APPENDIX A

CalEEMod Results

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To: **Elizabeth King, Senior Planner**

From: **Tanya Kalaskar, Assistant Planner**

Cc: **File**

Date: **January 15, 2019**

Re: **Greenfield Organix C2 Expansion – Air Quality (AQ) and Greenhouse Gas (GHG) Emissions Assessment**

Project Description

The 13.88-acre project site is located at 525 Tenth Street in the City of Greenfield. The proposed project is an expansion of the existing permitted Greenfield Organix C2 facility at 1071 Cherry Avenue. The project site adjoins the existing facility. The southern portion of the project site is improved with eight buildings including warehouse buildings, an office building, multiple accessory structures, and silos and fencing. The remainder of the property is active agricultural land, currently used for growing corn.

According to information from the applicant, construction of new improvements on the site would occur in two phases. Phase I would include installation of a parking lot and renovation of the existing eight buildings to facilitate cultivation, manufacturing, and distribution of cannabis.

Phase II of the project would include the construction and operations of three greenhouses on the northern portion of the property and two new two-story buildings on the southern portion of the property. The two new structures would include space for research/education for the City of Greenfield and an incubation space for entrepreneurs in the cannabis industry. Four storage trailers would be placed on the site during Phase II of the project development. It is expected

these trailers would be used for storage but could also be used for processing. Phase II also includes the addition of loading docks, landscaping and storm water facilities.

The project site is located within the North Central Coast Air Basin, which is within the jurisdiction of the Monterey Bay Air Resources District (air district).

Scope of Assessment

This assessment provides an estimate of the proposed project's criteria air pollutant and greenhouse gas (GHG) emissions using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 software, a modeling platform recommended by the California Air Resources Board (CARB) and accepted by the air district. Model results for three scenarios: operational existing emissions and construction and operational emissions for both Phase I and Phase II are attached to this memorandum. For modeling purposes, data inputs to the model take into account the type and size of proposed uses utilizing CalEEMod default land uses based on the size metrics and other project information provided by the applicant (Whitson Engineers 2018 and Greenfield Development LLC 2019) and trip generation information provided by the project traffic consultant (Keith Higgins 2019).

Emissions Model

The CalEEMod software utilizes emissions models USEPA AP-42 emission factors, CARB vehicle emission models studies and studies commissioned by other California agencies such as the California Energy Commission and CalRecycle. The CalEEMod platform allows calculations of both construction and operational criteria pollutant and GHG emissions from land use projects. The model also calculates indirect emissions from processes "downstream" of the proposed project such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. CalEEMod also calculates a one-time only change in the carbon sequestration potential of the site that would result from changes in land use such as converting vegetation to built or paved surfaces, and is also capable of calculating estimated changes to the carbon sequestration potential that would result from planting new trees.

Phase II of the project would replace the active agricultural operation on approximately 8.5 acres of the project site with manufacturing uses, landscaping, and roadway and utility infrastructure improvements. Project-specific data related to proposed tree replacement plantings that would be part of the future development of the site is not available in detail

sufficient to model estimates of changes in carbon sequestration potential from planting new trees. Therefore, this assessment includes an analysis only of the one-time loss in carbon sequestration potential that would result from converting agricultural vegetation to non-agricultural uses during Phase II.

Project Emissions Sources

The size and type of existing and proposed sources of criteria air pollutant and GHG emissions on the project site and their respective CalEEMod land use default categories are presented in Table 1, Project Characteristics and Table 2, Operational Stationary Sources.

Table 1 Project Characteristics[1]

Project Components	CalEEMod Land Use[2]	Existing[3]	Proposed[3]	
			Phase I	Phase II
Greenhouses/R&D/Warehouses/Office	Manufacturing	29,260	29,260	277,788
Parking	Parking Lot	0	238 spaces	0
Right-of-Way Dedication[4]	Other Asphalt Surfaces	0	0	5,800
Loading Areas	Other Non-Asphalt Surfaces	0	0	2,880
Landscaping/Storm Water Facilities[5]	Other Non-Asphalt Surfaces	0	0	79,000

SOURCE: Trinity Consultants 2017, