downs Street – *Major Arterial* between W. Radar Ave. and Bowman Rd.	11,781	A	11,781 / 40,000 = 0.29
West Radar Avenue – *Collector Street* between S. Downs Street and S. Gordon St.	2,039	A	2,039 / 15,000 = 0.14
West Radar Avenue – *Collector Street* between Heather Ct. and S. Norma St.	1,033	A	1,033 / 15,000 = 0.07
South Norma Street – *Minor Arterial* between W. Radar Ave. and Bowman Rd.	5,835	A	5,835 / 17,000 = 0.34

G. MITIGATION MEASURES

Based on the existing and project generated traffic volumes calculated to pass through each of the seven study intersections and five roadway segments, we do not recommend any changes tothe City of Ridgecrest roadway network, to mitigate significant impacts.

Based on forecasted traffic volumes estimated in the year 2040, by applying the required 2% growth factor to existing traffic, the City may want to program traffic signals for the intersectionsof S. Downs Street at W. Upjohn and Bowman Road at S. Norma Street. Without signalization these intersections could be operating at unacceptable service levels. These improvements are not due to project traffic and are not the responsibility of the developer.

H. CONCLUSIONS

Based on our Traffic Engineering investigation completed for this project, it has been shown that there are no significant project impacts forecasted, therefor there is no need for any mitigation measures. Intersections and roadway segments remain at acceptable service levels with the addition of project traffic forecasted to impact the local street system today, in the Near-Term and in the year 2040.

ADDENDIX
"A"

TRAFFIC COUNTS

Location: Downs St & Radar Ave

Project ID: 18-02105-001

City: Ridgecrest

Total

NS/EW Streets:	Downs St				Downs St				Radar Ave				Radar Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	86	0	0	1	31	1	0	3	0	0	0	0	1	0	0	124
7:15 AM	1	83	1	0	2	35	2	2	9	0	1	0	0	0	7	0	143
7:30 AM	0	89	0	0	1	44	0	0	3	1	0	0	0	0	9	0	147
7:45 AM	0	93	1	0	5	69	5	2	2	0	1	0	1	2	11	0	192
8:00 AM	0	57	1	0	0	61	1	0	6	0	1	0	0	0	3	0	130
8:15 AM	0	55	0	0	0	36	2	0	3	0	3	0	0	0	3	0	102
8:30 AM	1	52	0	0	1	30	1	0	3	0	2	0	1	0	3	0	94
8:45 AM	2	48	0	0	0	37	3	0	3	1	0	0	1	0	0	0	95
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	563	3	0	10	343	15	4	32	2	8	0	3	3	36	0	1027
APPROACH %'s :	0.88%	98.60%	0.53%	0.00%	2.69%	92.20%	4.03%	1.08%	76.19%	4.76%	19.05%	0.00%	7.14%	7.14%	85.71%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	322	3	0	8	209	8	4	20	1	3	0	1	2	30	0	612
PEAK HR FACTOR :	0.250	0.866	0.750	0.000	0.400	0.757	0.400	0.500	0.556	0.250	0.750	0.000	0.250	0.250	0.682	0.000	0.797
	0.867				0.707				0.600				0.589				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	50	1	0	6	90	3	0	4	3	1	0	1	1	3	0	166
4:15 PM	0	66	5	0	5	81	5	0	1	0	1	0	2	0	2	0	168
4:30 PM	1	61	0	0	2	75	8	0	3	1	1	0	7	0	2	0	161
4:45 PM	6	80	2	0	2	84	4	1	2	1	1	0	2	1	1	0	187
5:00 PM	2	67	1	1	4	115	6	1	6	0	1	0	0	1	2	0	207
5:15 PM	3	84	2	0	7	104	6	0	1	2	0	0	2	1	2	0	214
5:30 PM	1	57	2	1	2	83	5	1	7	0	2	0	2	1	1	0	165
5:45 PM	3	66	1	0	2	86	8	0	3	1	0	0	3	1	2	0	176
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	19	531	14	2	30	718	45	3	27	8	7	0	19	6	15	0	1444
APPROACH %'s :	3.36%	93.82%	2.47%	0.35%	3.77%	90.20%	5.65%	0.38%	64.29%	19.05%	16.67%	0.00%	47.50%	15.00%	37.50%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	12	288	7	2	15	386	21	3	16	3	4	0	6	4	6	0	773
PEAK HR FACTOR :	0.500	0.857	0.875	0.500	0.536	0.839	0.875	0.750	0.571	0.375	0.500	0.000	0.750	1.000	0.750	0.000	0.903
	0.868				0.843				0.639				0.800				

Location: Downs St & Radar Ave

Project ID: 18-02105-001

City: Ridgecrest

Bikes

NS/EW Streets:	Downs St				Downs St				Radar Ave				Radar Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%													
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
	0.250																

	Downs St				Downs St				Radar Ave				Radar Ave				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	3	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
5:00 PM	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	5	0	0	0	2	1	0	1	0	0	0	0	0	0	0	9
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	100.00%	0.00%	0.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	4	0	0	0	1	1	0	1	0	0	0	0	0	0	0	7
PEAK HR FACTOR :	0.00	0.500	0.000	0.000	0.000	0.250	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.583
	0.500				0.500				0.250								

Location: Downs St & Radar Ave   Project ID: 18-02105-001

City: Ridgecrest   Date: 10/18/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Downs St		Downs St		Radar Ave		Radar Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	1	0	0	0	0	0	1	0	2
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	2	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	2	1	0	4
APPROACH %'s :	100.00%	0.00%			0.00%	100.00%	100.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	1	0	0	0	0	0	1	0	2
PEAK HR FACTOR :	0.250						0.250		
	0.250						0.250		0.250

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	2	0	2	0	0	0	4
4:45 PM	0	0	0	0	2	1	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	2	0	0	3
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	2	0	5	3	0	0	11
APPROACH %'s :	0.00%	100.00%	100.00%	0.00%	62.50%	37.50%			
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	1	0	0	2	1	0	0	4
PEAK HR FACTOR :		0.250			0.250	0.250			
	0.250				0.250				0.333

Downs St & Radar Ave

Peak Hour Turning Movement Count

ID: 18-02105-001

Day: Thursday

Downs St

SOUTHBOUND

PEAK HOURS								COUNT PERIODS
07:15 AM - 08:15 AM	AM	8	209	8	4	376	AM	07:00 AM - 09:00 AM
NONE	NOON	0	0	0	0	0	NOON	NONE
04:45 PM - 05:45 PM	PM	21	386	15	3	313	PM	04:00 PM - 06:00 PM

Southbound bikes: 1 3 0 0

Eastbound (Radar Ave)

AM	NOON	PM	Movement	Bikes
0	0	0	U-turn	0
20	0	16	Left	0
1	0	3	Through	1
3	0	4	Right	0

Westbound (Radar Ave)

Bikes	Movement	PM	NOON	AM
0	Right	6	0	30
1	Through	4	0	2
0	Left	6	0	1
0	U-turn	0	0	0
		25	0	12

CONTROL

2-Way Stop (EB/WB)

	AM	NOON	PM
TEV	612	0	773
PHF	0.80		0.90

Northbound bikes: 0 0 3 1

		U-turn	Left	Through	Right	
PM	398	2	12	288	7	PM
NOON	0	0	0	0	0	NOON
AM	213	0	1	322	3	AM

NORTHBOUND

Downs St

Total Vehicles (AM)

SB: 8, 209; EB: 20, 1; WB: 30, 2; NB: 322, 3

Bikes (AM)

SB: 0, 0; EB: 0, 0; WB: 0, 0; NB: 1, 0

Total Vehicles (Noon)

N/A N/A N/A N/A N/A N/A N/A N/A

Bikes (NOON)

N/A N/A N/A N/A N/A N/A N/A N/A

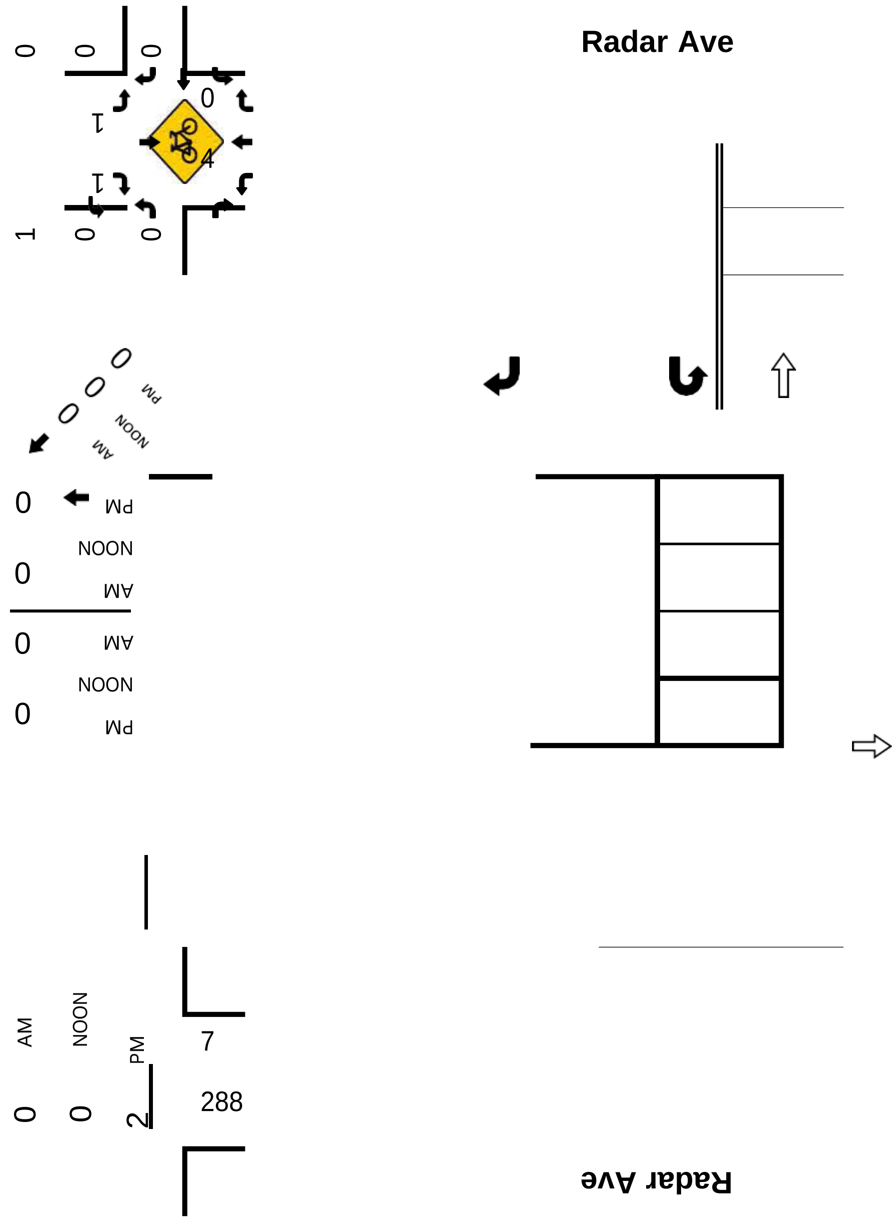
Pedestrians (Crosswalks)

Crosswalk	PM	NOON	AM
North leg	0	0	1
North diagonal (NW)	0	0	0
North diagonal (NE)	0	0	0
West leg (PM/NOON/AM)	0	0	0
East leg (PM/NOON/AM)	1	0	0
South leg (AM/NOON/PM)	0	0	1

Total Vehicles (PM)

SB: 21, 386; EB: 16, 3; WB: 6, 4

Bikes (PM)


Radar Ave
Radar Ave
AM
NOON
PM
0
0
2
7
288
0
0
0
0
1
0
0
0
0
1
1
0
4

Location: Gordon St & Radar Ave

Project ID: 18-02105-002

City: Ridgecrest

Total

NS/EW Streets:	Gordon St				Gordon St				Radar Ave				Radar Ave				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	1	3	0	0	0	9	0	0	13
7:30 AM	0	0	0	0	1	0	2	0	0	3	0	0	0	5	0	0	11
7:45 AM	0	0	0	0	0	0	2	0	2	4	0	0	0	12	0	0	20
8:00 AM	0	0	0	0	1	0	1	0	0	1	0	0	0	3	0	0	6
8:15 AM	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0	0	8
8:30 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	3	0	0	5
8:45 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	8	0	5	0	3	15	0	0	0	38	0	0	69
APPROACH %'s :					61.54%	0.00%	38.46%	0.00%	16.67%	83.33%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	2	0	5	0	3	11	0	0	0	29	0	0	50
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.000	0.625	0.000	0.375	0.688	0.000	0.000	0.000	0.604	0.000	0.000	0.625
					0.583				0.583				0.604				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	1	0	1	7	0	0	0	5	0	0	14
4:15 PM	0	0	0	0	0	0	0	0	2	8	0	0	0	2	0	0	12
4:30 PM	0	0	0	0	1	2	4	0	0	1	0	0	0	10	2	0	20
4:45 PM	0	0	0	0	1	0	0	0	0	5	0	0	0	2	1	0	9
5:00 PM	0	0	0	0	1	0	0	0	0	5	0	0	0	3	0	0	9
5:15 PM	0	0	0	0	1	0	0	0	1	10	0	0	0	4	0	0	16
5:30 PM	0	0	0	0	4	0	2	0	1	3	0	0	0	2	1	0	13
5:45 PM	0	1	0	0	1	0	3	0	1	2	0	0	0	1	1	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	9	2	10	0	6	41	0	0	0	29	5	0	103
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	42.86%	9.52%	47.62%	0.00%	12.77%	87.23%	0.00%	0.00%	0.00%	85.29%	14.71%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	2	2	5	0	3	21	0	0	0	19	3	0	55
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.250	0.313	0.000	0.375	0.656	0.000	0.000	0.000	0.475	0.375	0.000	0.688
					0.321				0.600				0.458				

Location: Gordon St & Radar Ave

Project ID: 18-02105-002

City: Ridgecrest

Bikes

NS/EW Streets:	Gordon St				Gordon St				Radar Ave				Radar Ave				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
APPROACH %'s :													0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

Location: Gordon St & Radar Ave

Project ID: 18-02105-002

City: Ridgecrest

Date: 10/18/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Gordon St		Gordon St		Radar Ave		Radar Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	1	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	0	0	0	1
APPROACH %'s :	100.00%	0.00%							
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	1	1
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	2	0	0	0	0	0	1	0	3
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	1	0	0	0	0	1	1	5
APPROACH %'s :	66.67%	33.33%					50.00%	50.00%	
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	2	0	0	0	0	0	1	1	4
PEAK HR FACTOR :	0.250						0.250	0.250	0.333
	0.250						0.500		

Gordon St & Radar Ave

Peak Hour Turning Movement Count

ID: 18-02105-002

Day: Thursday

Gordon St

SOUTHBOUND

PEAK HOURS								COUNT PERIODS
07:15 AM - 08:15 AM	AM	5	0	2	0	3	AM	07:00 AM - 09:00 AM
NONE	NOON	0	0	0	0	0	NOON	NONE
04:00 PM - 05:00 PM	PM	5	2	2	0	6	PM	04:00 PM - 06:00 PM

Southbound bikes: 0 1 0 0

Eastbound (AM / NOON / PM)

AM	NOON	PM	Bikes
0	0	0	0
3	0	3	0
11	0	21	1
0	0	0	0

Westbound (PM / NOON / AM)

Bikes	PM	NOON	AM
0	3	0	0
1	19	0	29
0	0	0	0
0	0	0	0
	23	0	13

CONTROL

1-Way Stop (SB)

	AM	NOON	PM
TEV	50	0	55
PHF	0.63		0.69

Northbound bikes: 0 0 0 0

PM	2	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

NORTHBOUND

Gordon St

Total Vehicles (AM)

5, 0, 3, 0, 11, 29, 0, 0

Bikes (AM)

0, 0, 0, 0, 0, 0, 0, 0

Total Vehicles (Noon)

N/A, N/A, N/A, N/A, N/A, N/A, N/A, N/A

Bikes (NOON)

N/A, N/A, N/A, N/A, N/A, N/A, N/A, N/A

Pedestrians (Crosswalks)

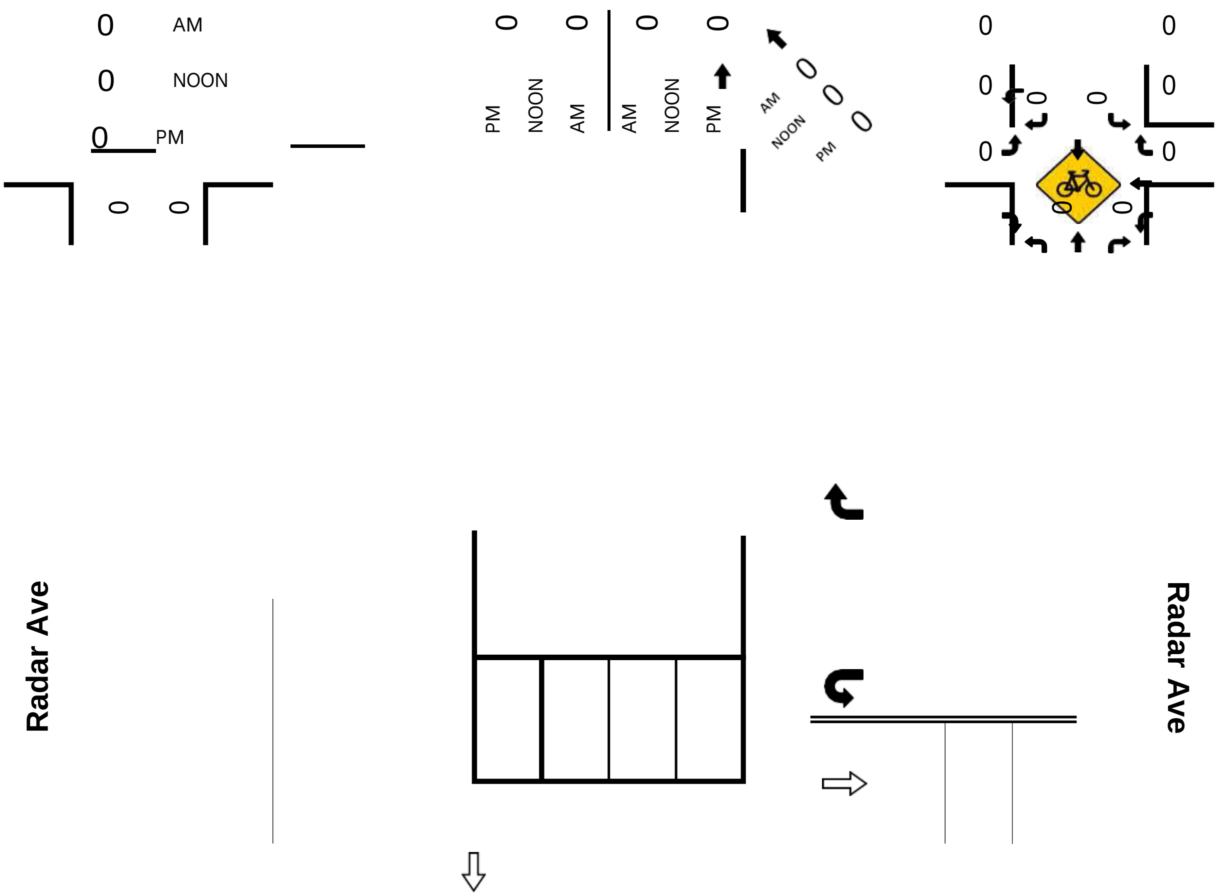
	NW corner		SW/W		NE/E	
PM	0	PM 2	1		0	PM
NOON	0	NOON 0	0	NOON 0	0	NOON
AM	0	AM 0	0	AM 0	0	AM

AM 0, NOON 0, PM 1

Total Vehicles (PM)

5, 2, 3, 3, 21, 19

Bikes (PM)



Radar Ave
Radar Ave
AM
NOON
PM
0
0
0

Location: Heather Ct & Radar Ave

Project ID: 18-02105-003

City: Ridgecrest

Total

NS/EW Streets:	Heather Ct				Heather Ct				Radar Ave				Radar Ave				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	1	0	0	0	1	2	0	0	0	3	1	0	8
7:15 AM	0	0	0	0	2	0	1	0	0	1	0	0	0	3	1	0	8
7:30 AM	0	0	0	0	1	0	1	0	0	7	0	0	0	3	0	0	12
7:45 AM	0	0	0	0	3	0	3	0	1	1	0	0	0	9	0	0	17
8:00 AM	0	0	0	0	2	0	2	0	1	4	0	0	0	2	0	0	11
8:15 AM	0	0	0	0	1	0	0	0	0	4	0	0	0	4	0	0	9
8:30 AM	0	0	0	0	0	0	1	0	0	2	0	0	0	3	1	0	7
8:45 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	1	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	10	0	8	0	3	24	0	0	0	29	4	0	78
APPROACH %'s :					55.56%	0.00%	44.44%	0.00%	11.11%	88.89%	0.00%	0.00%	0.00%	87.88%	12.12%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	7	0	6	0	2	16	0	0	0	18	0	0	49
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.583	0.000	0.500	0.000	0.500	0.571	0.000	0.000	0.000	0.500	0.000	0.000	0.721
					0.542				0.643				0.500				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	0	1	0	1	5	0	0	0	4	1	0	13
4:15 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	4	4	0	15
4:30 PM	0	0	0	0	1	0	2	0	0	2	0	0	0	9	0	0	14
4:45 PM	0	0	0	0	0	0	1	0	1	4	0	0	0	3	1	0	10
5:00 PM	0	0	0	0	1	0	1	0	0	5	0	0	0	3	2	0	12
5:15 PM	0	0	0	0	0	0	0	0	1	7	0	0	0	5	0	0	13
5:30 PM	0	0	0	0	1	0	0	0	0	6	0	0	0	4	1	0	12
5:45 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	4	0	5	0	3	39	0	0	0	35	9	0	95
APPROACH %'s :					44.44%	0.00%	55.56%	0.00%	7.14%	92.86%	0.00%	0.00%	0.00%	79.55%	20.45%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	2	0	4	0	2	18	0	0	0	20	6	0	52
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.500	0.643	0.000	0.000	0.000	0.556	0.375	0.000	0.867
					0.500				0.714				0.722				

Location: Heather Ct & Radar Ave

Project ID: 18-02105-003

City: Ridgecrest

Bikes

NS/EW Streets:	Heather Ct				Heather Ct				Radar Ave				Radar Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
APPROACH %'s :													0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

Location: Heather Ct & Radar Ave

Project ID: 18-02105-003

City: Ridgecrest

Date: 10/18/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Heather Ct		Heather Ct		Radar Ave		Radar Ave		
	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
AM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	1	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	1	0	0	0	0	0	0	2
APPROACH %'s :	50.00%	50.00%							
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	2	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	2	0	0	2
5:45 PM	0	0	0	0	2	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	0	0	0	2	2	0	0	7
APPROACH %'s :	100.00%	0.00%			50.00%	50.00%			
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	2	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.250								0.250
	0.250								

Heather Ct & Radar Ave

Peak Hour Turning Movement Count

ID: 18-02105-003

Day: Thursday

Heather Ct

SOUTHBOUND

	PEAK HOURS								COUNT PERIODS
AM	07:30 AM - 08:30 AM	6	0	7	0	2	AM	07:00 AM - 09:00 AM	
NOON	NONE	0	0	0	0	0	NOON	NONE	
PM	04:00 PM - 05:00 PM	4	0	2	0	8	PM	04:00 PM - 06:00 PM	

Southbound (red): 0 1 0 0

Eastbound

AM	NOON	PM		
0	0	0	U-turn	0
2	0	2	Left	0
16	0	18	Through	1
0	0	0	Right	0

Westbound

		PM	NOON	AM
0	Left	6	0	0
1	Through	20	0	18
0	Right	0	0	0
0	U-turn	0	0	0
		20	0	23

CONTROL

1-Way Stop (SB)

	AM	NOON	PM
TEV	49	0	52
PHF	0.72		0.87

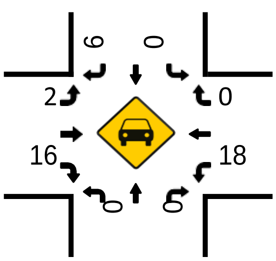
Northbound (red): 0 0 0 0

PM	0	0	0	0	0	**PM**
NOON	0	0	0	0	0	**NOON**
AM	0	0	0	0	0	**AM**

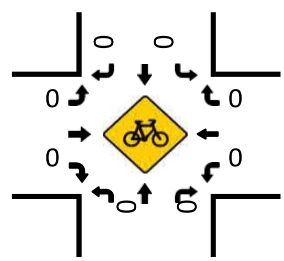
NORTHBOUND

Heather Ct

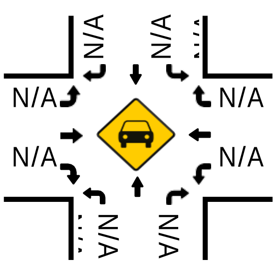
Total Vehicles (AM)



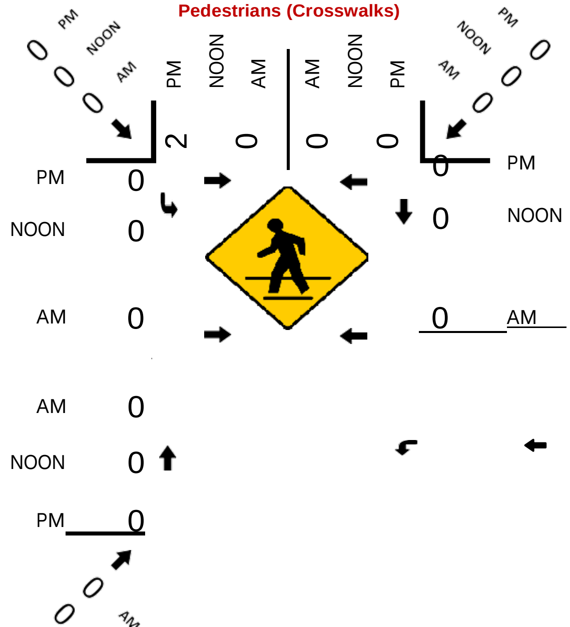
Bikes (AM)



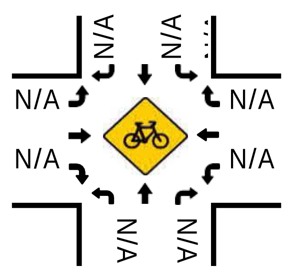
Total Vehicles (Noon)



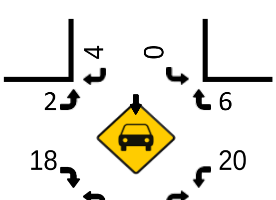
Pedestrians (Crosswalks)



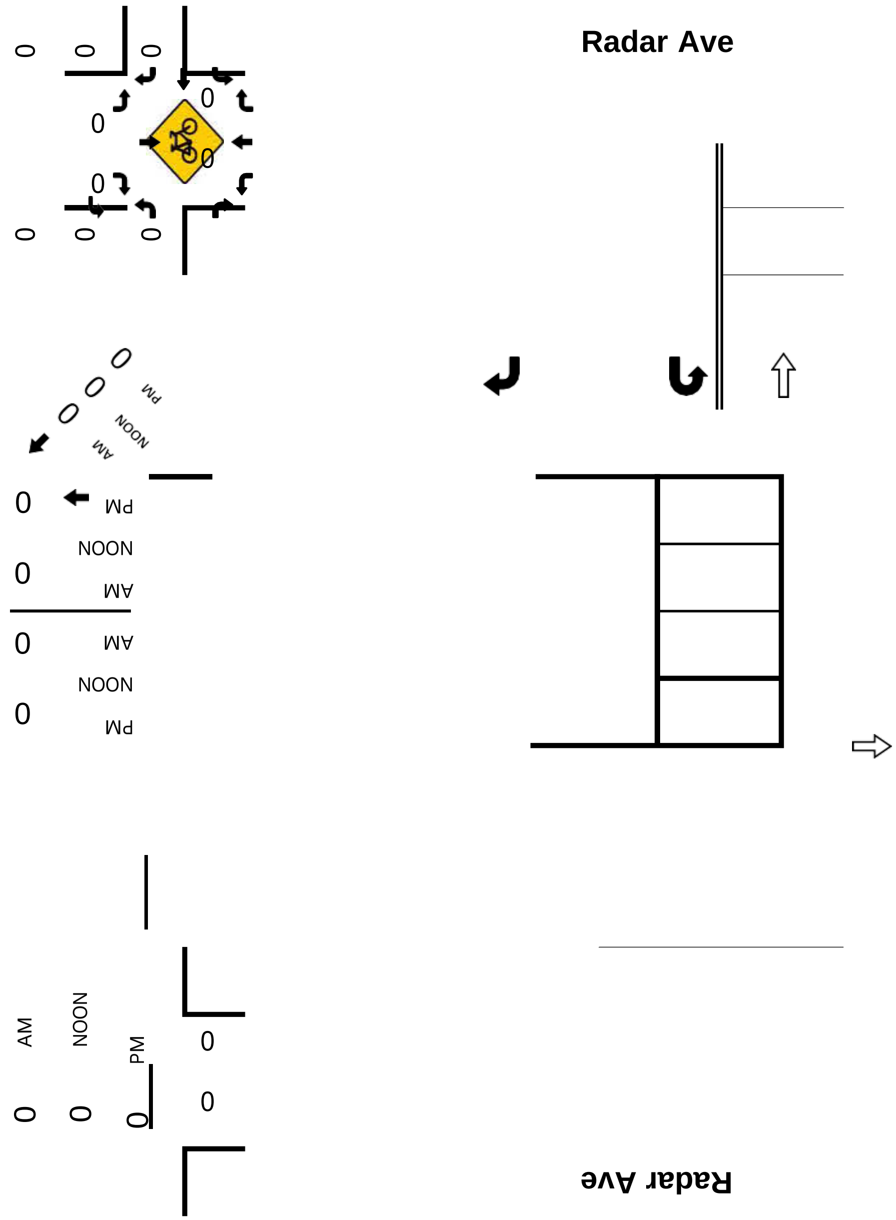
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)


Radar Ave
AM
NOON
PM
Radar Ave

Location: Norma St & Radar Ave

City: Ridgecrest

Control: 1-Way Stop (SB)

NS/EW Streets:	Norma St				Norm	
AM	NORTHBOUND				SOUTH	
	0	1	0	0	0	1
	NL	NT	NR	NU	SL	ST
7:00 AM	0	41	0	0	0	12
7:15 AM	0	45	0	0	0	22
7:30 AM	0	39	0	0	0	19
7:45 AM	1	33	0	1	0	30
8:00 AM	0	30	0	0	0	15
8:15 AM	0	23	0	0	0	21
8:30 AM	0	17	0	0	0	24
8:45 AM	0	30	0	0	0	19
	NL	NT	NR	NU	SL	ST
TOTAL VOLUMES :	1	258	0	1	0	162
APPROACH %'s :	0.38%	99.23%	0.00%	0.38%	0.00%	92.57%
PEAK HR :	07:00 AM - 08:00 AM					
PEAK HR VOL :	1	158	0	1	0	83
PEAK HR FACTOR :	0.250	0.878	0.000	0.250	0.000	0.692
	0.889				0.6	

PM	NORTHBOUND				SOUTH	
	0	1	0	0	0	1
	NL	NT	NR	NU	SL	ST
4:00 PM	1	34	0	0	0	37
4:15 PM	5	29	0	0	0	34
4:30 PM	3	19	0	1	0	43
4:45 PM	2	33	0	1	0	50
5:00 PM	2	25	0	0	0	40
5:15 PM	6	28	0	1	0	58
5:30 PM	5	30	0	0	0	41
5:45 PM	2	28	0	0	0	36
	NL	NT	NR	NU	SL	ST
TOTAL VOLUMES :	26	226	0	3	0	339
APPROACH %'s :	10.20%	88.63%	0.00%	1.18%	0.00%	94.43%
PEAK HR :	04:45 PM - 05:45 PM					
PEAK HR VOL :	15	116	0	2	0	189
PEAK HR FACTOR :	0.625	0.879	0.000	0.500	0.000	0.815
	0.924				0.7	

Project ID:

Date:

Total

a St		Radar Ave				Rada	
BOUND		EASTBOUND				WEST	
0	0	0	0	0	0	0	1
SR	SU	EL	ET	ER	EU	WL	WT
2	0	0	0	1	0	0	0
1	0	0	0	0	0	0	0
0	0	0	0	2	0	0	0
3	0	0	0	0	0	0	0
3	0	0	0	3	0	0	0
0	0	0	0	4	0	0	0
4	0	0	0	8	0	0	0
0	0	0	0	1	0	0	0
SR	SU	EL	ET	ER	EU	WL	WT
13	0	0	0	19	0	0	0
7.43%	0.00%	0.00%	0.00%	100.00%	0.00%		
6	0	0	0	3	0	0	0
0.500	0.000	0.000	0.000	0.375	0.000	0.000	0.000
74		0.375					

BOUND		EASTBOUND				WEST	
0	0	0	0	0	0	0	1
SR	SU	EL	ET	ER	EU	WL	WT
4	0	0	0	2	0	0	0
3	0	0	0	2	0	0	0
3	0	0	0	2	0	0	0
2	0	0	0	5	0	0	0
2	0	0	0	5	0	0	0
4	0	0	0	4	0	0	0
0	0	0	0	7	0	0	0
2	0	0	0	8	0	0	0
SR	SU	EL	ET	ER	EU	WL	WT
20	0	0	0	35	0	0	0
5.57%	0.00%	0.00%	0.00%	100.00%	0.00%		
8	0	0	0	21	0	0	0
0.500	0.000	0.000	0.000	0.750	0.000	0.000	0.000
94		0.750					

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r Ave

BOUND		
0	0	
WR	WU	TOTAL
0	0	56
0	0	68
0	0	60
0	0	68
0	0	51
0	0	48
0	0	53
0	0	50
WR	WU	TOTAL
0	0	454
		TOTAL
0	0	252
0.000	0.000	0.926

BOUND		
0	0	
WR	WU	TOTAL
0	0	78
0	0	73
0	0	71
0	0	93
0	0	74
0	0	101
0	0	83
0	0	76
WR	WU	TOTAL
0	0	649
		TOTAL
0	0	351
0.000	0.000	0.869

Location: Norma St & Radar Ave

City: Ridgecrest

Control: 1-Way Stop (SB)

NS/EW Streets:	Norma St				Norm	
AM	NORTHBOUND				SOUTH	
	0	1	0	0	0	1
	NL	NT	NR	NU	SL	ST
7:00 AM	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST
TOTAL VOLUMES :	0	0	0	0	0	0
APPROACH %'s :						
PEAK HR :	07:00 AM - 08:00 AM					
PEAK HR VOL :	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000

PM	NORTHBOUND				SOUTH	
	0	1	0	0	0	1
	NL	NT	NR	NU	SL	ST
4:00 PM	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1
4:30 PM	0	1	0	0	0	0
4:45 PM	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST
TOTAL VOLUMES :	0	1	0	0	0	1
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%
PEAK HR :	04:45 PM - 05:45 PM					
PEAK HR VOL :	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000

Project ID:

Date:

Bikes

a St		Radar Ave				Rada	
BOUND		EASTBOUND				WEST	
0	0	0	0	0	0	0	1
SR	SU	EL	ET	ER	EU	WL	WT
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
SR	SU	EL	ET	ER	EU	WL	WT
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BOUND		EASTBOUND				WEST	
0	0	0	0	0	0	0	1
SR	SU	EL	ET	ER	EU	WL	WT
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
SR	SU	EL	ET	ER	EU	WL	WT
0	0	0	0	0	0	0	0
0.00%	0.00%						
0	0	0	0	0	0	0	0
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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10/18/2018

r Ave		
BOUND		
0	0	
WR	WU	TOTAL
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
WR	WU	TOTAL
0	0	0
		TOTAL
0	0	0
0.000	0.000	

BOUND		
0	0	
WR	WU	TOTAL
0	0	0
0	0	1
0	0	1
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
WR	WU	TOTAL
0	0	2
		TOTAL
0	0	0
0.000	0.000	

Location: Norma St & Radar Ave

City: Ridgecrest

Pedestrians (Crossw

NS/EW Streets:	Norma St		Norma St		Rada
AM	NORTH LEG		SOUTH LEG		EAST
	EB	WB	EB	WB	NB
7:00 AM	0	0	0	0	0
7:15 AM	1	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
	EB	WB	EB	WB	NB
TOTAL VOLUMES :	1	0	0	0	0
APPROACH %'s :	100.00%	0.00%			
PEAK HR :	07:00 AM - 08:00 AM				
PEAK HR VOL :	1	0	0	0	0
PEAK HR FACTOR :	0.250				
	0.250				

PM	NORTH LEG		SOUTH LEG		EAST
	EB	WB	EB	WB	NB
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
	EB	WB	EB	WB	NB
TOTAL VOLUMES :	0	0	0	0	0
APPROACH %'s :					
PEAK HR :	04:45 PM - 05:45 PM				
PEAK HR VOL :	0	0	0	0	0
PEAK HR FACTOR :					

Project ID: 18-02105-004
Date: 10/18/2018

alks)

r Ave	Radar Ave		
LEG	WEST LEG		
SB	NB	SB	TOTAL
0	1	0	1
0	0	0	1
0	0	0	0
0	0	0	0
0	0	1	1
0	0	0	0
0	0	0	0
0	0	0	0
SB	NB	SB	TOTAL
0	1	1	3
	50.00%	50.00%	
			TOTAL
0	1	0	2
	0.250		
	0.250		0.500

LEG	WEST LEG		
SB	NB	SB	TOTAL
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
SB	NB	SB	TOTAL
0	0	0	0
			TOTAL
0	0	0	0

Norma St & Radar Ave

Peak Hour Turning Movement Count

ID: 18-02105-004

Day: Thursday

Norma St — SOUTHBOUND

PEAK HOURS								COUNT PERIODS
07:00 AM - 08:00 AM	AM	6	83	0	0	158	AM	07:00 AM - 09:00 AM
NONE	NOON	0	0	0	0	0	NOON	NONE
04:45 PM - 05:45 PM	PM	8	189	0	0	116	PM	04:00 PM - 06:00 PM
		0	1	0	0			

Eastbound (left side)

AM	NOON	PM	
7	0	23	
0	0	0	0
0	0	0	0
0	0	0	
3	0	21	0

Westbound (right side)

	PM	NOON	AM
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
	0	0	0

CONTROL

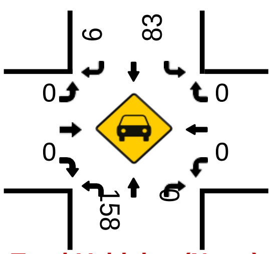
1-Way Stop (SB)

TEV	252	0	351
	AM	NOON	PM

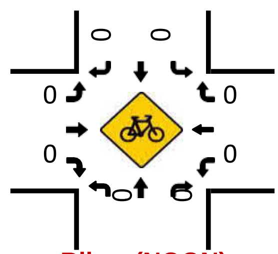
NORTHBOUND

			0	0	1	0	
PM	212		2	15	116	0	PM
NOON	0		0	0	0	0	NOON
AM	87		1	1	158	0	AM

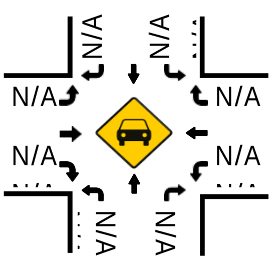
Total Vehicles (AM)



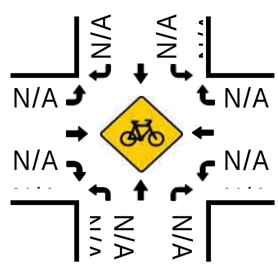
Bikes (AM)



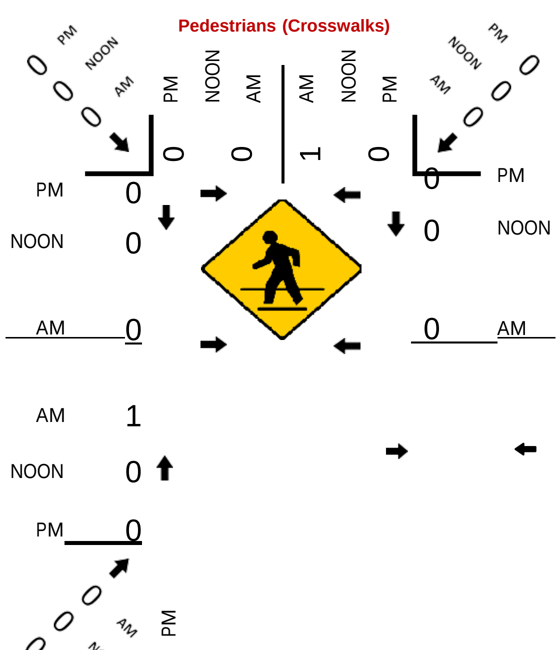
Total Vehicles (Noon)



Bikes (NOON)

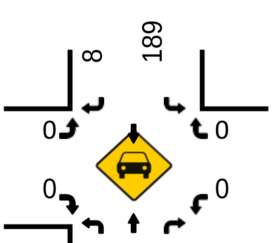


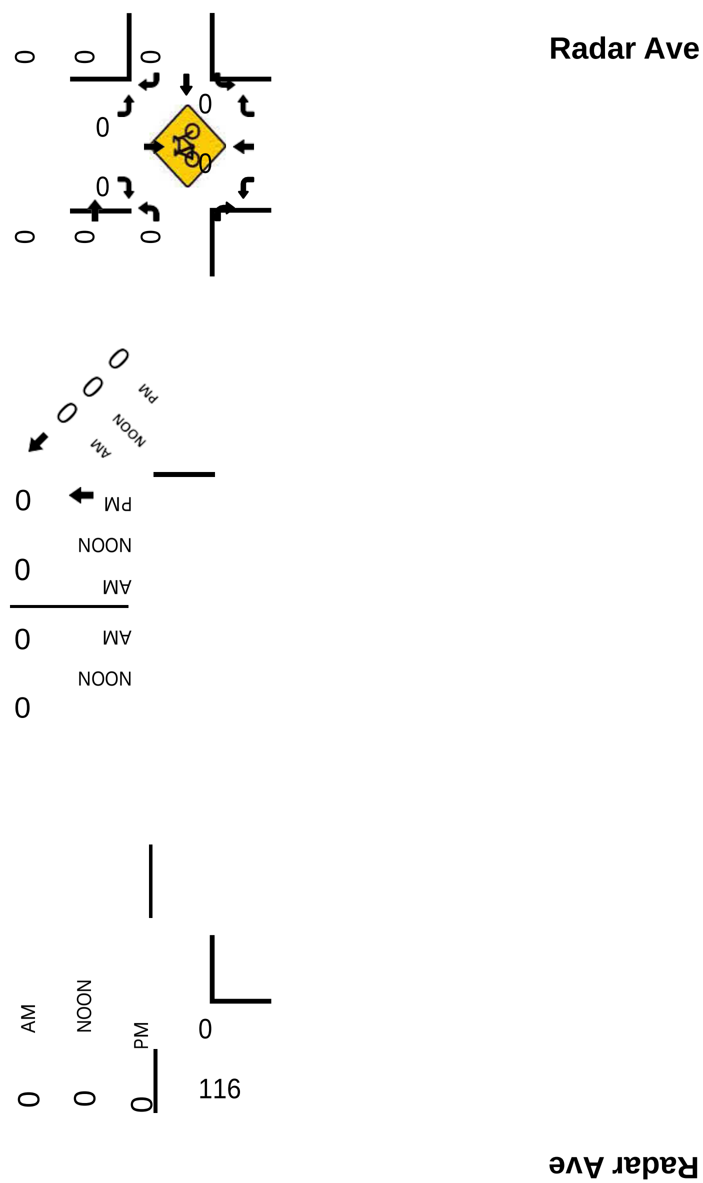
Pedestrians (Crosswalks)



Total Vehicles (PM)

Bikes (PM)





Radar Ave
AM
NOON
PM
0
116
Radar Ave

Location: Downs St & Bowman Rd

Project ID: 18-02105-005

City: Ridgecrest

Total

NS/EW Streets:	Downs St				Downs St				Bowman Rd				Bowman Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0.5	0.5	1	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	72	7	0	4	22	4	0	2	13	1	0	0	5	7	0	139
7:15 AM	2	63	9	0	9	26	2	0	4	4	1	0	2	1	6	0	129
7:30 AM	3	75	7	0	16	25	1	0	1	11	1	0	0	4	14	0	158
7:45 AM	3	65	6	0	35	35	1	0	3	10	7	0	1	6	16	0	188
8:00 AM	1	47	3	0	18	40	3	0	0	9	1	0	2	4	8	0	136
8:15 AM	1	43	2	0	7	27	2	1	0	10	1	0	2	7	10	0	113
8:30 AM	1	41	8	0	13	20	2	0	2	11	0	0	2	4	5	0	109
8:45 AM	1	33	8	0	17	20	2	0	3	14	2	0	2	4	12	0	118
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	439	50	0	119	215	17	1	15	82	14	0	11	35	78	0	1090
APPROACH %'s :	2.78%	87.28%	9.94%	0.00%	33.81%	61.08%	4.83%	0.28%	13.51%	73.87%	12.61%	0.00%	8.87%	28.23%	62.90%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	10	275	29	0	64	108	8	0	10	38	10	0	3	16	43	0	614
PEAK HR FACTOR :	0.833	0.917	0.806	0.000	0.457	0.771	0.500	0.000	0.625	0.731	0.357	0.000	0.375	0.667	0.672	0.000	0.816
	0.924				0.634				0.725				0.674				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0.5	0.5	1	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	5	29	1	0	24	54	4	1	9	14	0	0	6	23	17	0	187
4:15 PM	5	53	6	0	21	58	3	0	2	11	0	0	7	25	15	0	206
4:30 PM	2	36	6	0	18	60	4	0	2	13	4	0	6	17	21	0	189
4:45 PM	1	55	6	0	24	58	5	0	4	17	4	0	5	22	30	0	231
5:00 PM	2	47	3	0	28	74	5	0	3	8	3	0	5	15	25	0	218
5:15 PM	4	54	3	0	27	73	6	0	4	17	6	0	4	8	25	0	231
5:30 PM	0	47	3	0	13	69	8	0	1	11	4	0	5	22	16	0	199
5:45 PM	1	46	2	0	15	67	3	0	3	11	3	0	6	10	23	0	190
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	20	367	30	0	170	513	38	1	28	102	24	0	44	142	172	0	1651
APPROACH %'s :	4.80%	88.01%	7.19%	0.00%	23.55%	71.05%	5.26%	0.14%	18.18%	66.23%	15.58%	0.00%	12.29%	39.66%	48.04%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	7	203	15	0	92	274	24	0	12	53	17	0	19	67	96	0	879
PEAK HR FACTOR :	0.438	0.923	0.625	0.000	0.821	0.926	0.750	0.000	0.750	0.779	0.708	0.000	0.950	0.761	0.800	0.000	0.951
	0.907				0.911				0.759				0.798				

Location: Downs St & Bowman Rd

Project ID: 18-02105-005

City: Ridgecrest

Bikes

NS/EW Streets:	Downs St				Downs St				Bowman Rd				Bowman Rd				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	2	0	0	1	2	0	0	0.5	0.5	1	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	2	0	0	1	2	0	0	0.5	0.5	1	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	3	2	0	1	0	1	0	0	0	0	0	7
APPROACH %'s :					0.00%	60.00%	40.00%	0.00%	50.00%	0.00%	50.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250
									0.250								

Location: Downs St & Bowman Rd

City: Ridgecrest

Project ID: 18-02105-005

Date: 10/18/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Downs St		Downs St		Bowman Rd		Bowman Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	2	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	2	1	0	4
APPROACH %'s :	0.00%	100.00%			0.00%	100.00%	100.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	2	1	0	3
PEAK HR FACTOR :						0.250	0.250		
					0.250		0.250		0.375

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	0	0	1
APPROACH %'s :					100.00%	0.00%			
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Downs St & Bowman Rd

Peak Hour Turning Movement Count

ID: 18-02105-005

Day: Thursday

Downs St

SOUTHBOUND

PEAK HOURS										COUNT PERIODS
07:00 AM - 08:00 AM	AM	8	108	64	0	328	AM	07:00 AM - 09:00 AM
NONE	NOON	0	0	0	0	0	NOON	NONE
04:45 PM - 05:45 PM	PM	24	274	92	0	311	PM	04:00 PM - 06:00 PM

Southbound lanes: 0 2 1 0

Westbound

Movement	Lanes	PM	NOON	AM
Right	1	96	0	43
Thru	0.5	67	0	16
Left	0.5	19	0	3
U-turn	0	0	0	0
Total		160	0	131

Eastbound

AM	NOON	PM	Movement	Lanes
0	0	0	U-turn	0
10	0	12	Left	0.5
38	0	53	Thru	0.5
10	0	17	Right	1

CONTROL

2-Way Stop (EB/WB)

	AM	NOON	PM
TEV	614	0	879
PHF	0.82		0.95

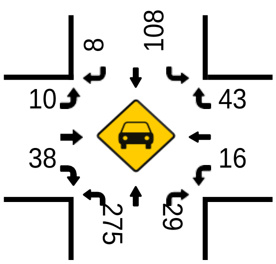
Northbound lanes: 0 1 2 0

PM	310	0	7	203	15	PM
NOON	0	0	0	0	0	NOON
AM	121	0	10	275	29	AM

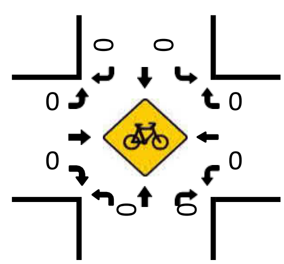
NORTHBOUND

Downs St

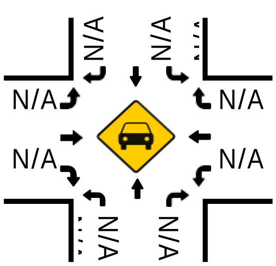
Total Vehicles (AM)



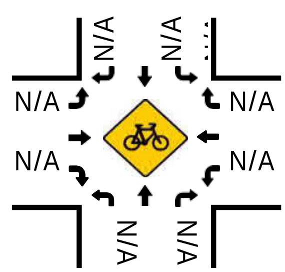
Bikes (AM)



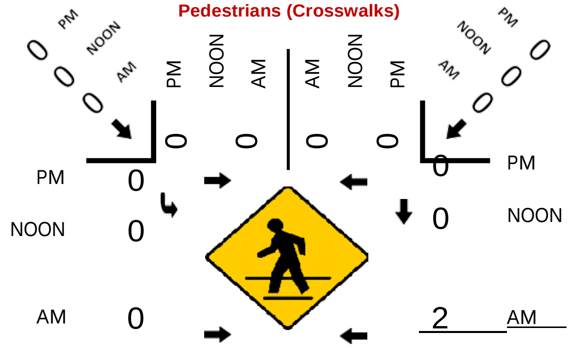
Total Vehicles (Noon)



Bikes (NOON)

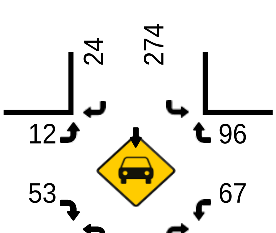


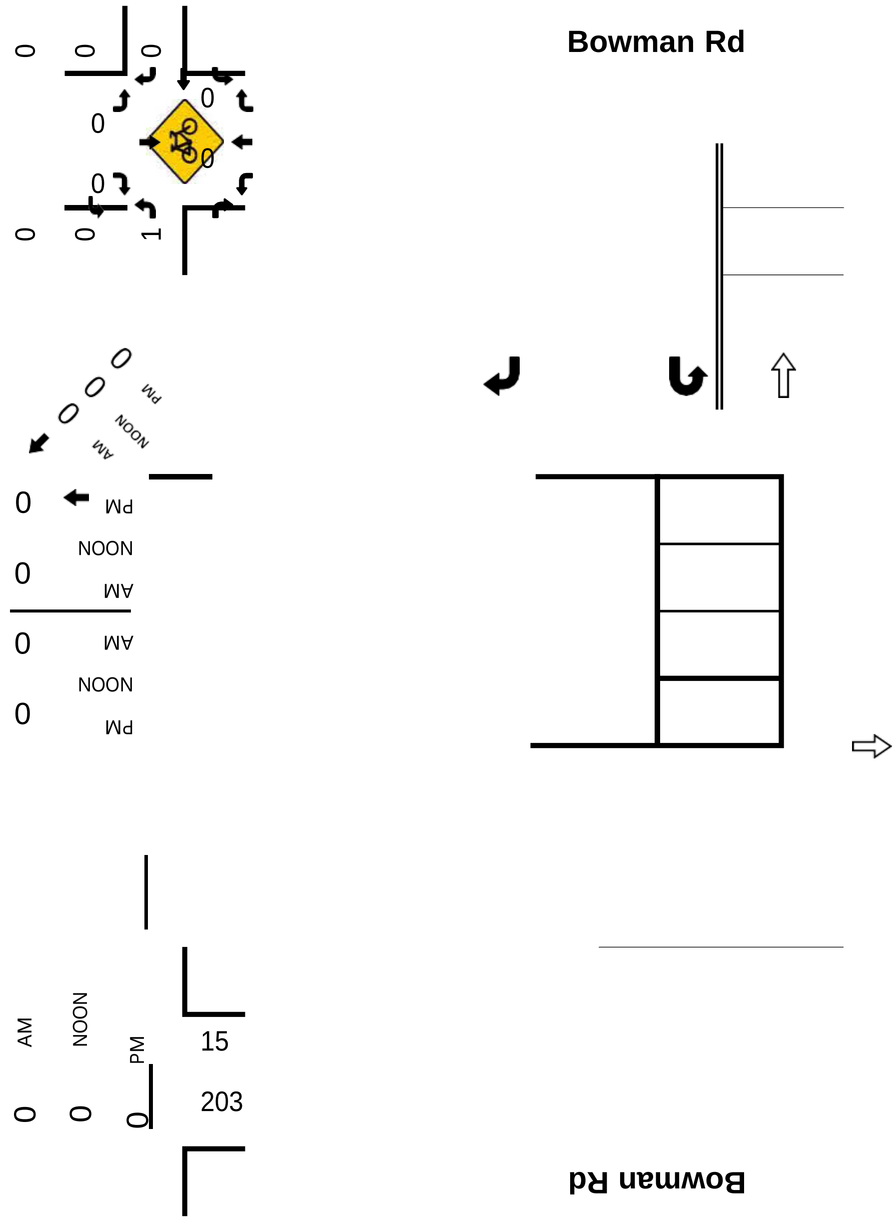
Pedestrians (Crosswalks)



Total Vehicles (PM)

Bikes (PM)




Bowman Rd
Bowman Rd
AM
NOON
PM
0
0
0
15
203
AM
NOON
PM
0
0
0
0
1

Location: Norma St & Bowman Rd

City: Ridgecrest

Project ID: 18-02105-006

Total

NS/EW Streets:	Norma St				Norma St				Bowman Rd				Bowman Rd				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	12	1	0	7	9	1	0	3	18	2	0	3	9	11	0	77
7:15 AM	1	20	2	0	9	14	0	0	5	18	0	0	2	9	14	0	94
7:30 AM	2	15	2	0	10	6	1	0	2	31	1	0	4	17	7	0	98
7:45 AM	1	12	3	0	14	12	2	0	4	43	3	0	0	20	8	0	122
8:00 AM	0	14	1	0	10	6	0	0	0	30	1	0	1	12	9	0	84
8:15 AM	2	5	0	0	15	10	1	0	0	18	0	0	1	15	12	0	79
8:30 AM	0	5	2	0	16	12	0	0	0	30	1	0	2	11	11	0	90
8:45 AM	2	16	3	0	11	9	0	0	3	36	2	0	3	17	10	0	112
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	99	14	0	92	78	5	0	17	224	10	0	16	110	82	0	756
APPROACH %'s :	7.38%	81.15%	11.48%	0.00%	52.57%	44.57%	2.86%	0.00%	6.77%	89.24%	3.98%	0.00%	7.69%	52.88%	39.42%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	4	61	8	0	43	38	3	0	11	122	5	0	7	58	38	0	398
PEAK HR FACTOR :	0.500	0.763	0.667	0.000	0.768	0.679	0.375	0.000	0.550	0.709	0.417	0.000	0.438	0.725	0.679	0.000	0.816
	0.793				0.750				0.690				0.920				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	5	6	2	0	15	12	1	0	1	34	3	0	9	42	21	0	151
4:15 PM	0	14	1	0	16	14	0	0	0	36	3	0	8	48	28	0	168
4:30 PM	2	10	2	0	15	20	1	0	1	36	0	0	9	38	13	0	147
4:45 PM	4	10	4	0	28	24	0	0	2	43	2	0	8	57	16	0	198
5:00 PM	2	5	2	0	24	15	1	0	0	35	3	0	8	41	21	0	157
5:15 PM	0	13	3	0	23	25	1	0	0	45	3	0	4	36	23	0	176
5:30 PM	1	13	3	0	25	15	1	0	1	24	1	0	8	40	32	0	164
5:45 PM	0	11	6	0	21	18	5	0	1	26	2	0	2	32	15	0	139
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	82	23	0	167	143	10	0	6	279	17	0	56	334	169	0	1300
APPROACH %'s :	11.76%	68.91%	19.33%	0.00%	52.19%	44.69%	3.13%	0.00%	1.99%	92.38%	5.63%	0.00%	10.02%	59.75%	30.23%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	7	41	12	0	100	79	3	0	3	147	9	0	28	174	92	0	695
PEAK HR FACTOR :	0.438	0.788	0.750	0.000	0.893	0.790	0.750	0.000	0.375	0.817	0.750	0.000	0.875	0.763	0.719	0.000	0.878
	0.833				0.875				0.828				0.907				

Location: Norma St & Bowman Rd

Project ID: 18-02105-006

City: Ridgecrest

Bikes

NS/EW Streets:	Norma St				Norma St				Bowman Rd				Bowman Rd				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
					0.250												

Location: Norma St & Bowman Rd

City: Ridgecrest

Project ID: 18-02105-006

Date: 10/18/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Norma St		Norma St		Bowman Rd		Bowman Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	1	1	0	2
7:45 AM	0	0	0	0	1	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	2	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	3	2	1	0	6
APPROACH %'s :					60.00%	40.00%	100.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	1	1	1	0	3
PEAK HR FACTOR :					0.250	0.250	0.250		
					0.500		0.250		0.375

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	1	0	1
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	0	0	0	1	0	2
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	0	2	1	4
APPROACH %'s :	100.00%	0.00%					66.67%	33.33%	
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	1	0	0	0	0	0	2	0	3
PEAK HR FACTOR :	0.250						0.500		
	0.250						0.500		0.375

Norma St & Bowman Rd

Peak Hour Turning Movement Count

ID: 18-02105-006

Day: Thursday

Norma St
SOUTHBOUND

PEAK HOURS		Southbound					Total		COUNT PERIODS
AM	07:15 AM - 08:15 AM	3	38	43	0		110	AM	07:00 AM - 09:00 AM
NOON	NONE	0	0	0	0		0	NOON	NONE
PM	04:45 PM - 05:45 PM	3	79	100	0		136	PM	04:00 PM - 06:00 PM
		0	1	0	0				

Westbound

	PM	NOON	AM
0 (U-turn)	92	0	38
1 (Through)	174	0	58
0 (Left)	28	0	7
0 (U-turn)	0	0	0
Total	259	0	173

Eastbound

	AM	NOON	PM
Total	65	0	184
0 (U-turn)	0	0	0
0 (Left)	11	0	3
Through	122	0	147
0 (Right)	5	0	9

CONTROL

4-Way Stop

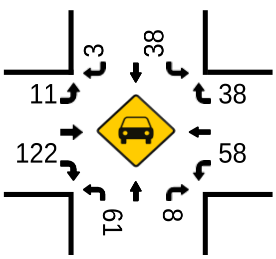
TEV	398	0	695
	AM	NOON	PM

Northbound

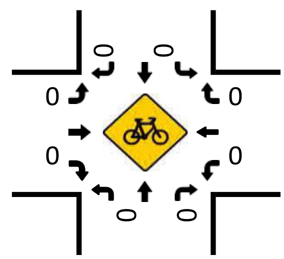
	Total					
		0	0	1	0	
PM	116	0	7	41	12	PM
NOON	0	0	0	0	0	NOON
AM	50	0	4	61	8	AM

NORTHBOUND
Norma St

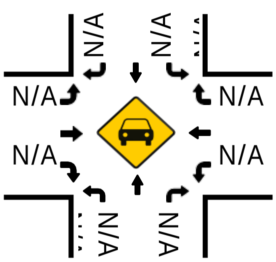
Total Vehicles (AM)



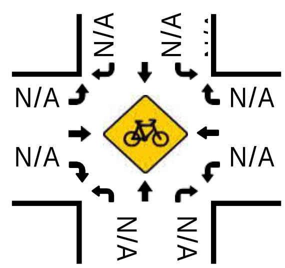
Bikes (AM)



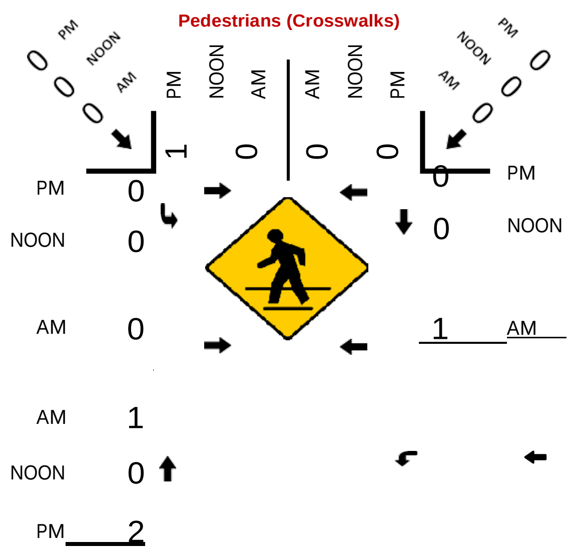
Total Vehicles (Noon)



Bikes (NOON)

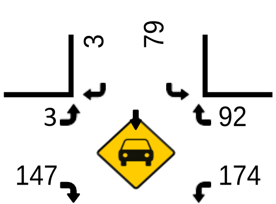


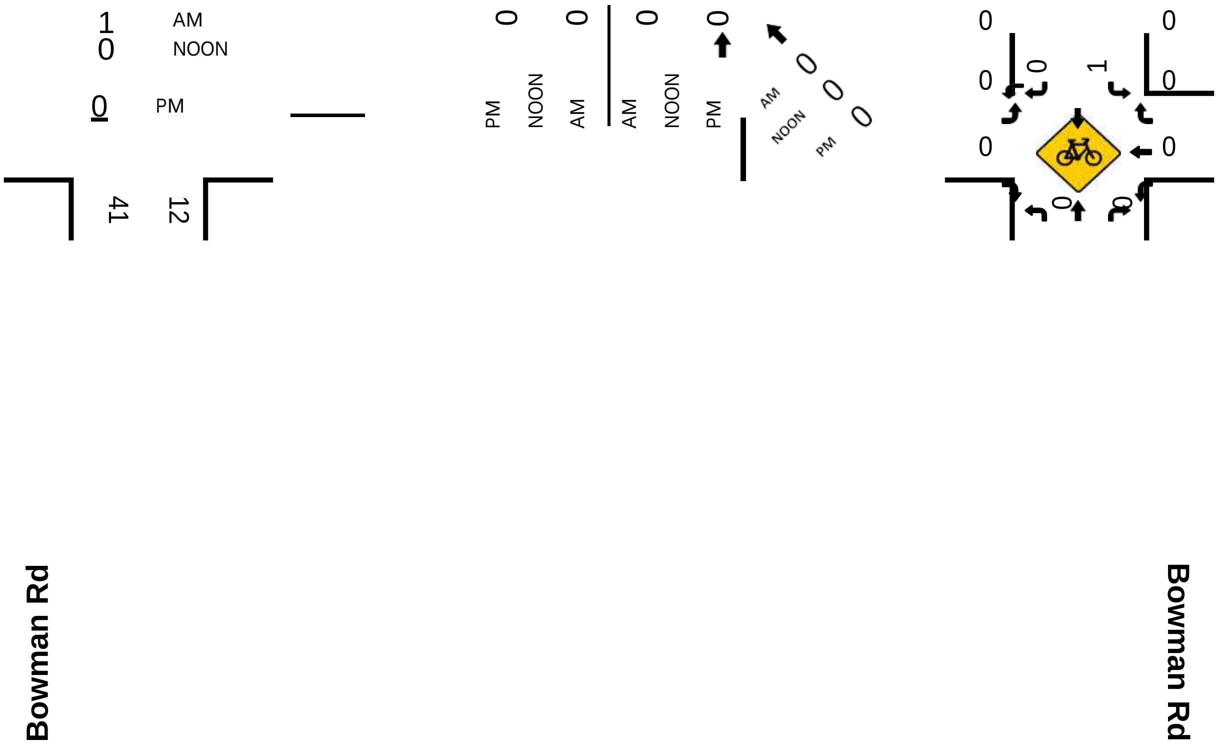
Pedestrians (Crosswalks)



Total Vehicles (PM)

Bikes (PM)





Bowman Rd
Bowman Rd
1 AM
0 NOON
0 PM
41
12
AM
NOON
PM

Location: Downs St & Upjohn Ave

City: Ridgecrest

Control: 4-Way Stop

NS/EW Streets:	Downs St				Dow	
AM	NORTHBOUND				SOUTH	
	1	1.5	0.5	0	1	1
	NL	NT	NR	NU	SL	ST
7:00 AM	3	63	24	4	6	15
7:15 AM	5	82	15	0	8	18
7:30 AM	23	65	23	0	43	37
7:45 AM	30	71	17	2	64	57
8:00 AM	3	62	10	3	20	40
8:15 AM	4	57	7	1	7	28
8:30 AM	5	48	10	0	11	31
8:45 AM	2	48	9	0	6	28
	NL	NT	NR	NU	SL	ST
TOTAL VOLUMES :	75	496	115	10	165	254
APPROACH %'s :	10.78%	71.26%	16.52%	1.44%	32.87%	50.60%
PEAK HR :	07:15 AM - 08:15 AM					
PEAK HR VOL :	61	280	65	5	135	152
PEAK HR FACTOR :	0.508	0.854	0.707	0.417	0.527	0.667
	0.856				0.5	

PM	NORTHBOUND				SOUTH	
	1	1.5	0.5	0	1	1
	NL	NT	NR	NU	SL	ST
4:00 PM	8	40	11	4	24	83
4:15 PM	6	54	9	3	53	75
4:30 PM	11	42	8	5	24	67
4:45 PM	13	56	17	4	17	79
5:00 PM	7	58	12	2	36	100
5:15 PM	7	58	8	5	31	93
5:30 PM	8	56	12	3	24	58
5:45 PM	7	46	16	2	21	71
	NL	NT	NR	NU	SL	ST
TOTAL VOLUMES :	67	410	93	28	230	626
APPROACH %'s :	11.20%	68.56%	15.55%	4.68%	24.52%	66.74%
PEAK HR :	05:00 PM - 06:00 PM					
PEAK HR VOL :	29	218	48	12	112	322
PEAK HR FACTOR :	0.906	0.940	0.750	0.600	0.778	0.805
	0.972				0.8	

Project ID:

Date:

Total

ns St		Upjohn Ave				Upjoh	
BOUND		EASTBOUND				WEST	
0	0	1	1	0	0	1	1
SR	SU	EL	ET	ER	EU	WL	WT
3	0	3	25	6	0	8	13
6	0	8	16	5	0	20	19
20	3	19	23	3	0	9	28
25	2	16	52	13	0	9	56
9	0	11	39	9	0	9	9
2	0	7	15	2	0	10	2
5	0	7	11	0	0	5	5
8	0	4	12	2	0	12	5
SR	SU	EL	ET	ER	EU	WL	WT
78	5	75	193	40	0	82	137
15.54%	1.00%	24.35%	62.66%	12.99%	0.00%	24.92%	41.64%
60	5	54	130	30	0	47	112
0.600	0.417	0.711	0.625	0.577	0.000	0.588	0.500
95			0.660				0.6

BOUND		EASTBOUND				WEST	
0	0	1	1	0	0	1	1
SR	SU	EL	ET	ER	EU	WL	WT
7	0	6	20	6	0	15	10
19	0	12	19	5	0	15	14
11	0	7	20	1	0	20	18
8	0	12	15	1	0	13	17
8	0	2	21	4	0	25	27
10	0	7	22	3	0	21	24
10	0	12	24	5	0	26	17
9	0	8	28	3	0	21	18
SR	SU	EL	ET	ER	EU	WL	WT
82	0	66	169	28	0	156	145
8.74%	0.00%	25.10%	64.26%	10.65%	0.00%	36.79%	34.20%
37	0	29	95	15	0	93	86
0.925	0.000	0.604	0.848	0.750	0.000	0.894	0.796
18			0.848				0.8

18-02105-007
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n Ave		
BOUND		
1	0	
WR	WU	TOTAL
12	0	185
17	0	219
12	0	308
24	0	438
17	0	241
12	0	154
8	0	146
8	0	144
WR	WU	TOTAL
110	0	1835
33.43%	0.00%	
		TOTAL
70	0	1206
0.729	0.000	0.688
43		

BOUND		
1	0	
WR	WU	TOTAL
11	0	245
12	0	296
11	0	245
12	0	264
21	0	323
21	0	310
17	0	272
18	0	268
WR	WU	TOTAL
123	0	2223
29.01%	0.00%	
		TOTAL
77	0	1173
0.917	0.000	0.908
77		

Location: Downs St & Upjohn Ave

City: Ridgecrest

Control: 4-Way Stop

NS/EW Streets:	Downs St				Dow	
AM	NORTHBOUND				SOUTH	
	1	1.5	0.5	0	1	1
	NL	NT	NR	NU	SL	ST
7:00 AM	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0
7:30 AM	0	3	0	0	0	0
7:45 AM	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST
TOTAL VOLUMES :	0	3	0	0	0	0
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%		
PEAK HR :	07:15 AM - 08:15 AM					
PEAK HR VOL :	0	3	0	0	0	0
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000
	0.250					

PM	NORTHBOUND				SOUTH	
	1	1.5	0.5	0	1	1
	NL	NT	NR	NU	SL	ST
4:00 PM	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0
4:45 PM	0	1	0	0	0	0
5:00 PM	0	2	0	0	0	0
5:15 PM	0	0	0	0	0	0
5:30 PM	0	1	0	0	1	1
5:45 PM	0	1	0	0	0	0
	NL	NT	NR	NU	SL	ST
TOTAL VOLUMES :	0	5	0	0	2	4
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	28.57%	57.14%
PEAK HR :	05:00 PM - 06:00 PM					
PEAK HR VOL :	0	4	0	0	1	1
PEAK HR FACTOR :	0.00	0.500	0.000	0.000	0.250	0.250
	0.500					0.3

Project ID:

Date:

Bikes

ns St		Upjohn Ave				Upjoh	
BOUND		EASTBOUND				WEST	
0	0	1	1	0	0	1	1
SR	SU	EL	ET	ER	EU	WL	WT
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	2	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
SR	SU	EL	ET	ER	EU	WL	WT
0	0	0	3	0	0	0	2
		0.00%	100.00%	0.00%	0.00%	0.00%	50.00%
0	0	0	1	0	0	0	2
0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250
			0.250				0.3

BOUND		EASTBOUND				WEST	
0	0	1	1	0	0	1	1
SR	SU	EL	ET	ER	EU	WL	WT
0	0	0	3	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1
1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0
SR	SU	EL	ET	ER	EU	WL	WT
1	0	0	4	0	0	0	1
14.29%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%
1	0	0	1	0	0	0	1
0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.250
75			0.250				0.2

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10/18/2018

n Ave		
BOUND		
1	0	
WR	WU	TOTAL
1	0	1
0	0	2
0	0	3
1	0	2
0	0	0
0	0	2
0	0	0
0	0	0
WR	WU	TOTAL
2	0	10
50.00%	0.00%	
		TOTAL
1	0	7
0.250	0.000	0.583
75		

BOUND		
1	0	
WR	WU	TOTAL
1	0	7
0	0	0
0	0	1
0	0	1
0	0	3
0	0	1
0	0	3
0	0	2
WR	WU	TOTAL
1	0	18
50.00%	0.00%	
		TOTAL
0	0	9
0.000	0.000	0.750
50		

Location: Downs St & Upjohn Ave

City: Ridgecrest

Pedestrians (Crossw

NS/EW Streets:	Downs St		Downs St		Upjoh
AM	NORTH LEG		SOUTH LEG		EAST
	EB	WB	EB	WB	NB
7:00 AM	0	0	0	0	0
7:15 AM	0	3	0	4	0
7:30 AM	0	5	1	8	0
7:45 AM	0	0	1	0	0
8:00 AM	0	0	0	0	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
	EB	WB	EB	WB	NB
TOTAL VOLUMES :	0	8	2	12	1
APPROACH %'s :	0.00%	100.00%	14.29%	85.71%	25.00%
PEAK HR :	07:15 AM - 08:15 AM				
PEAK HR VOL :	0	8	2	12	1
PEAK HR FACTOR :		0.400	0.500	0.375	0.250
	0.400		0.389		0.3

PM	NORTH LEG		SOUTH LEG		EAST
	EB	WB	EB	WB	NB
4:00 PM	0	0	0	1	0
4:15 PM	8	0	0	0	0
4:30 PM	0	0	2	0	0
4:45 PM	0	0	0	0	1
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	1	0	0
	EB	WB	EB	WB	NB
TOTAL VOLUMES :	8	0	3	1	1
APPROACH %'s :	100.00%	0.00%	75.00%	25.00%	33.33%
PEAK HR :	05:00 PM - 06:00 PM				
PEAK HR VOL :	0	0	1	0	0
PEAK HR FACTOR :			0.250		
			0.250		0.2

Project ID: 18-02105-007
Date: 10/18/2018

alks)

n Ave	Upjohn Ave		
LEG	WEST LEG		
SB	NB	SB	TOTAL
0	0	0	0
3	6	1	17
0	10	1	25
0	4	0	5
0	0	2	3
0	0	0	0
0	0	0	0
0	0	0	0
SB	NB	SB	TOTAL
3	20	4	50
75.00%	83.33%	16.67%	
			TOTAL
3	20	4	50
0.250	0.500	0.500	0.500
33	0.545		

LEG	WEST LEG		
SB	NB	SB	TOTAL
0	0	0	1
1	0	1	10
0	0	1	3
0	0	0	1
0	0	0	0
1	0	0	1
0	0	0	0
0	0	0	1
SB	NB	SB	TOTAL
2	0	2	17
66.67%	0.00%	100.00%	
			TOTAL
1	0	0	2
0.250			0.500
50			

Downs St & Upjohn Ave

Peak Hour Turning Movement Count

ID: 18-02105-007

Day: Thursday

PEAK HOURS

- AM: 07:15 AM - 08:15 AM
- NOON: NONE
- PM: 05:00 PM - 06:00 PM

COUNT PERIODS

- AM: 07:00 AM - 09:00 AM
- NOON: NONE
- PM: 04:00 PM - 06:00 PM

Downs St — SOUTHBOUND

AM	60	152	135	5	409
NOON	0	0	0	0	0
PM	37	322	112	0	324
Lanes	0	1	1	0	

Westbound (Upjohn Ave)

	PM	NOON	AM
Left (lanes 1)	77	0	70
U-turn (lanes 0)	0	0	0
Exit	255	0	330

Eastbound (Upjohn Ave)

	AM	NOON	PM
Left (lanes 1)	54	0	29
Through	130	0	95
Right (lanes 0)	30	0	15

TEV

TEV	AM	NOON	PM
	1206	0	1173

Downs St — NORTHBOUND

Lanes		0	1	1.5	0.5
PM	442	12	29	218	48
NOON	0	0	0	0	0
AM	234	5	61	280	65

Total Vehicles (AM)

60 152 135
54 70
130 112

Bikes (AM)

0 1
1 2
3 0

Total Vehicles (Noon)

N/A N/A
N/A N/A
N/A N/A
N/A N/A

Bikes (NOON)

N/A N/A
N/A N/A
N/A N/A
N/A N/A

Pedestrians (Crosswalks)

PM 0 NOON 0 AM 0 — PM 0 NOON 0 AM 0

North: PM 0 NOON 0 AM 0 — AM 0 NOON 0 PM 8

West: PM 0, NOON 0, AM 4

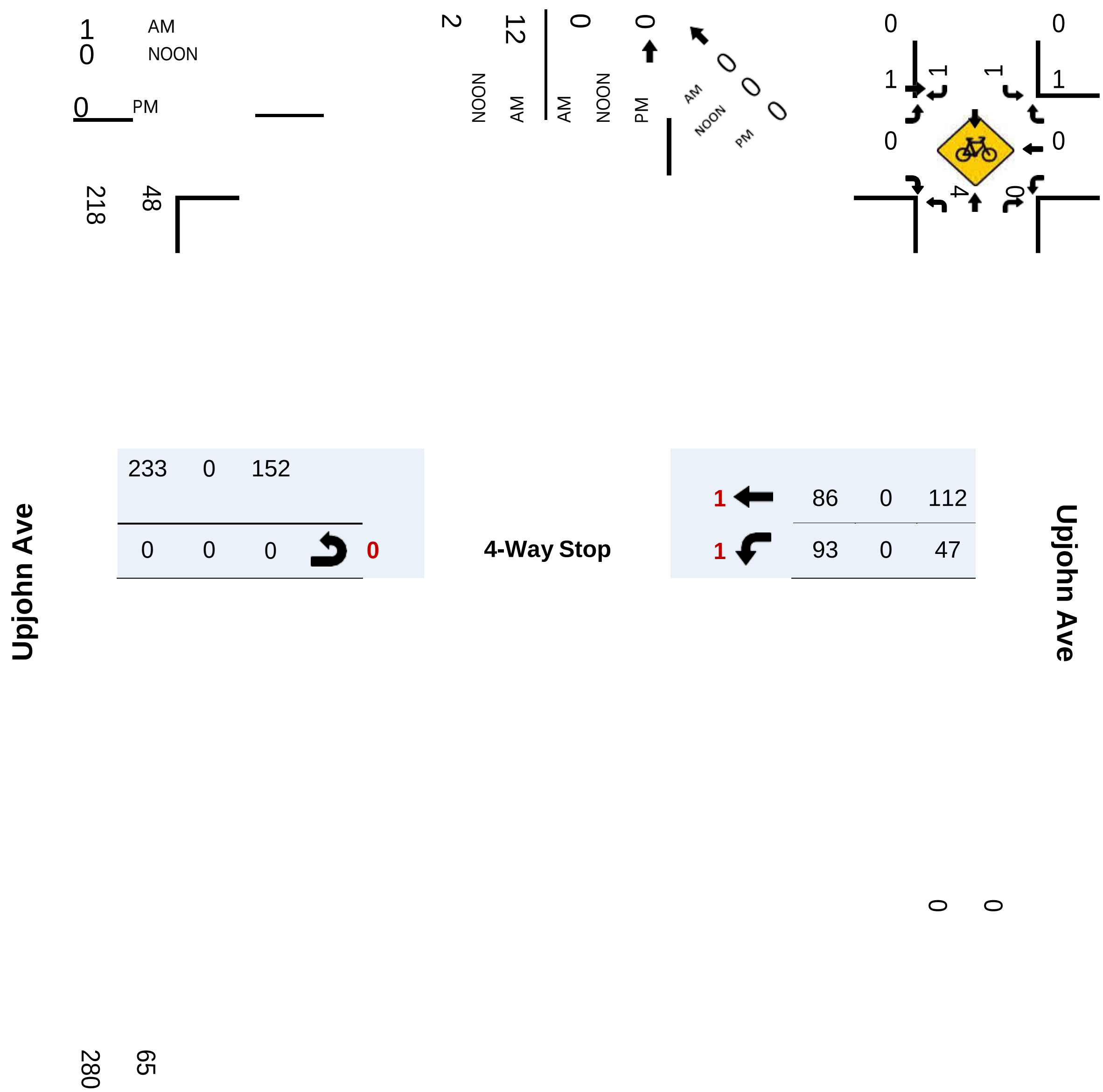
East: PM 1, NOON 0, AM 3

South: AM 20, NOON 0, PM 0

Total Vehicles (PM)

37 322
29 77
95 86

Bikes (PM)



Upjohn Ave
4-Way Stop
Upjohn Ave
AM
NOON
PM
233 0 152
0 0 0 0
1 86 0 112
1 93 0 47
218
48
280
65
2
12
0
0
1
0
0

Prepared by NDS/ATD

VOLUME

Day: Thursday

Radar Ave Bet. Downs St & Gordon St

City: Ridgecrest

Date: 10/18/2018

Project #: CA18_2106_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	240	269	509

AM Period	NB		SB		EB		WB		TOTAL	
00:00					0		0		0	
00:15					0		0		0	
00:30					0		0		0	
00:45					0		1	1	1	1
01:00					0		0		0	
01:15					0		0		0	
01:30					0		0		0	
01:45					1	1	0		1	1
02:00					0		1		1	
02:15					0		0		0	
02:30					0		0		0	
02:45					1	1	0	1	1	2
03:00					0		0		0	
03:15					1		0		1	
03:30					0		0		0	
03:45					0	1	0		0	1
04:00					0		1		1	
04:15					0		1		1	
04:30					0		1		1	
04:45					0		2	5	2	5
05:00					0		0		0	
05:15					1		1		2	
05:30					1		1		2	
05:45					0	2	6	8	6	10
06:00					0		2		2	
06:15					1		5		6	
06:30					0		5		5	
06:45					0	1	4	16	4	17
07:00					1		1		2	
07:15					2		8		10	
07:30					3		8		11	
07:45					6	12	14	31	20	43
08:00					1		4		5	
08:15					0		3		3	
08:30					1		4		5	
08:45					1	3	1	12	2	15
09:00					3		3		6	
09:15					5		3		8	
09:30					2		3		5	
09:45					1	11	2	11	3	22
10:00					3		0		3	
10:15					0		4		4	
10:30					1		0		1	
10:45					4	8	2	6	6	14
11:00					2		3		5	
11:15					5		4		9	
11:30					2		4		6	
11:45					3	12	2	13	5	25
TOTALS						52		104		156
SPLIT %						33.3%		66.7%		30.6%

PM Period	NB		SB		EB		WB		TOTAL	
12:00					4		1		5	
12:15					4		4		8	
12:30					2		5		7	
12:45					4	14	9	19	13	33
13:00					4		5		9	
13:15					3		6		9	
13:30					3		3		6	
13:45					3	13	5	19	8	32
14:00					4		1		5	
14:15					4		4		8	
14:30					1		6		7	
14:45					3	12	2	13	5	25
15:00					8		9		17	
15:15					6		3		9	
15:30					5		6		11	
15:45					3	22	3	21	6	43
16:00					3		3		6	
16:15					9		2		11	
16:30					6		5		11	
16:45					10	28	2	12	12	40
17:00					11		5		16	
17:15					5		11		16	
17:30					6		5		11	
17:45					6	28	5	26	11	54
18:00					8		3		11	
18:15					9		5		14	
18:30					5		6		11	
18:45					3	25	2	16	5	41
19:00					5		4		9	
19:15					6		4		10	
19:30					3		4		7	
19:45					3	17	3	15	6	32
20:00					5		3		8	
20:15					1		4		5	
20:30					2		2		4	
20:45					0	8	3	12	3	20
21:00					2		0		2	
21:15					2		1		3	
21:30					3		3		6	
21:45					6	13	3	7	9	20
22:00					1		1		2	
22:15					1		2		3	
22:30					4		1		5	
22:45					0	6	0	4	0	10
23:00					0		0		0	
23:15					0		0		0	
23:30					0		0		0	
23:45					2	2	1	1	3	3
TOTALS						188		165		353
SPLIT %						53.3%		46.7%		69.4%

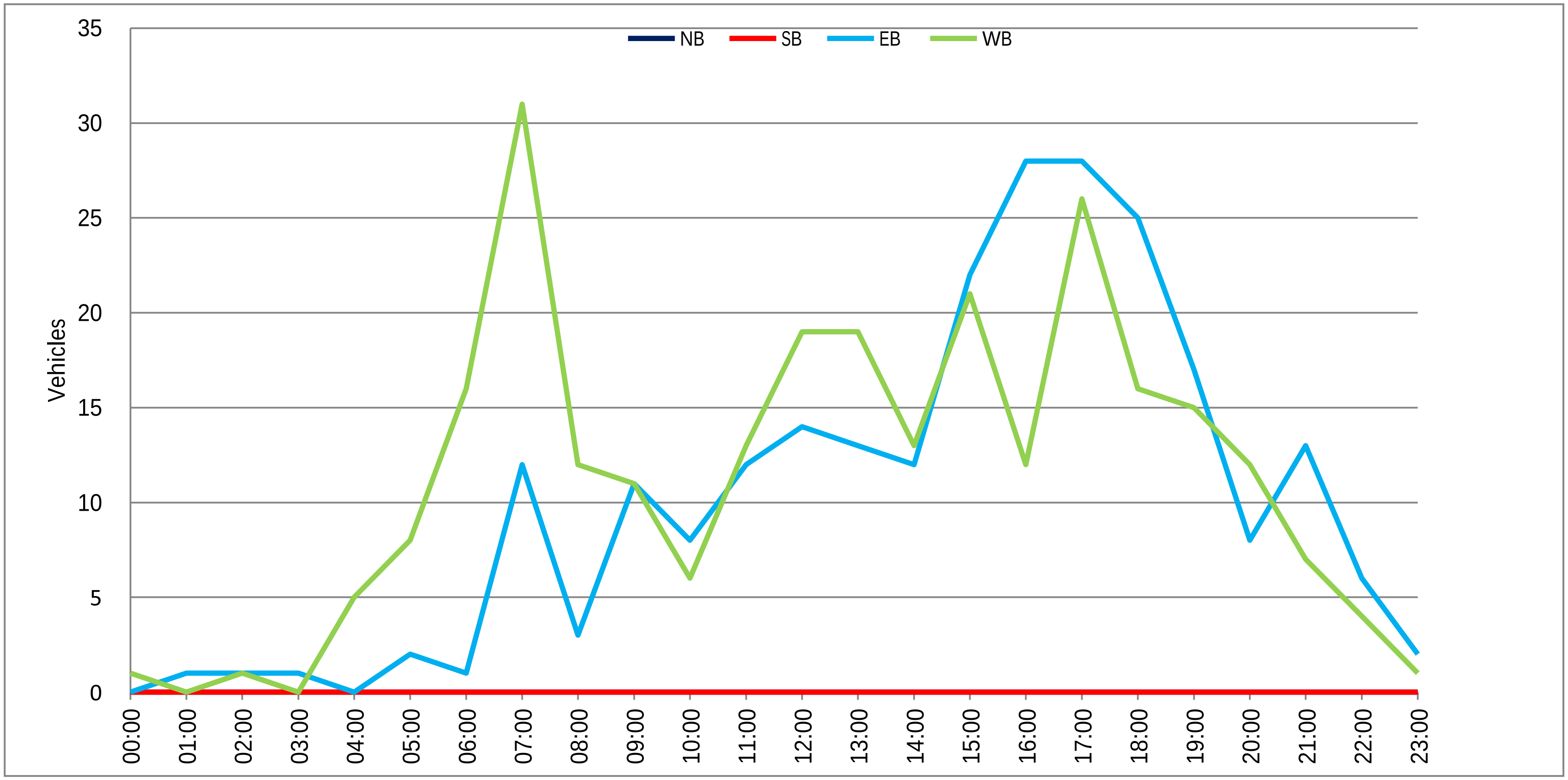
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	240	269	509

	NB	SB	EB	WB	Total
AM Peak Hour			11:15	07:15	07:15
AM Pk Volume			14	34	46
Pk Hr Factor			0.700	0.607	0.575
7 - 9 Volume	0	0	15	43	58
7 - 9 Peak Hour			07:00	07:15	07:15
7 - 9 Pk Volume	0	0	12	34	46
Pk Hr Factor	0.000	0.000	0.500	0.607	0.575

	NB	SB	EB	WB	Total
PM Peak Hour			16:15	17:00	16:30
PM Pk Volume			36	26	55
Pk Hr Factor			0.818	0.591	0.859
4 - 6 Volume	0	0	56	38	94
4 - 6 Peak Hour			16:15	17:00	16:30
4 - 6 Pk Volume	0	0	36	26	55
Pk Hr Factor	0.000	0.000	0.818	0.591	0.859

Prepared by NDS/ATD

Project #: CA18_2106_001 City: Ridgecrest



Prepared by NDS/ATD

VOLUME

Radar Ave Bet. Sunset St & Allen St

Day: Thursday

City: Ridgecrest

Date: 10/18/2018

Project #: CA18_2106_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	202	174	376

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			2		4		6	
00:15			0		0		0		12:15			4		5		9	
00:30			0		0		0		12:30			4		7		11	
00:45			0		0		0		12:45			3	13	6	22	9	35
01:00			0		0		0		13:00			4		3		7	
01:15			0		0		0		13:15			1		3		4	
01:30			0		0		0		13:30			3		1		4	
01:45			1	1	0		1	1	13:45			3	11	2	9	5	20
02:00			0		0		0		14:00			1		1		2	
02:15			0		0		0		14:15			3		2		5	
02:30			1		0		1		14:30			2		4		6	
02:45			1	2	0		1	2	14:45			2	8	4	11	6	19
03:00			0		0		0		15:00			4		6		10	
03:15			1		0		1		15:15			5		5		10	
03:30			0		0		0		15:30			4		4		8	
03:45			0	1	0		0	1	15:45			3	16	1	16	4	32
04:00			0		0		0		16:00			2		3		5	
04:15			0		0		0		16:15			7		4		11	
04:30			0		0		0		16:30			1		2		3	
04:45			0		0		0		16:45			2	12	3	12	5	24
05:00			1		0		1		17:00			8		5		13	
05:15			0		0		0		17:15			3		3		6	
05:30			0		0		0		17:30			6		5		11	
05:45			3	4	1	1	4	5	17:45			2	19	5	18	7	37
06:00			1		0		1		18:00			7		1		8	
06:15			4		2		6		18:15			5		1		6	
06:30			0		2		2		18:30			5		4		9	
06:45			4	9	0	4	4	13	18:45			3	20	3	9	6	29
07:00			1		0		1		19:00			4		2		6	
07:15			0		0		0		19:15			3		5		8	
07:30			3		0		3		19:30			3		1		4	
07:45			2	6	6	6	8	12	19:45			2	12	0	8	2	20
08:00			3		2		5		20:00			2		2		4	
08:15			6		0		6		20:15			3		2		5	
08:30			7		3		10		20:30			0		1		1	
08:45			1	17	0	5	1	22	20:45			1	6	1	6	2	12
09:00			3		2		5		21:00			1		1		2	
09:15			2		4		6		21:15			2		2		4	
09:30			3		3		6		21:30			0		2		2	
09:45			4	12	3	12	7	24	21:45			2	5	1	6	3	11
10:00			7		1		8		22:00			0		2		2	
10:15			3		1		4		22:15			1		1		2	
10:30			1		2		3		22:30			3		0		3	
10:45			3	14	8	12	11	26	22:45			0	4	0	3	0	7
11:00			1		6		7		23:00			0		0		0	
11:15			1		3		4		23:15			0		0		0	
11:30			5		2		7		23:30			0		1		1	
11:45			3	10	2	13	5	23	23:45			0		0	1	0	1
TOTALS				76		53		129	TOTALS				126		121		247
SPLIT %				58.9%		41.1%		34.3%	SPLIT %				51.0%		49.0%		65.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	202	174	376

	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour			07:45	10:30	11:45	PM Peak Hour			17:30	12:00	17:00
AM Pk Volume			18	19	31	PM Pk Volume			20	22	37
Pk Hr Factor			0.643	0.594	0.705	Pk Hr Factor			0.714	0.786	0.712
7 - 9 Volume	0	0	23	11	34	4 - 6 Volume	0	0	31	30	61
7 - 9 Peak Hour			07:45	07:45	07:45	4 - 6 Peak Hour			16:45	17:00	17:00
7 - 9 Pk Volume	0	0	18	11	29	4 - 6 Pk Volume	0	0	19	18	37
Pk Hr Factor	0.000	0.000	0.643	0.458	0.725	Pk Hr Factor	0.000	0.000	0.594	0.900	0.712

Prepared by NDS/ATD

VOLUME
Down St Bet. Radar Ave & Willow Ave

Day: Thursday | City: Ridgecrest

Date: 10/18/2018 | Project #: CA18_2106_003

DAILY TOTALS	NB	SB	EB	WB	Total
	3,617	3,348	0	0	6,965

DAILY TOTALS	NB	SB	EB	WB	Total
	3,617	3,348	0	0	6,965

	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour	07:00	07:15			07:15	PM Peak Hour	17:30	16:30			17:00
AM Pk Volume	347	220			538	PM Pk Volume	278	335			604
Pk Hr Factor	0.964	0.797			0.846	Pk Hr Factor	0.869	0.872			0.858
7 - 9 Volume	564	360	0	0	924	4 - 6 Volume	508	658	0	0	1166
7 - 9 Peak Hour	07:00	07:15			07:15	4 - 6 Peak Hour	17:00	16:30			17:00
7 - 9 Pk Volume	347	220	0	0	538	4 - 6 Pk Volume	269	335	0	0	604
Pk Hr Factor	0.964	0.797	0.000	0.000	0.846	Pk Hr Factor	0.841	0.872	0.000	0.000	0.858

09:30	41		37		78		21:30	14		15		29	
09:45	45	173	35	141	80	314	21:45	17	80	4	65	21	145
10:00	55		41		96		22:00	14		11		25	
10:15	47		41		88		22:15	17		8		25	
10:30	40		51		91		22:30	8		11		19	
10:45	49	191	32	165	81	356	22:45	4	43	5	35	9	78
11:00	60		49		109		23:00	12		10		22	
11:15	49		34		83		23:15	4		7		11	
11:30	53		52		105		23:30	9		5		14	
11:45	67	229	47	182	114	411	23:45	5	30	3	25	8	55
TOTALS		1569		1027		2596	TOTALS		2048		2321		4369
SPLIT %		60.4%		39.6%		37.3%	SPLIT %		46.9%		53.1%		62.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	3,617	3,348	0	0	6,965

Prepared by NDS/ATD

VOLUME

Down St Bet. Radar Ave & Langley Ave

Day: Thursday | City: Ridgecrest

Date: 10/18/2018 | Project #: CA18_2106_004

DAILY TOTALS	NB	SB	EB	WB	Total
	3,912	3,544	0	0	7,456

DAILY TOTALS	NB	SB	EB	WB	Total
	3,912	3,544	0	0	7,456

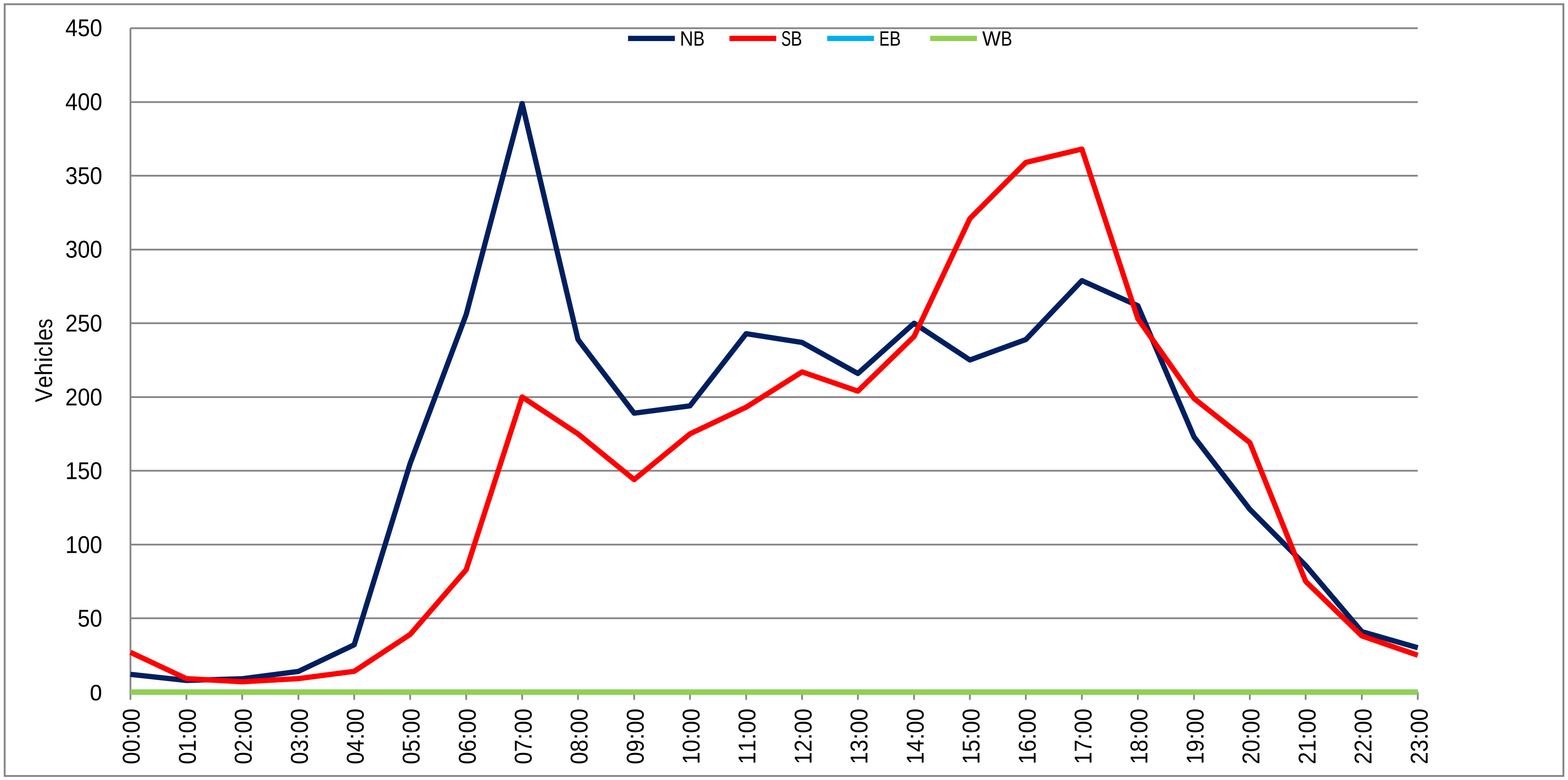
	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour	07:00	07:15			07:15	PM Peak Hour	17:15	16:30			17:00
AM Pk Volume	399	232			606	PM Pk Volume	283	376			647
Pk Hr Factor	0.907	0.734			0.802	Pk Hr Factor	0.842	0.904			0.874
7 - 9 Volume	638	375	0	0	1013	4 - 6 Volume	518	727	0	0	1245
7 - 9 Peak Hour	07:00	07:15			07:15	4 - 6 Peak Hour	17:00	16:30			17:00
7 - 9 Pk Volume	399	232	0	0	606	4 - 6 Pk Volume	279	376	0	0	647
Pk Hr Factor	0.907	0.734	0.000	0.000	0.802	Pk Hr Factor	0.830	0.904	0.000	0.000	0.874

09:30	44		37		81		21:30	20		15		35	
09:45	53	189	35	144	88	333	21:45	17	86	9	75	26	161
10:00	52		45		97		22:00	13		13		26	
10:15	49		43		92		22:15	18		10		28	
10:30	41		49		90		22:30	6		10		16	
10:45	52	194	38	175	90	369	22:45	4	41	5	38	9	79
11:00	64		53		117		23:00	12		10		22	
11:15	49		35		84		23:15	3		7		10	
11:30	57		54		111		23:30	9		6		15	
11:45	73	243	51	193	124	436	23:45	6	30	2	25	8	55
TOTALS		1750		1075		2825	TOTALS		2162		2469		4631
SPLIT %		61.9%		38.1%		37.9%	SPLIT %		46.7%		53.3%		62.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	3,912	3,544	0	0	7,456

Prepared by NDS/ATD

Project #: CA18_2106_004 City: Ridgecrest



Prepared by NDS/ATD

VOLUME

Day: Thursday

S Norma St Bet. Rick Ct & Bowman Rd

City: Ridgecrest

Date: 10/18/2018

Project #: CA18_2106_005

DAILY TOTALS	NB	SB	EB	WB	Total
	1,719	1,820	0	0	3,539

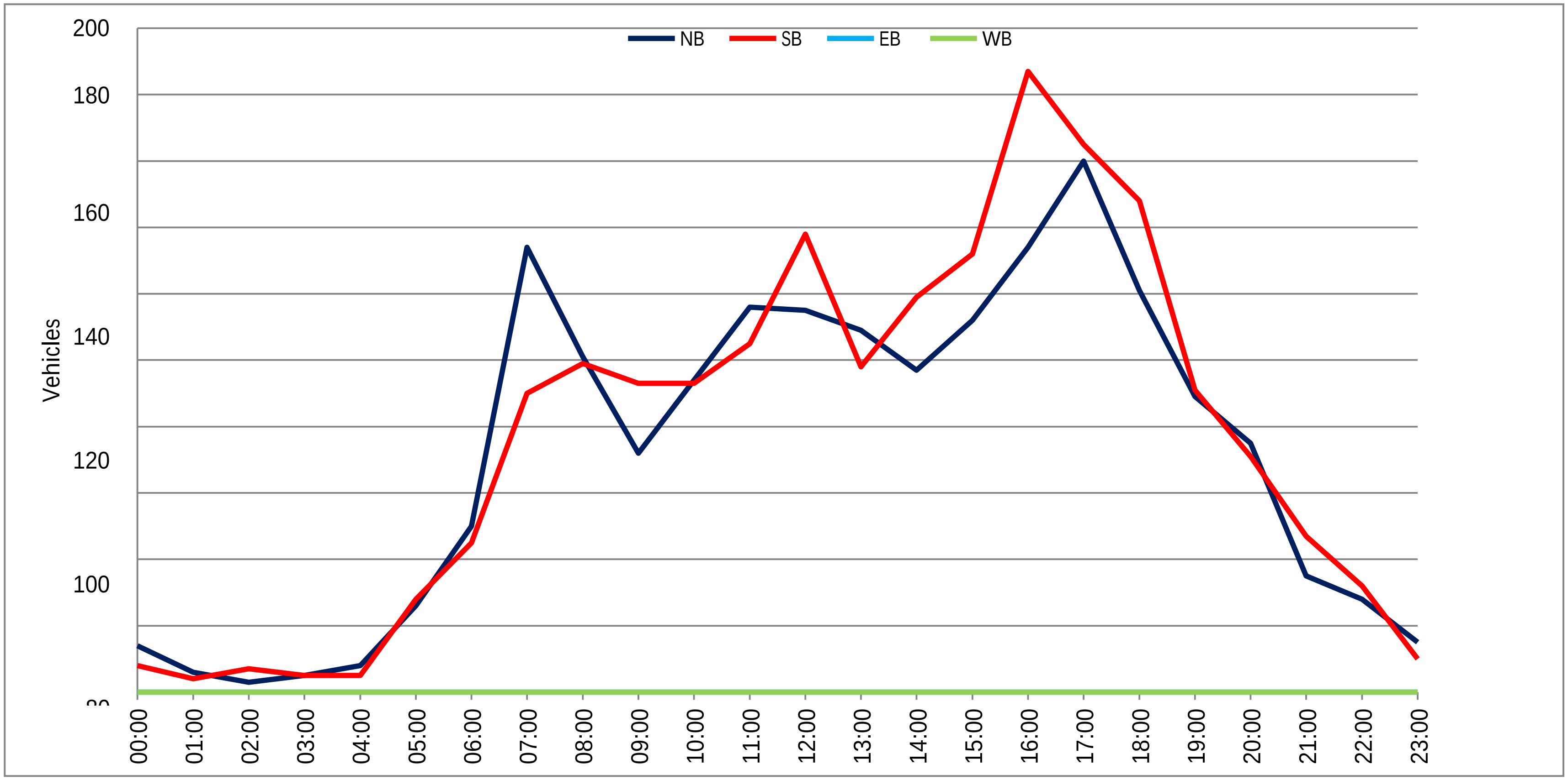
AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	5		1				6		12:00	33		24				57	
00:15	5		4				9		12:15	26		36				62	
00:30	2		1				3		12:30	27		38				65	
00:45	2	14	2	8			4	22	12:45	29	115	40	138			69	253
01:00	2		3				5		13:00	30		30				60	
01:15	1		0				1		13:15	22		21				43	
01:30	3		1				4		13:30	24		26				50	
01:45	0	6	0	4			0	10	13:45	33	109	21	98			54	207
02:00	1		4				5		14:00	24		19				43	
02:15	1		0				1		14:15	25		35				60	
02:30	0		0				0		14:30	21		26				47	
02:45	1	3	3	7			4	10	14:45	27	97	39	119			66	216
03:00	1		1				2		15:00	28		35				63	
03:15	0		0				0		15:15	30		30				60	
03:30	2		0				2		15:30	26		35				61	
03:45	2	5	4	5			6	10	15:45	28	112	32	132			60	244
04:00	4		1				5		16:00	47		40				87	
04:15	2		1				3		16:15	29		45				74	
04:30	1		1				2		16:30	21		51				72	
04:45	1	8	2	5			3	13	16:45	37	134	51	187			88	321
05:00	2		5				7		17:00	37		39				76	
05:15	3		8				11		17:15	41		44				85	
05:30	9		8				17		17:30	38		47				85	
05:45	12	26	7	28			19	54	17:45	44	160	35	165			79	325
06:00	13		8				21		18:00	34		42				76	
06:15	9		13				22		18:15	27		33				60	
06:30	11		12				23		18:30	31		42				73	
06:45	17	50	12	45			29	95	18:45	29	121	31	148			60	269
07:00	33		16				49		19:00	29		20				49	
07:15	41		24				65		19:15	21		35				56	
07:30	32		20				52		19:30	20		14				34	
07:45	28	134	30	90			58	224	19:45	19	89	22	91			41	180
08:00	26		19				45		20:00	18		18				36	
08:15	23		26				49		20:15	21		22				43	
08:30	21		33				54		20:30	20		20				40	
08:45	31	101	21	99			52	200	20:45	16	75	11	71			27	146
09:00	25		14				39		21:00	11		16				27	
09:15	15		27				42		21:15	9		14				23	
09:30	19		22				41		21:30	7		9				16	
09:45	13	72	30	93			43	165	21:45	8	35	8	47			16	82
10:00	22		28				50		22:00	11		6				17	
10:15	22		20				42		22:15	4		6				10	
10:30	22		15				37		22:30	7		11				18	
10:45	28	94	30	93			58	187	22:45	6	28	9	32			15	60
11:00	25		23				48		23:00	2		3				5	
11:15	31		27				58		23:15	5		2				7	
11:30	27		26				53		23:30	4		3				7	
11:45	33	116	29	105			62	221	23:45	4	15	2	10			6	25
TOTALS		629		582				1211	TOTALS		1090		1238				2328
SPLIT %		51.9%		48.1%				34.2%	SPLIT %		46.8%		53.2%				65.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	1,719	1,820	0	0	3,539

	NB	SB	EB	WB	TOTAL		NB	SB	EB	WB	TOTAL
AM Peak Hour	07:00	11:45			11:45	PM Peak Hour	17:00	16:00			16:45
AM Pk Volume	134	127			246	PM Pk Volume	160	187			334
Pk Hr Factor	0.817	0.836			0.946	Pk Hr Factor	0.909	0.917			0.949
7 - 9 Volume	235	189	0	0	424	4 - 6 Volume	294	352	0	0	646
7 - 9 Peak Hour	07:00	07:45			07:00	4 - 6 Peak Hour	17:00	16:00			16:45
7 - 9 Pk Volume	134	108	0	0	224	4 - 6 Pk Volume	160	187	0	0	334
Pk Hr Factor	0.817	0.818	0.000	0.000	0.862	Pk Hr Factor	0.909	0.917	0.000	0.000	0.949

Prepared by NDS/ATD

Project #: CA18_2106_005 City: Ridgecrest



ADDENDIX
“B”

SYNCHRO 10

Level of Service Calculations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	54	130	30	47	112	47	5	61	280	65	5	135
Future Volume (vph)	54	130	30	47	112	47	5	61	280	65	5	135
Satd. Flow (prot)	1770	1811	0	1770	1863	1583	0	1770	3440	0	0	1770
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	1770	1811	0	1770	1863	1583	0	1770	3440	0	0	1770
Confl. Peds. (#/hr)	8		14	14		8		24		4		4
Confl. Bikes (#/hr)			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	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	59	141	33	51	122	51	5	66	304	71	5	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	174	0	51	122	51	0	71	375	0	0	152
Sign Control		Stop			Stop				Stop			

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 45.3%	ICU Level of Service A

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	152	60
Future Volume (vph)	152	60
Satd. Flow (prot)	3391	0
Flt Permitted		
Satd. Flow (perm)	3391	0
Confl. Peds. (#/hr)		24
Confl. Bikes (#/hr)		
Peak Hour Factor	0.92	0.92
Growth Factor	100%	100%
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	165	65
Shared Lane Traffic (%)		
Lane Group Flow (vph)	230	0

Sign Control	Stop

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1	3	1	2	30	1	322	3	4	8	208
Future Volume (vph)	20	1	3	1	2	30	1	322	3	4	8	208
Satd. Flow (prot)	0	1758	0	0	1630	0	1770	3536	0	0	1770	3518
Flt Permitted		0.959			0.999		0.950				0.950	
Satd. Flow (perm)	0	1758	0	0	1630	0	1770	3536	0	0	1770	3518
Confl. Peds. (#/hr)	1					1	1					
Confl. Bikes (#/hr)									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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				0%
Adj. Flow (vph)	22	1	3	1	2	33	1	350	3	4	9	226
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	36	0	1	353	0	0	13	235
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 24.8%

ICU Level of Service A

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	8
Future Volume (vph)	8
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	9

Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

Volume

3: W. Radar Avenue & S. Gordon Street

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	11	29	0	2	5
Future Volume (vph)	3	11	29	0	2	5
Satd. Flow (prot)	0	1844	1863	0	1660	0
Flt Permitted		0.990			0.986	
Satd. Flow (perm)	0	1844	1863	0	1660	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	3	12	32	0	2	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	15	32	0	7	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 13.3%	ICU Level of Service A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	16	18	0	7	6
Future Volume (vph)	2	16	18	0	7	6
Satd. Flow (prot)	0	1853	1863	0	1700	0
Flt Permitted		0.995			0.974	
Satd. Flow (perm)	0	1853	1863	0	1700	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	2	17	20	0	8	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	19	20	0	15	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 13.3%	ICU Level of Service A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	0	158	83	6
Future Volume (vph)	0	3	0	158	83	6
Satd. Flow (prot)	0	1611	0	1863	1844	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1844	0
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	3	0	172	90	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	0	172	97	0
Sign Control	Stop			Free	Free	

Intersection Summary
Control Type: Unsignalized
Analysis Period (min) 15
Intersection Capacity Utilization 15.0% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	38	10	3	16	43	10	275	29	64	108	8
Future Volume (vph)	10	38	10	3	16	43	10	275	29	64	108	8
Satd. Flow (prot)	0	1844	1583	0	1850	1583	1770	3486	0	1770	3500	0
Flt Permitted		0.990			0.993		0.950			0.950		
Satd. Flow (perm)	0	1844	1583	0	1850	1583	1770	3486	0	1770	3500	0
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	11	41	11	3	17	47	11	299	32	70	117	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	11	0	20	47	11	331	0	70	126	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 31.6%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	122	5	7	58	38	4	61	8	43	38	3
Future Volume (vph)	11	122	5	7	58	38	4	61	8	43	38	3
Satd. Flow (prot)	0	1846	0	0	1764	0	0	1829	0	0	1809	0
Flt Permitted		0.996			0.996			0.997			0.975	
Satd. Flow (perm)	0	1846	0	0	1764	0	0	1829	0	0	1809	0
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	12	133	5	8	63	41	4	66	9	47	41	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	150	0	0	112	0	0	79	0	0	91	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Analysis Period (min) 15
Intersection Capacity Utilization 27.9% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	29	95	15	93	87	78	12	29	217	48	113	322
Future Volume (vph)	29	95	15	93	87	78	12	29	217	48	113	322
Satd. Flow (prot)	1770	1825	0	1770	1863	1583	0	1770	3444	0	1770	3483
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1770	1825	0	1770	1863	1583	0	1770	3444	0	1770	3483
Confl. Peds. (#/hr)			1	1						1	1	
Confl. Bikes (#/hr)			1			1				4		
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Adj. Flow (vph)	32	103	16	101	95	85	13	32	236	52	123	350
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	119	0	101	95	85	0	45	288	0	123	391
Sign Control		Stop			Stop				Stop			Stop

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 35.8% ICU Level of Service A

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	38
Future Volume (vph)	38
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	1
Peak Hour Factor	0.92
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	41

Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	17	3	4	16	4	6	2	12	288	7	3	15
Future Volume (vph)	17	3	4	16	4	6	2	12	288	7	3	15
Satd. Flow (prot)	0	1758	0	0	1747	0	0	1770	3525	0	0	1770
Flt Permitted		0.965			0.971			0.950				0.950
Satd. Flow (perm)	0	1758	0	0	1747	0	0	1770	3525	0	0	1770
Confl. Peds. (#/hr)	1					1				3		3
Confl. Bikes (#/hr)										4		
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	18	3	4	17	4	7	2	13	313	8	3	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	0	0	28	0	0	15	321	0	0	19
Sign Control		Stop			Stop				Free			

Intersection Summary		
Control Type: Unsignalized		
Analysis Period (min) 15		
Intersection Capacity Utilization 25.3%		ICU Level of Service A

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	386	22
Future Volume (vph)	386	22
Satd. Flow (prot)	3511	0
Flt Permitted		
Satd. Flow (perm)	3511	0
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Peak Hour Factor	0.92	0.92
Growth Factor	100%	100%
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	420	24
Shared Lane Traffic (%)		

Lane Group Flow (vph)	444	0
Sign Control	Free	
Intersection Summary		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	21	19	3	2	5
Future Volume (vph)	3	21	19	3	2	5
Satd. Flow (prot)	0	1852	1831	0	1660	0
Flt Permitted		0.994			0.986	
Satd. Flow (perm)	0	1852	1831	0	1660	0
Confl. Peds. (#/hr)	2			2		2
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	3	23	21	3	2	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	26	24	0	7	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 14.6%	ICU Level of Service A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	18	20	6	2	4
Future Volume (vph)	2	18	20	6	2	4
Satd. Flow (prot)	0	1853	1801	0	1668	0
Flt Permitted		0.995			0.984	
Satd. Flow (perm)	0	1853	1801	0	1668	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	2	20	22	7	2	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	22	29	0	6	0
Sign Control		Free	Free		Stop	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 13.3% ICU Level of Service A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	21	0	116	189	8
Future Volume (vph)	0	21	0	116	189	8
Satd. Flow (prot)	0	1611	0	1863	1852	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1852	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	23	0	126	205	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	0	126	214	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 20.4% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	53	18	19	67	96	7	203	15	92	274	24
Future Volume (vph)	12	53	18	19	67	96	7	203	15	92	274	24
Satd. Flow (prot)	0	1846	1583	0	1842	1583	1770	3504	0	1770	3497	0
Flt Permitted		0.991			0.989		0.950			0.950		
Satd. Flow (perm)	0	1846	1583	0	1842	1583	1770	3504	0	1770	3497	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	13	58	20	21	73	104	8	221	16	100	298	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	71	20	0	94	104	8	237	0	100	324	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 32.9%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	147	9	28	174	92	7	41	12	100	80	3
Future Volume (vph)	3	147	9	28	174	92	7	41	12	100	80	3
Satd. Flow (prot)	0	1661	0	0	1598	0	0	1621	0	0	1628	0
Flt Permitted		0.999			0.995			0.994			0.973	
Satd. Flow (perm)	0	1661	0	0	1598	0	0	1621	0	0	1628	0
Confl. Peds. (#/hr)	1					1	2					2
Confl. Bikes (#/hr)												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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	160	10	30	189	100	8	45	13	109	87	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	173	0	0	319	0	0	66	0	0	199	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 55.2%	ICU Level of Service B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	54	129	30	47	112	71	5	61	317	65	5	135
Future Volume (vph)	54	129	30	47	112	71	5	61	317	65	5	135
Satd. Flow (prot)	1770	1809	0	1770	1863	1583	0	1770	3447	0	0	1770
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	1770	1809	0	1770	1863	1583	0	1770	3447	0	0	1770
Confl. Peds. (#/hr)	8		14	14		8		24		4		4
Confl. Bikes (#/hr)			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	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	59	140	33	51	122	77	5	66	345	71	5	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	173	0	51	122	77	0	71	416	0	0	152
Sign Control		Stop			Stop				Stop			

Intersection Summary
Control Type: Unsignalized
Analysis Period (min) 15
Intersection Capacity Utilization 46.2% ICU Level of Service A

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	161	60
Future Volume (vph)	161	60
Satd. Flow (prot)	3394	0
Flt Permitted		
Satd. Flow (perm)	3394	0
Confl. Peds. (#/hr)		24
Confl. Bikes (#/hr)		
Peak Hour Factor	0.92	0.92
Growth Factor	100%	100%
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	175	65
Shared Lane Traffic (%)		

Lane Group Flow (vph)	240	0
Sign Control	Stop	
Intersection Summary		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1	3	20	1	67	1	322	19	4	17	209
Future Volume (vph)	20	1	3	20	1	67	1	322	19	4	17	209
Satd. Flow (prot)	0	1758	0	0	1653	0	1770	3511	0	0	1770	3518
Flt Permitted		0.959			0.989		0.950				0.950	
Satd. Flow (perm)	0	1758	0	0	1653	0	1770	3511	0	0	1770	3518
Confl. Peds. (#/hr)	1					1	1					
Confl. Bikes (#/hr)									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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				0%
Adj. Flow (vph)	22	1	3	22	1	73	1	350	21	4	18	227
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	96	0	1	371	0	0	22	236
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 28.2% ICU Level of Service A

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	8
Future Volume (vph)	8
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	9

Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	20	16	0	37	0	48	12	20	2	3	5
Future Volume (vph)	3	20	16	0	37	0	48	12	20	2	3	5
Satd. Flow (prot)	0	1753	0	0	1863	0	0	1747	0	0	1719	0
Flt Permitted		0.996						0.971			0.990	
Satd. Flow (perm)	0	1753	0	0	1863	0	0	1747	0	0	1719	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	22	17	0	40	0	52	13	22	2	3	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	42	0	0	40	0	0	87	0	0	10	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 22.4% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	2	16	9	3	18	0	8	0	35	7	0	6
Future Volume (vph)	2	16	9	3	18	0	8	0	35	7	0	6
Satd. Flow (prot)	0	1770	0	0	1852	0	0	1645	0	0	1700	0
Flt Permitted		0.997			0.994			0.991			0.974	
Satd. Flow (perm)	0	1770	0	0	1852	0	0	1645	0	0	1700	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	2	17	10	3	20	0	9	0	38	8	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	23	0	0	47	0	0	15	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 13.3%	ICU Level of Service A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	46	0	158	83	9
Future Volume (vph)	0	46	0	158	83	9
Satd. Flow (prot)	0	1611	0	1863	1837	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1837	0
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	50	0	172	90	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	50	0	172	100	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 15.2% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	38	10	3	16	54	10	280	29	64	127	8
Future Volume (vph)	10	38	10	3	16	54	10	280	29	64	127	8
Satd. Flow (prot)	0	1844	1583	0	1850	1583	1770	3490	0	1770	3507	0
Flt Permitted		0.990			0.993		0.950			0.950		
Satd. Flow (perm)	0	1844	1583	0	1850	1583	1770	3490	0	1770	3507	0
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	11	41	11	3	17	59	11	304	32	70	138	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	11	0	20	59	11	336	0	70	147	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 31.7% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	122	5	7	69	38	4	61	8	86	38	3
Future Volume (vph)	11	122	5	7	69	38	4	61	8	86	38	3
Satd. Flow (prot)	0	1846	0	0	1774	0	0	1829	0	0	1796	0
Flt Permitted		0.996			0.997			0.997			0.967	
Satd. Flow (perm)	0	1846	0	0	1774	0	0	1829	0	0	1796	0
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	12	133	5	8	75	41	4	66	9	93	41	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	150	0	0	124	0	0	79	0	0	137	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 30.4%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	29	95	15	93	87	78	12	29	238	48	113	360
Future Volume (vph)	29	95	15	93	87	78	12	29	238	48	113	360
Satd. Flow (prot)	1770	1825	0	1770	1863	1583	0	1770	3451	0	1770	3490
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1770	1825	0	1770	1863	1583	0	1770	3451	0	1770	3490
Confl. Peds. (#/hr)			1	1						1	1	
Confl. Bikes (#/hr)			1			1				4		
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Adj. Flow (vph)	32	103	16	101	95	85	13	32	259	52	123	391
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	119	0	101	95	85	0	45	311	0	123	432
Sign Control		Stop			Stop				Stop			Stop

Intersection Summary		
Control Type: Unsignalized		
Analysis Period (min) 15		
Intersection Capacity Utilization 36.4%	ICU Level of Service A	

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	38
Future Volume (vph)	38
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	1
Peak Hour Factor	0.92
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	41

Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	16	3	4	16	3	27	2	12	288	70	3	53
Future Volume (vph)	16	3	4	16	3	27	2	12	288	70	3	53
Satd. Flow (prot)	0	1758	0	0	1685	0	0	1770	3437	0	0	1770
Flt Permitted		0.966			0.983			0.950				0.950
Satd. Flow (perm)	0	1758	0	0	1685	0	0	1770	3437	0	0	1770
Confl. Peds. (#/hr)	1					1				3		3
Confl. Bikes (#/hr)										4		
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	17	3	4	17	3	29	2	13	313	76	3	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	0	0	49	0	0	15	389	0	0	61
Sign Control		Stop			Stop				Free			

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 28.4%

ICU Level of Service A

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	386	22
Future Volume (vph)	386	22
Satd. Flow (prot)	3511	0
Flt Permitted		
Satd. Flow (perm)	3511	0
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Peak Hour Factor	0.92	0.92
Growth Factor	100%	100%
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	420	24
Shared Lane Traffic (%)		

Lane Group Flow (vph)	444	0
Sign Control	Free	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	57	65	0	23	3	27	7	11	2	13	5
Future Volume (vph)	3	57	65	0	23	3	27	7	11	2	13	5
Satd. Flow (prot)	0	1731	0	0	1837	0	0	1749	0	0	1794	0
Flt Permitted		0.999						0.971			0.995	
Satd. Flow (perm)	0	1731	0	0	1837	0	0	1749	0	0	1794	0
Confl. Peds. (#/hr)	2					2						2
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	62	71	0	25	3	29	8	12	2	14	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	136	0	0	28	0	0	49	0	0	21	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 25.4%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	18	36	13	20	6	4	0	20	2	0	4
Future Volume (vph)	2	18	36	13	20	6	4	0	20	2	0	4
Satd. Flow (prot)	0	1699	0	0	1793	0	0	1637	0	0	1668	0
Flt Permitted		0.998			0.984			0.992			0.984	
Satd. Flow (perm)	0	1699	0	0	1793	0	0	1637	0	0	1668	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	2	20	39	14	22	7	4	0	22	2	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	61	0	0	43	0	0	26	0	0	6	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Analysis Period (min) 15
Intersection Capacity Utilization 17.9% ICU Level of Service A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	45	0	116	189	21
Future Volume (vph)	0	45	0	116	189	21
Satd. Flow (prot)	0	1611	0	1863	1837	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1837	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	49	0	126	205	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	49	0	126	228	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 21.2% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	53	18	19	67	140	7	222	15	92	284	24
Future Volume (vph)	12	53	18	19	67	140	7	222	15	92	284	24
Satd. Flow (prot)	0	1846	1583	0	1842	1583	1770	3507	0	1770	3497	0
Flt Permitted		0.991			0.989		0.950			0.950		
Satd. Flow (perm)	0	1846	1583	0	1842	1583	1770	3507	0	1770	3497	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	13	58	20	21	73	152	8	241	16	100	309	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	71	20	0	94	152	8	257	0	100	335	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 33.2% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	147	9	28	218	92	7	41	12	124	79	3
Future Volume (vph)	3	147	9	28	218	92	7	41	12	124	79	3
Satd. Flow (prot)	0	1661	0	0	1608	0	0	1621	0	0	1625	0
Flt Permitted		0.999			0.996			0.994			0.971	
Satd. Flow (perm)	0	1661	0	0	1608	0	0	1621	0	0	1625	0
Confl. Peds. (#/hr)	1					1	2					2
Confl. Bikes (#/hr)												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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	160	10	30	237	100	8	45	13	135	86	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	173	0	0	367	0	0	66	0	0	224	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 59.2%	ICU Level of Service B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	30	130	54	49	114	71	5	61	338	72	4	135
Future Volume (vph)	30	130	54	49	114	71	5	61	338	72	4	135
Satd. Flow (prot)	1770	1781	0	1770	1863	1583	0	1770	3447	0	0	1770
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	1770	1781	0	1770	1863	1583	0	1770	3447	0	0	1770
Confl. Peds. (#/hr)			1	1						1		1
Confl. Bikes (#/hr)			1			1				4		
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	33	141	59	53	124	77	5	66	367	78	4	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	200	0	53	124	77	0	71	445	0	0	151
Sign Control		Stop			Stop				Stop			

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 46.3% ICU Level of Service A

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	165	60
Future Volume (vph)	165	60
Satd. Flow (prot)	3398	0
Flt Permitted		
Satd. Flow (perm)	3398	0
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Peak Hour Factor	0.92	0.92
Growth Factor	100%	100%
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	179	65
Shared Lane Traffic (%)		

Lane Group Flow (vph)	244	0
Sign Control	Stop	
Intersection Summary		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	20	1	3	20	2	67	21	1	327	19	4	17
Future Volume (vph)	20	1	3	20	2	67	21	1	327	19	4	17
Satd. Flow (prot)	0	1758	0	0	1654	0	0	1770	3511	0	0	1770
Flt Permitted		0.959			0.989			0.950				0.950
Satd. Flow (perm)	0	1758	0	0	1654	0	0	1770	3511	0	0	1770
Confl. Peds. (#/hr)	1					1		1				
Confl. Bikes (#/hr)										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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	22	1	3	22	2	73	23	1	355	21	4	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	97	0	0	24	376	0	0	22
Sign Control		Stop			Stop				Free			

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 28.4%	ICU Level of Service A

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	215	8
Future Volume (vph)	215	8
Satd. Flow (prot)	3518	0
Flt Permitted		
Satd. Flow (perm)	3518	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Peak Hour Factor	0.92	0.92
Growth Factor	100%	100%
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	234	9
Shared Lane Traffic (%)		

Lane Group Flow (vph)	243	0
Sign Control	Free	
Intersection Summary		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	20	16	0	37	0	48	12	20	2	3	5
Future Volume (vph)	3	20	16	0	37	0	48	12	20	2	3	5
Satd. Flow (prot)	0	1753	0	0	1863	0	0	1747	0	0	1719	0
Flt Permitted		0.996						0.971			0.990	
Satd. Flow (perm)	0	1753	0	0	1863	0	0	1747	0	0	1719	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	22	17	0	40	0	52	13	22	2	3	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	42	0	0	40	0	0	87	0	0	10	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 22.4%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	16	9	3	18	0	8	0	35	7	0	6
Future Volume (vph)	2	16	9	3	18	0	8	0	35	7	0	6
Satd. Flow (prot)	0	1770	0	0	1852	0	0	1645	0	0	1700	0
Flt Permitted		0.997			0.994			0.991			0.974	
Satd. Flow (perm)	0	1770	0	0	1852	0	0	1645	0	0	1700	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	2	17	10	3	20	0	9	0	38	8	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	23	0	0	47	0	0	15	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 13.3%	ICU Level of Service A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	46	0	158	83	9
Future Volume (vph)	0	46	0	158	83	9
Satd. Flow (prot)	0	1611	0	1863	1837	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1837	0
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	50	0	172	90	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	50	0	172	100	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 15.2%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	38	10	3	16	55	10	284	29	69	143	8
Future Volume (vph)	10	38	10	3	16	55	10	284	29	69	143	8
Satd. Flow (prot)	0	1844	1583	0	1850	1583	1770	3490	0	1770	3511	0
Flt Permitted		0.990			0.993		0.950			0.950		
Satd. Flow (perm)	0	1844	1583	0	1850	1583	1770	3490	0	1770	3511	0
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	11	41	11	3	17	60	11	309	32	75	155	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	11	0	20	60	11	341	0	75	164	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 32.1%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Volume (vph)	11	122	5	7	69	38	4	61	8	86	38	3
Future Volume (vph)	11	122	5	7	69	38	4	61	8	86	38	3
Satd. Flow (prot)	0	1846	0	0	1774	0	0	1829	0	0	1796	0
Flt Permitted		0.996			0.997			0.997			0.967	
Satd. Flow (perm)	0	1846	0	0	1774	0	0	1829	0	0	1796	0
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	12	133	5	8	75	41	4	66	9	93	41	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	150	0	0	124	0	0	79	0	0	137	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 30.4% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	29	96	15	101	88	78	12	29	252	52	113	379
Future Volume (vph)	29	96	15	101	88	78	12	29	252	52	113	379
Satd. Flow (prot)	1770	1825	0	1770	1863	1583	0	1770	3447	0	1770	3490
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1770	1825	0	1770	1863	1583	0	1770	3447	0	1770	3490
Confl. Peds. (#/hr)			1	1						1	1	
Confl. Bikes (#/hr)			1			1				4		
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Adj. Flow (vph)	32	104	16	110	96	85	13	32	274	57	123	412
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	120	0	110	96	85	0	45	331	0	123	453
Sign Control		Stop			Stop				Stop			Stop

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 37.3%	ICU Level of Service A

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	38
Future Volume (vph)	38
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	1
Peak Hour Factor	0.92
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	41

Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	16	3	4	16	4	27	10	12	302	70	3	53
Future Volume (vph)	16	3	4	16	4	27	10	12	302	70	3	53
Satd. Flow (prot)	0	1758	0	0	1688	0	0	1770	3440	0	0	1770
Flt Permitted		0.966			0.983			0.950				0.950
Satd. Flow (perm)	0	1758	0	0	1688	0	0	1770	3440	0	0	1770
Confl. Peds. (#/hr)	1					1				3		3
Confl. Bikes (#/hr)										4		
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	17	3	4	17	4	29	11	13	328	76	3	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	0	0	50	0	0	24	404	0	0	61
Sign Control		Stop			Stop				Free			

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 29.0%	ICU Level of Service A

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	411	21
Future Volume (vph)	411	21
Satd. Flow (prot)	3514	0
Flt Permitted		
Satd. Flow (perm)	3514	0
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Peak Hour Factor	0.92	0.92
Growth Factor	100%	100%
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	447	23
Shared Lane Traffic (%)		

Lane Group Flow (vph)	470	0
Sign Control	Free	
Intersection Summary		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	57	65	0	23	3	27	7	11	2	13	5
Future Volume (vph)	3	57	65	0	23	3	27	7	11	2	13	5
Satd. Flow (prot)	0	1731	0	0	1837	0	0	1749	0	0	1794	0
Flt Permitted		0.999						0.971			0.995	
Satd. Flow (perm)	0	1731	0	0	1837	0	0	1749	0	0	1794	0
Confl. Peds. (#/hr)	2					2						2
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	62	71	0	25	3	29	8	12	2	14	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	136	0	0	28	0	0	49	0	0	21	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 25.4%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	2	16	36	13	20	6	4	0	20	4	0	2
Future Volume (vph)	2	16	36	13	20	6	4	0	20	4	0	2
Satd. Flow (prot)	0	1690	0	0	1793	0	0	1637	0	0	1722	0
Flt Permitted		0.998			0.984			0.992			0.968	
Satd. Flow (perm)	0	1690	0	0	1793	0	0	1637	0	0	1722	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	2	17	39	14	22	7	4	0	22	4	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	0	0	43	0	0	26	0	0	6	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 17.8%	ICU Level of Service A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	45	0	116	189	21
Future Volume (vph)	0	45	0	116	189	21
Satd. Flow (prot)	0	1611	0	1863	1837	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1837	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	49	0	126	205	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	49	0	126	228	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 21.2% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	53	18	19	67	144	7	238	15	94	292	24
Future Volume (vph)	12	53	18	19	67	144	7	238	15	94	292	24
Satd. Flow (prot)	0	1846	1583	0	1842	1583	1770	3507	0	1770	3500	0
Flt Permitted		0.991			0.989		0.950			0.950		
Satd. Flow (perm)	0	1846	1583	0	1842	1583	1770	3507	0	1770	3500	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	13	58	20	21	73	157	8	259	16	102	317	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	71	20	0	94	157	8	275	0	102	343	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 33.5% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	147	9	28	218	92	7	41	12	124	80	3
Future Volume (vph)	3	147	9	28	218	92	7	41	12	124	80	3
Satd. Flow (prot)	0	1661	0	0	1608	0	0	1621	0	0	1625	0
Flt Permitted		0.999			0.996			0.994			0.971	
Satd. Flow (perm)	0	1661	0	0	1608	0	0	1621	0	0	1625	0
Confl. Peds. (#/hr)	1					1	2					2
Confl. Bikes (#/hr)												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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	160	10	30	237	100	8	45	13	135	87	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	173	0	0	367	0	0	66	0	0	225	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 59.3%	ICU Level of Service B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	84	203	47	73	177	110	13	95	439	101	8	210
Future Volume (vph)	84	203	47	73	177	110	13	95	439	101	8	210
Satd. Flow (prot)	1770	1811	0	1770	1863	1583	0	1770	3440	0	0	1770
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	1770	1811	0	1770	1863	1583	0	1770	3440	0	0	1770
Confl. Peds. (#/hr)	8		14	14		8		24		4		4
Confl. Bikes (#/hr)			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	0.92
Growth Factor	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	142	342	79	123	298	185	22	160	740	170	13	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	142	421	0	123	298	185	0	182	910	0	0	367
Sign Control		Stop			Stop				Stop			

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 83.5%	ICU Level of Service E

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	236	93
Future Volume (vph)	236	93
Satd. Flow (prot)	3391	0
Flt Permitted		
Satd. Flow (perm)	3391	0
Confl. Peds. (#/hr)		24
Confl. Bikes (#/hr)		
Peak Hour Factor	0.92	0.92
Growth Factor	155%	155%
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	398	157
Shared Lane Traffic (%)		

Lane Group Flow (vph)	555	0
Sign Control	Stop	
Intersection Summary		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	203	47	73	177	110	108	439	101	218	236	93
Future Volume (veh/h)	84	203	47	73	177	110	108	439	101	218	236	93
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		0.94	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	142	342	79	123	298	185	182	740	170	367	398	157
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	261	434	100	191	555	457	239	841	193	389	945	367
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.13	0.30	0.30	0.22	0.38	0.38
Sat Flow, veh/h	908	1461	338	964	1870	1542	1781	2829	650	1781	2475	962
Grp Volume(v), veh/h	142	0	421	123	298	185	182	465	445	367	284	271
Grp Sat Flow(s),veh/h/ln	908	0	1799	964	1870	1542	1781	1777	1702	1781	1777	1660
Q Serve(g_s), s	9.9	0.0	13.8	5.2	8.5	6.1	6.3	15.9	15.9	13.0	7.5	7.7
Cycle Q Clear(g_c), s	18.5	0.0	13.8	19.0	8.5	6.1	6.3	15.9	15.9	13.0	7.5	7.7
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.38	1.00		0.58
Lane Grp Cap(c), veh/h	261	0	534	191	555	457	239	528	506	389	679	634
V/C Ratio(X)	0.54	0.00	0.79	0.64	0.54	0.40	0.76	0.88	0.88	0.94	0.42	0.43
Avail Cap(c_a), veh/h	261	0	534	191	555	457	445	555	531	389	679	634
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	20.7	30.3	18.8	18.0	26.7	21.4	21.4	24.6	14.6	14.6
Incr Delay (d2), s/veh	2.3	0.0	7.8	7.1	1.0	0.6	5.0	14.6	15.2	31.2	0.4	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	2.1	0.0	6.2	2.2	3.4	2.0	2.7	7.8	7.5	8.2	2.7	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	0.0	28.5	37.5	19.9	18.6	31.7	36.0	36.6	55.8	15.0	15.1
LnGrp LOS	C	A	C	D	B	B	C	D	D	E	B	B
Approach Vol, veh/h		563			606			1092			922	
Approach Delay, s/veh		28.6			23.0			35.6			31.3	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	23.0		23.0	12.6	28.5		23.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	14.0	20.0		19.0	16.0	18.0		19.0				
Max Q Clear Time (g_c+I1), s	15.0	17.9		20.5	8.3	9.7		21.0				
Green Ext Time (p_c), s	0.0	1.1		0.0	0.3	2.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			30.7
HCM 6th LOS			C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	31	2	5	2	3	47	2	501	5	7	13	324
Future Volume (vph)	31	2	5	2	3	47	2	501	5	7	13	324
Satd. Flow (prot)	0	1758	0	0	1630	0	1770	3536	0	0	1770	3518
Flt Permitted		0.960			0.998		0.950				0.950	
Satd. Flow (perm)	0	1758	0	0	1630	0	1770	3536	0	0	1770	3518
Confl. Peds. (#/hr)	1					1	1					
Confl. Bikes (#/hr)									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
Growth Factor	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				0%
Adj. Flow (vph)	52	3	8	3	5	79	3	844	8	12	22	546
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	63	0	0	87	0	3	852	0	0	34	568
Sign Control		Stop			Stop			Free				Free

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 42.4%	ICU Level of Service A

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	13
Future Volume (vph)	13
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Growth Factor	155%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	22

Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	17	45	0	3	8
Future Volume (vph)	5	17	45	0	3	8
Satd. Flow (prot)	0	1842	1863	0	1657	0
Flt Permitted		0.989			0.986	
Satd. Flow (perm)	0	1842	1863	0	1657	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	8	29	76	0	5	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	37	76	0	18	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 18.1%	ICU Level of Service A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	25	28	0	11	10
Future Volume (vph)	3	25	28	0	11	10
Satd. Flow (prot)	0	1853	1863	0	1698	0
Flt Permitted		0.995			0.974	
Satd. Flow (perm)	0	1853	1863	0	1698	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	5	42	47	0	19	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	47	47	0	36	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 15.9%	ICU Level of Service A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	5	0	245	129	10
Future Volume (vph)	0	5	0	245	129	10
Satd. Flow (prot)	0	1611	0	1863	1844	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1844	0
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	8	0	413	217	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	8	0	413	234	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 23.3%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	59	16	5	25	67	16	426	45	100	167	13
Future Volume (vph)	16	59	16	5	25	67	16	426	45	100	167	13
Satd. Flow (prot)	0	1842	1583	0	1848	1583	1770	3490	0	1770	3500	0
Flt Permitted		0.989			0.992		0.950			0.950		
Satd. Flow (perm)	0	1842	1583	0	1848	1583	1770	3490	0	1770	3500	0
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)												
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
Growth Factor	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	27	99	27	8	42	113	27	718	76	168	281	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	126	27	0	50	113	27	794	0	168	303	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 51.9%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	189	8	11	90	59	7	95	13	72	59	5
Future Volume (vph)	17	189	8	11	90	59	7	95	13	72	59	5
Satd. Flow (prot)	0	1846	0	0	1763	0	0	1829	0	0	1805	0
Flt Permitted		0.996			0.996			0.997			0.974	
Satd. Flow (perm)	0	1846	0	0	1763	0	0	1829	0	0	1805	0
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)												
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
Growth Factor	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	29	318	13	19	152	99	12	160	22	121	99	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	360	0	0	270	0	0	194	0	0	228	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 55.1% ICU Level of Service B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	189	8	11	90	59	7	95	13	72	59	5
Future Volume (veh/h)	17	189	8	11	90	59	7	95	13	72	59	5
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	318	13	19	152	99	12	160	22	121	99	8
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	211	532	21	203	328	201	671	479	66	608	508	41
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	77	1665	65	58	1027	628	1283	1609	221	1199	1707	138
Grp Volume(v), veh/h	360	0	0	270	0	0	12	0	182	121	0	107
Grp Sat Flow(s),veh/h/ln	1808	0	0	1714	0	0	1283	0	1830	1199	0	1845
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.6	1.8	0.0	0.9
Cycle Q Clear(g_c), s	3.4	0.0	0.0	2.6	0.0	0.0	1.1	0.0	1.6	3.5	0.0	0.9
Prop In Lane	0.08		0.04	0.07		0.37	1.00		0.12	1.00		0.07
Lane Grp Cap(c), veh/h	764	0	0	732	0	0	671	0	544	608	0	549
V/C Ratio(X)	0.47	0.00	0.00	0.37	0.00	0.00	0.02	0.00	0.33	0.20	0.00	0.19
Avail Cap(c_a), veh/h	1552	0	0	1476	0	0	1272	0	1401	1170	0	1413
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	5.7	0.0	0.0	5.9	0.0	5.7	7.1	0.0	5.5
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4	0.2	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	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	0.0	0.0	6.0	0.0	0.0	5.9	0.0	6.1	7.2	0.0	5.6
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		360			270			194			228	
Approach Delay, s/veh		6.5			6.0			6.1			6.5	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.2		10.7		10.2		10.7				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0				
Max Q Clear Time (g_c+I1), s		3.6		5.4		5.5		4.6				
Green Ext Time (p_c), s		0.7		1.4		0.6		1.1				

Intersection Summary	
HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	49	160	25	145	137	121	20	49	384	75	175	500
Future Volume (vph)	49	160	25	145	137	121	20	49	384	75	175	500
Satd. Flow (prot)	1770	1825	0	1770	1863	1583	0	1770	3454	0	1770	3483
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1770	1825	0	1770	1863	1583	0	1770	3454	0	1770	3483
Confl. Peds. (#/hr)			1	1						1	1	
Confl. Bikes (#/hr)			1			1				4		
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
Growth Factor	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Adj. Flow (vph)	83	270	42	244	231	204	34	83	647	126	295	842
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	312	0	244	231	204	0	117	773	0	295	941
Sign Control		Stop			Stop				Stop			Stop

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 76.4% ICU Level of Service D

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	59
Future Volume (vph)	59
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	1
Peak Hour Factor	0.92
Growth Factor	155%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	99
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	160	25	145	137	121	69	384	75	175	500	59
Future Volume (veh/h)	49	160	25	145	137	121	69	384	75	175	500	59
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		0.99	1.00		0.97	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	83	270	42	244	231	204	116	647	126	295	842	99
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	362	540	84	344	641	536	148	777	151	336	1177	138
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.08	0.26	0.26	0.19	0.37	0.37
Sat Flow, veh/h	953	1577	245	1067	1870	1564	1781	2951	574	1781	3194	376
Grp Volume(v), veh/h	83	0	312	244	231	204	116	389	384	295	468	473
Grp Sat Flow(s),veh/h/ln	953	0	1822	1067	1870	1564	1781	1777	1748	1781	1777	1793
Q Serve(g_s), s	4.2	0.0	7.9	12.1	5.4	5.8	3.7	12.1	12.1	9.4	13.2	13.2
Cycle Q Clear(g_c), s	9.6	0.0	7.9	20.0	5.4	5.8	3.7	12.1	12.1	9.4	13.2	13.2
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.33	1.00		0.21
Lane Grp Cap(c), veh/h	362	0	624	344	641	536	148	468	460	336	655	661
V/C Ratio(X)	0.23	0.00	0.50	0.71	0.36	0.38	0.78	0.83	0.83	0.88	0.72	0.72
Avail Cap(c_a), veh/h	362	0	624	344	641	536	183	518	509	336	670	676
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	15.2	23.7	14.4	14.5	26.2	20.3	20.3	23.0	15.8	15.8
Incr Delay (d2), s/veh	0.3	0.0	0.6	6.6	0.3	0.4	15.9	10.2	10.6	22.3	3.6	3.5
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	0.8	0.0	2.9	3.6	2.0	1.8	2.1	5.5	5.5	5.6	5.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	0.0	15.8	30.3	14.7	14.9	42.2	30.5	30.9	45.4	19.4	19.3
LnGrp LOS	B	A	B	C	B	B	D	C	C	D	B	B
Approach Vol, veh/h		395			679			889			1236	
Approach Delay, s/veh		16.4			20.4			32.2			25.6	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	19.4		24.0	8.9	25.5		24.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	11.0	17.0		20.0	6.0	22.0		20.0				
Max Q Clear Time (g_c+I1), s	11.4	14.1		11.6	5.7	15.2		22.0				
Green Ext Time (p_c), s	0.0	1.3		1.4	0.0	3.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			25.2									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	27	5	7	25	7	10	3	19	453	1	5	24
Future Volume (vph)	27	5	7	25	7	10	3	19	453	1	5	24
Satd. Flow (prot)	0	1756	0	0	1751	0	0	1770	3539	0	0	1770
Flt Permitted		0.967			0.971			0.950				0.950
Satd. Flow (perm)	0	1756	0	0	1751	0	0	1770	3539	0	0	1770
Confl. Peds. (#/hr)	1					1				3		3
Confl. Bikes (#/hr)										4		
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
Growth Factor	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	45	8	12	42	12	17	5	32	763	2	8	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	65	0	0	71	0	0	37	765	0	0	48
Sign Control		Stop			Stop				Free			

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 45.1%	ICU Level of Service A

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	600	35
Future Volume (vph)	600	35
Satd. Flow (prot)	3511	0
Flt Permitted		
Satd. Flow (perm)	3511	0
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Peak Hour Factor	0.92	0.92
Growth Factor	155%	155%
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	1011	59
Shared Lane Traffic (%)		

Lane Group Flow (vph)	1070	0
Sign Control	Free	

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	33	30	5	3	8
Future Volume (vph)	5	33	30	5	3	8
Satd. Flow (prot)	0	1852	1829	0	1657	0
Flt Permitted		0.994			0.986	
Satd. Flow (perm)	0	1852	1829	0	1657	0
Confl. Peds. (#/hr)	2			2		2
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	8	56	51	8	5	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	64	59	0	18	0
Sign Control		Free	Free		Stop	

Intersection Summary
Control Type: Unsignalized

Analysis Period (min) 15
Intersection Capacity Utilization 19.9% ICU Level of Service A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	28	31	10	3	7
Future Volume (vph)	3	28	31	10	3	7
Satd. Flow (prot)	0	1853	1801	0	1662	0
Flt Permitted		0.995			0.986	
Satd. Flow (perm)	0	1853	1801	0	1662	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	5	47	52	17	5	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	52	69	0	17	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 16.2%	ICU Level of Service A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	33	0	180	293	13
Future Volume (vph)	0	33	0	180	293	13
Satd. Flow (prot)	0	1611	0	1863	1852	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1852	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	56	0	303	494	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	56	0	303	516	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 35.1%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	82	28	30	104	149	11	315	24	143	425	38
Future Volume (vph)	19	82	28	30	104	149	11	315	24	143	425	38
Satd. Flow (prot)	0	1846	1583	0	1842	1583	1770	3500	0	1770	3497	0
Flt Permitted		0.991			0.989		0.950			0.950		
Satd. Flow (perm)	0	1846	1583	0	1842	1583	1770	3500	0	1770	3497	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	32	138	47	51	175	251	19	531	40	241	716	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	170	47	0	226	251	19	571	0	241	780	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 59.7% ICU Level of Service B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	228	14	44	270	143	11	64	19	155	124	5
Future Volume (vph)	5	228	14	44	270	143	11	64	19	155	124	5
Satd. Flow (prot)	0	1661	0	0	1598	0	0	1621	0	0	1628	0
Flt Permitted		0.999			0.995			0.994			0.973	
Satd. Flow (perm)	0	1661	0	0	1598	0	0	1621	0	0	1628	0
Confl. Peds. (#/hr)	1					1	2					2
Confl. Bikes (#/hr)												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
Growth Factor	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	8	384	24	74	455	241	19	108	32	261	209	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	416	0	0	770	0	0	159	0	0	478	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 115.0%	ICU Level of Service H

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	228	14	44	270	143	11	64	19	155	124	5
Future Volume (veh/h)	5	228	14	44	270	143	11	64	19	155	124	5
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		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	8	384	24	74	455	241	19	108	32	261	209	8
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	58	859	53	112	516	261	347	413	122	405	534	20
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	9	1555	96	100	934	471	1046	1246	369	1122	1609	62
Grp Volume(v), veh/h	416	0	0	770	0	0	19	0	140	261	0	217
Grp Sat Flow(s),veh/h/ln	1659	0	0	1506	0	0	1046	0	1616	1122	0	1670
Q Serve(g_s), s	0.0	0.0	0.0	21.0	0.0	0.0	1.0	0.0	4.4	15.4	0.0	6.9
Cycle Q Clear(g_c), s	10.3	0.0	0.0	32.1	0.0	0.0	7.9	0.0	4.4	19.8	0.0	6.9
Prop In Lane	0.02		0.06	0.10		0.31	1.00		0.23	1.00		0.04
Lane Grp Cap(c), veh/h	970	0	0	890	0	0	347	0	536	405	0	554
V/C Ratio(X)	0.43	0.00	0.00	0.87	0.00	0.00	0.05	0.00	0.26	0.64	0.00	0.39
Avail Cap(c_a), veh/h	1151	0	0	1053	0	0	347	0	536	486	0	675
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.2	0.0	0.0	13.8	0.0	0.0	20.8	0.0	16.9	24.2	0.0	17.8
Incr Delay (d2), s/veh	0.3	0.0	0.0	6.8	0.0	0.0	0.1	0.0	0.3	2.2	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	2.9	0.0	0.0	9.4	0.0	0.0	0.2	0.0	1.5	3.9	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.5	0.0	0.0	20.6	0.0	0.0	20.9	0.0	17.2	26.3	0.0	18.2
LnGrp LOS	A	A	A	C	A	A	C	A	B	C	A	B
Approach LOS		A			C			B			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.0		42.3		27.0		42.3				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		17.0		46.0		28.0		46.0				
Max Q Clear Time (g_c+I1), s		9.9		12.3		21.8		34.1				
Green Ext Time (p_c), s		0.4		2.5		1.2		4.2				

Intersection Summary			
HCM 6th Ctrl Delay			18.4

HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	203	47	73	177	110	108	476	101	218	245	93
Future Volume (veh/h)	84	203	47	73	177	110	108	476	101	218	245	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.93	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	221	51	79	192	120	117	517	110	237	266	101
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	370	404	93	327	518	426	151	807	171	300	915	337
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.09	0.28	0.28	0.17	0.36	0.36
Sat Flow, veh/h	1059	1461	337	1098	1870	1540	1781	2879	608	1781	2516	927
Grp Volume(v), veh/h	91	0	272	79	192	120	117	318	309	237	185	182
Grp Sat Flow(s),veh/h/ln	1059	0	1798	1098	1870	1540	1781	1777	1710	1781	1777	1666
Q Serve(g_s), s	3.3	0.0	5.6	2.9	3.6	2.7	2.8	6.9	6.9	5.6	3.2	3.4
Cycle Q Clear(g_c), s	6.9	0.0	5.6	8.5	3.6	2.7	2.8	6.9	6.9	5.6	3.2	3.4
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.36	1.00		0.56
Lane Grp Cap(c), veh/h	370	0	498	327	518	426	151	498	480	300	646	606
V/C Ratio(X)	0.25	0.00	0.55	0.24	0.37	0.28	0.77	0.64	0.64	0.79	0.29	0.30
Avail Cap(c_a), veh/h	465	0	658	425	685	564	367	650	626	448	732	686
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	0.0	13.5	17.1	12.7	12.4	19.6	13.8	13.8	17.4	9.9	9.9
Incr Delay (d2), s/veh	0.3	0.0	0.9	0.4	0.4	0.4	8.1	1.4	1.5	5.6	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	0.7	0.0	1.9	0.6	1.2	0.7	1.3	2.2	2.1	2.3	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.9	0.0	14.4	17.5	13.2	12.8	27.7	15.1	15.3	23.0	10.1	10.2
LnGrp LOS	B	A	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		363			391			744			604	
Approach Delay, s/veh		14.8			13.9			17.2			15.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	16.3		16.1	7.7	19.9		16.1				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	11.0	16.0		16.0	9.0	18.0		16.0				
Max Q Clear Time (g_c+I1), s	7.6	8.9		8.9	4.8	5.4		10.5				
Green Ext Time (p_c), s	0.2	2.0		1.1	0.1	1.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			15.6									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	31	2	5	21	3	84	2	501	21	7	22	324
Future Volume (vph)	31	2	5	21	3	84	2	501	21	7	22	324
Satd. Flow (prot)	0	1760	0	0	1650	0	1770	3518	0	0	1770	3518
Flt Permitted		0.960			0.990		0.950				0.950	
Satd. Flow (perm)	0	1760	0	0	1650	0	1770	3518	0	0	1770	3518
Confl. Peds. (#/hr)	1					1	1					
Confl. Bikes (#/hr)									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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				0%
Adj. Flow (vph)	34	2	5	23	3	91	2	545	23	8	24	352
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	117	0	2	568	0	0	32	366
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 34.7% ICU Level of Service A

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	13
Future Volume (vph)	13
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	14
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0

Sign Control

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	28	16	0	57	0	48	12	20	3	3	8
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	49	0	0	57	0	0	80	0	0	14	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	1.00	0.85	0.95	0.93	0.85	0.95	0.90	0.85
Saturated Flow (vph)	0	1798	0	0	1900	0	0	1774	0	0	1719	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	718		0	1900		0	753		0	1709	
Reference Time A (s)	0.0	8.2		0.0	3.6		0.0	12.7		0.0	1.0	
Adj Saturation B (vph	0	0		0	1900		0	0		0	0	
Reference Time B (s)	8.3	11.3		0.0	3.6		11.2	13.4		8.2	9.0	
Reference Time (s)		8.2			3.6			12.7			1.0	
Adj Reference Time (s)		12.2			8.0			16.7			8.0	
Split Option												
Ref Time Combined (s)	0.0	3.3		0.0	3.6		0.0	5.4		0.0	1.0	
Ref Time Seperate (s)	0.3	1.9		0.0	3.6		3.2	0.8		0.2	0.2	
Reference Time (s)	3.3	3.3		3.6	3.6		5.4	5.4		1.0	1.0	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		9.4	9.4		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	12.2	16.7	
Split Option (s)	16.0	17.4	
Minimum (s)	12.2	16.7	28.9

Right Turns		
Adj Reference Time (s)		
Cross Thru Ref Time (s)		
Oncoming Left Ref Time (s)		
Combined (s)		

Intersection Summary			
Intersection Capacity Utilization	24.1%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	3	25	9	3	28	0	8	0	35	12	0	10
Future Volume (vph)	3	25	9	3	28	0	8	0	35	12	0	10
Satd. Flow (prot)	0	1792	0	0	1853	0	0	1645	0	0	1702	0
Flt Permitted		0.996			0.995			0.991			0.974	
Satd. Flow (perm)	0	1792	0	0	1853	0	0	1645	0	0	1702	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	27	10	3	30	0	9	0	38	13	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	40	0	0	33	0	0	47	0	0	24	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 13.3%	ICU Level of Service A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	48	0	245	129	13
Future Volume (vph)	0	48	0	245	129	13
Satd. Flow (prot)	0	1611	0	1863	1840	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1840	0
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	52	0	266	140	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	52	0	266	154	0
Sign Control	Stop			Stop	Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 17.8%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	59	16	5	25	78	16	431	45	100	186	13
Future Volume (vph)	16	59	16	5	25	78	16	431	45	100	186	13
Satd. Flow (prot)	0	1844	1583	0	1848	1583	1770	3490	0	1770	3504	0
Flt Permitted		0.990			0.992		0.950			0.950		
Satd. Flow (perm)	0	1844	1583	0	1848	1583	1770	3490	0	1770	3504	0
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	17	64	17	5	27	85	17	468	49	109	202	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	17	0	32	85	17	517	0	109	216	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Analysis Period (min) 15

Intersection Capacity Utilization 39.6% ICU Level of Service A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	189	8	11	101	59	7	95	13	115	59	5
Future Volume (veh/h)	17	189	8	11	101	59	7	95	13	115	59	5
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	205	9	12	110	64	8	103	14	125	64	5
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	119	681	28	111	442	240	681	645	88	637	685	54
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	54	1703	71	37	1104	599	1329	1611	219	1273	1712	134
Grp Volume(v), veh/h	232	0	0	186	0	0	8	0	117	125	0	69
Grp Sat Flow(s),veh/h/ln	1828	0	0	1740	0	0	1329	0	1830	1273	0	1846
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.6	2.8	0.0	0.9
Cycle Q Clear(g_c), s	3.4	0.0	0.0	2.8	0.0	0.0	1.1	0.0	1.6	4.4	0.0	0.9
Prop In Lane	0.08		0.04	0.06		0.34	1.00		0.12	1.00		0.07
Lane Grp Cap(c), veh/h	828	0	0	792	0	0	681	0	732	637	0	738
V/C Ratio(X)	0.28	0.00	0.00	0.23	0.00	0.00	0.01	0.00	0.16	0.20	0.00	0.09
Avail Cap(c_a), veh/h	828	0	0	792	0	0	681	0	732	637	0	738
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	0.0	8.1	0.0	0.0	7.8	0.0	7.7	9.1	0.0	7.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.5	0.7	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	1.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.5	0.6	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.1	0.0	0.0	8.7	0.0	0.0	7.8	0.0	8.2	9.8	0.0	7.7
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.0		20.0		20.0		20.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0				
Max Q Clear Time (g_c+I1), s		3.6		5.4		6.4		4.8				
Green Ext Time (p_c), s		0.4		0.8		0.5		0.6				
Intersection Summary												

HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	160	25	145	137	121	69	405	75	175	538	59
Future Volume (veh/h)	49	160	25	145	137	121	69	405	75	175	538	59
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		0.99	1.00		0.97	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	174	27	158	149	132	75	440	82	190	585	64
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	445	460	71	433	545	456	190	736	136	251	905	99
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.11	0.25	0.25	0.14	0.28	0.28
Sat Flow, veh/h	1097	1577	245	1181	1870	1563	1781	2979	551	1781	3222	352
Grp Volume(v), veh/h	53	0	201	158	149	132	75	261	261	190	322	327
Grp Sat Flow(s),veh/h/ln	1097	0	1822	1181	1870	1563	1781	1777	1753	1781	1777	1797
Q Serve(g_s), s	1.5	0.0	3.3	4.6	2.3	2.4	1.5	4.9	4.9	3.8	6.0	6.0
Cycle Q Clear(g_c), s	3.8	0.0	3.3	7.9	2.3	2.4	1.5	4.9	4.9	3.8	6.0	6.0
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.31	1.00		0.20
Lane Grp Cap(c), veh/h	445	0	531	433	545	456	190	439	433	251	499	505
V/C Ratio(X)	0.12	0.00	0.38	0.36	0.27	0.29	0.39	0.59	0.60	0.76	0.65	0.65
Avail Cap(c_a), veh/h	595	0	779	594	800	669	762	903	890	619	760	769
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	10.6	13.7	10.2	10.3	15.6	12.4	12.5	15.5	11.8	11.8
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.5	0.3	0.3	1.3	1.3	1.4	4.7	1.4	1.4
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	0.3	0.0	1.0	1.0	0.7	0.6	0.5	1.5	1.5	1.5	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	0.0	11.0	14.2	10.5	10.6	16.9	13.7	13.8	20.1	13.2	13.2
LnGrp LOS	B	A	B	B	B	B	B	B	B	C	B	B
Approach Vol, veh/h		254			439			597			839	
Approach Delay, s/veh		11.2			11.9			14.2			14.8	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	13.2		14.9	8.0	14.5		14.9				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	13.0	19.0		16.0	16.0	16.0		16.0				
Max Q Clear Time (g_c+I1), s	5.8	6.9		5.8	3.5	8.0		9.9				
Green Ext Time (p_c), s	0.3	2.2		0.9	0.1	2.3		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			13.6									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	27	5	7	20	7	31	3	19	453	74	5	62
Future Volume (vph)	27	5	7	20	7	31	3	19	453	74	5	62
Satd. Flow (prot)	0	1754	0	0	1699	0	0	1770	3465	0	0	1770
Flt Permitted		0.967			0.983			0.950				0.950
Satd. Flow (perm)	0	1754	0	0	1699	0	0	1770	3465	0	0	1770
Confl. Peds. (#/hr)	1					1				3		3
Confl. Bikes (#/hr)										4		
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	29	5	8	22	8	34	3	21	492	80	5	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	42	0	0	64	0	0	24	572	0	0	72
Sign Control		Stop			Stop				Free			

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 35.1%	ICU Level of Service A

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	600	35
Future Volume (vph)	600	35
Satd. Flow (prot)	3511	0
Flt Permitted		
Satd. Flow (perm)	3511	0
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Peak Hour Factor	0.92	0.92
Growth Factor	100%	100%
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	652	38
Shared Lane Traffic (%)		

Lane Group Flow (vph)	690	0
Sign Control	Free	
Intersection Summary		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	69	65	0	34	5	27	7	11	3	13	8
Future Volume (vph)	5	69	65	0	34	5	27	7	11	3	13	8
Satd. Flow (prot)	0	1742	0	0	1833	0	0	1749	0	0	1765	0
Flt Permitted		0.998						0.971			0.994	
Satd. Flow (perm)	0	1742	0	0	1833	0	0	1749	0	0	1765	0
Confl. Peds. (#/hr)	2					2						2
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	5	75	71	0	37	5	29	8	12	3	14	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	151	0	0	42	0	0	49	0	0	26	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 27.1%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	28	36	13	31	10	4	0	20	3	0	7
Future Volume (vph)	3	28	36	13	31	10	4	0	20	3	0	7
Satd. Flow (prot)	0	1723	0	0	1794	0	0	1637	0	0	1658	0
Flt Permitted		0.998			0.988			0.992			0.987	
Satd. Flow (perm)	0	1723	0	0	1794	0	0	1637	0	0	1658	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	30	39	14	34	11	4	0	22	3	0	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	0	0	59	0	0	26	0	0	11	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 17.8%	ICU Level of Service A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	57	0	180	293	26
Future Volume (vph)	0	57	0	180	293	26
Satd. Flow (prot)	0	1611	0	1863	1842	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1842	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	62	0	196	318	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	62	0	196	346	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 27.2%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	82	28	30	104	30	11	334	24	143	435	38
Future Volume (vph)	19	82	28	30	104	30	11	334	24	143	435	38
Satd. Flow (prot)	0	1846	1583	0	1842	1583	1770	3504	0	1770	3497	0
Flt Permitted		0.991			0.989		0.950			0.950		
Satd. Flow (perm)	0	1846	1583	0	1842	1583	1770	3504	0	1770	3497	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	21	89	30	33	113	33	12	363	26	155	473	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	110	30	0	146	33	12	389	0	155	514	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Control Type: Unsignalized	
Analysis Period (min) 15	
Intersection Capacity Utilization 41.7%	ICU Level of Service A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	228	14	44	314	143	11	64	19	179	124	5
Future Volume (veh/h)	5	228	14	44	314	143	11	64	19	179	124	5
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		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	5	248	15	48	341	155	12	70	21	195	135	5
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	698	42	159	466	199	489	363	109	526	471	17
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	8	1557	93	71	1041	443	1121	1242	373	1172	1611	60
Grp Volume(v), veh/h	268	0	0	544	0	0	12	0	91	195	0	140
Grp Sat Flow(s),veh/h/ln	1658	0	0	1555	0	0	1121	0	1615	1172	0	1671
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	0.0	0.3	0.0	1.3	4.6	0.0	2.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	9.0	0.0	0.0	2.3	0.0	1.3	5.9	0.0	2.0
Prop In Lane	0.02		0.06	0.09		0.28	1.00		0.23	1.00		0.04
Lane Grp Cap(c), veh/h	862	0	0	824	0	0	489	0	472	526	0	488
V/C Ratio(X)	0.31	0.00	0.00	0.66	0.00	0.00	0.02	0.00	0.19	0.37	0.00	0.29
Avail Cap(c_a), veh/h	1455	0	0	1374	0	0	779	0	891	830	0	922
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.6	0.0	0.0	7.1	0.0	0.0	9.3	0.0	8.2	10.4	0.0	8.4
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.2	0.4	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	0.4	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	0.0	0.0	8.0	0.0	0.0	9.3	0.0	8.4	10.8	0.0	8.7
LnGrp LOS	A	A	A	A	A	A	A	A	A	B	A	A
Approach Vol, veh/h		268			544			103			335	
Approach Delay, s/veh		5.8			8.0			8.5			10.0	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.0		17.8		13.0		17.8				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		17.0		25.0		17.0		25.0				
Max Q Clear Time (g_c+I1), s		4.3		5.3		7.9		11.0				
Green Ext Time (p_c), s		0.3		1.3		1.0		2.9				
Intersection Summary												
HCM 6th Ctrl Delay			8.1									
HCM 6th LOS			A									

ADDENDIX
"C"

INSTITUTE OF TRANSPORTATION ENGINEER (ITE)

Trip Generation an ITE Informational Report - 8th Edition

Trip Generation Sheet

Land Use: 220
Apartment

Description

Apartments are rental dwelling units located within the same building with at least three other dwelling units, for example, quadraplexes and all types of apartment buildings. The studies included in this land use did not identify whether the apartments were low-rise, mid-rise, or high-rise. Low-rise apartment (Land Use 221), high-rise apartment (Land Use 222) and mid-rise apartment (Land Use 223) are related uses.

Additional Data

This land use included data from a wide variety of units with different sizes, price ranges, locations and ages. Consequently, there was a wide variation in trips generated within this category. As expected, dwelling units that were larger in size, more expensive, or farther away from the central business district (CBD) had a higher rate of trip generation per unit than those smaller in size, less expensive, or closer to the CBD. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

The peak hour of the generator typically coincided with the peak hour of the adjacent street traffic.

The sites were surveyed between the late 1960s and the 2000s throughout the United States and Canada.

Many of the studies included in this land use did not indicate the total number of bedrooms. To assist in the future analysis of this land use, it is important that this information be collected and included in trip generation data submissions.

Source Numbers

2, 4, 5, 6, 9, 10, 11, 12, 13, 14, 16, 19, 20, 34, 35, 40, 72, 91, 100, 108, 188, 192, 204, 211, 253, 283, 357, 436, 525, 530, 579, 583, 638

Apartment
(220)

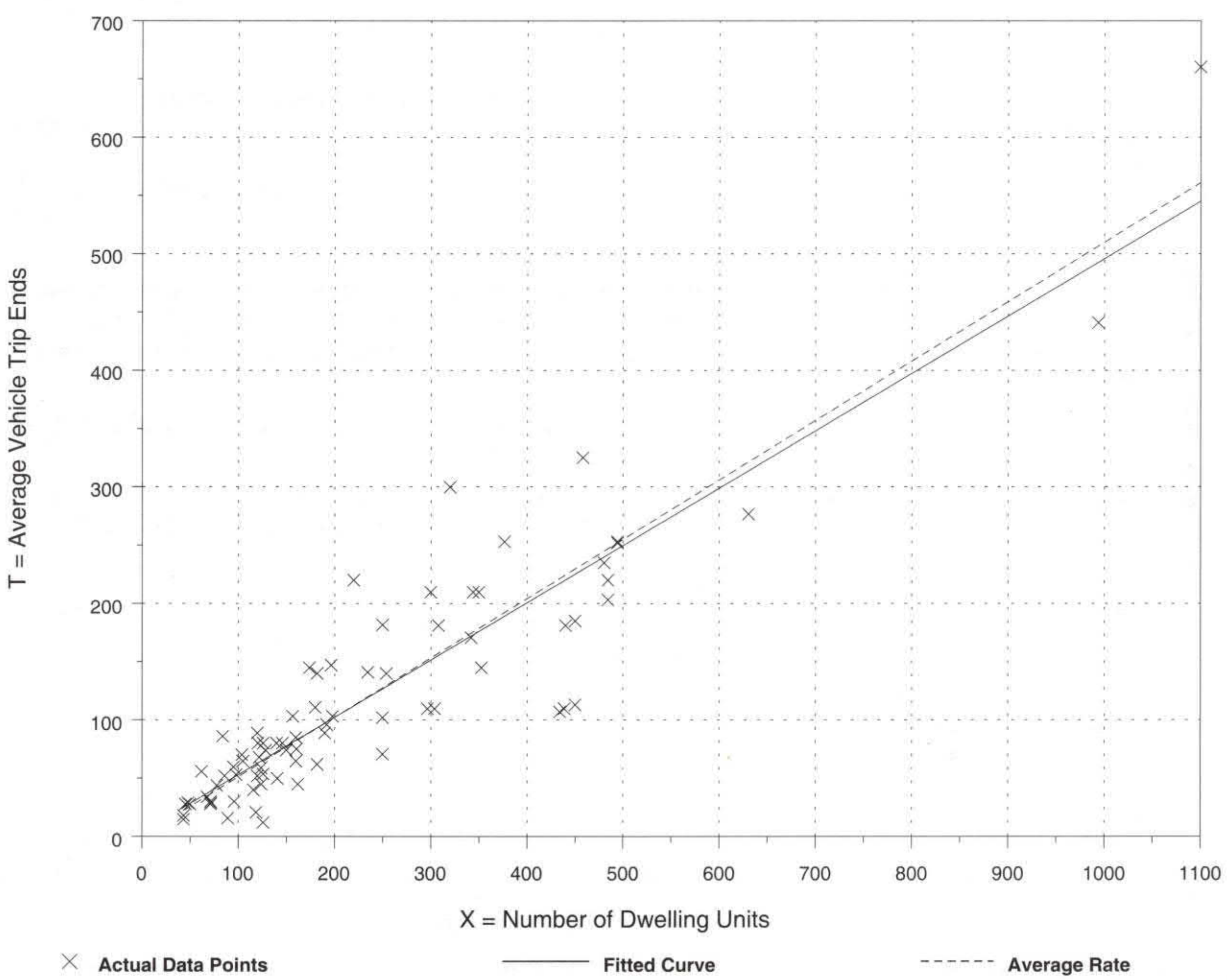
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Number of Studies: 78
Avg. Number of Dwelling Units: 235
Directional Distribution: 20% entering, 80% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.10 - 1.02	0.73

Data Plot and Equation



Fitted Curve Equation: $T = 0.49(X) + 3.73$

$R^2 = 0.83$

Apartment
(220)

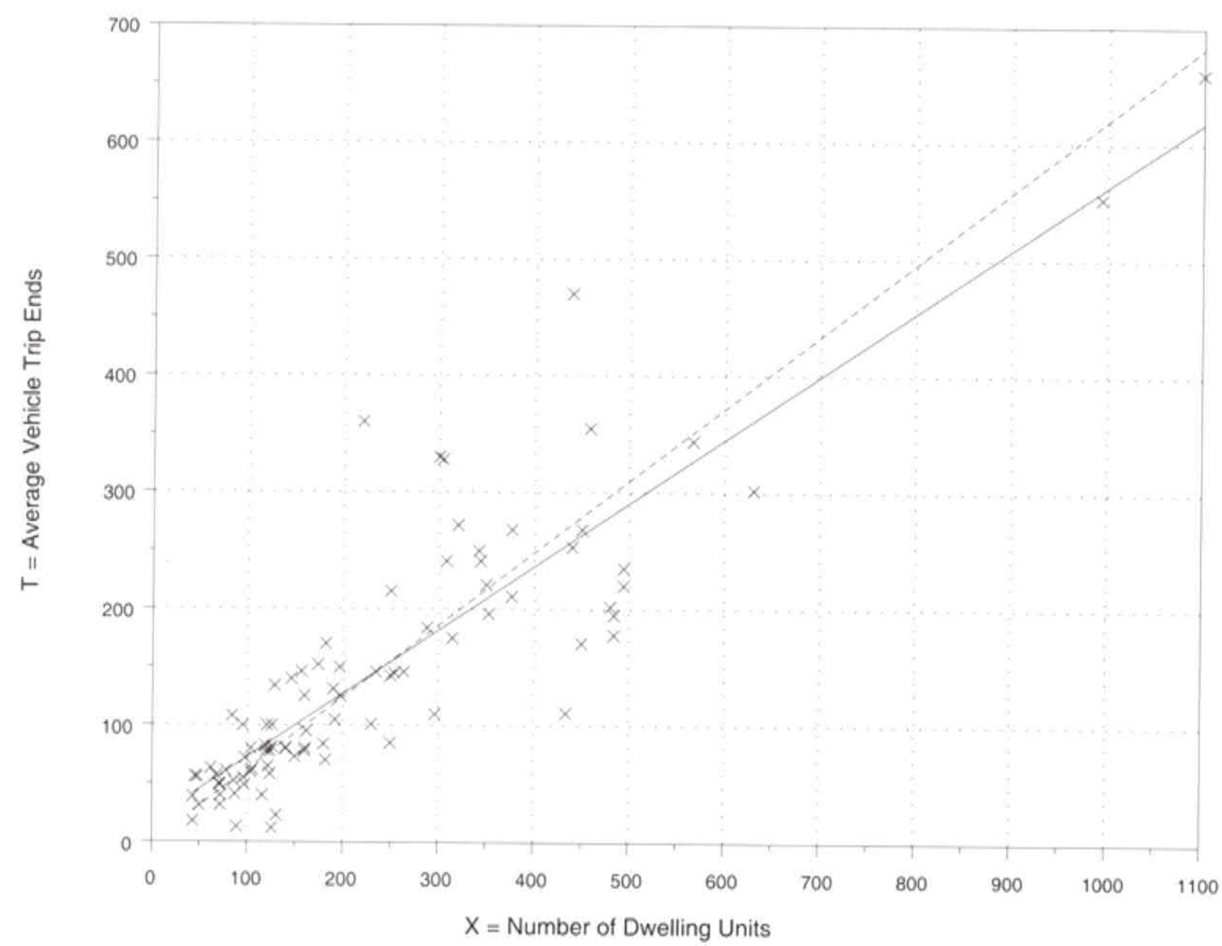
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 90
Avg. Number of Dwelling Units: 233
Directional Distribution: 65% entering, 35% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.62	0.10 - 1.64	0.82

Data Plot and Equation



Fitted Curve Equation: T = 0.55(X) + 17.65 $R^2 = 0.77$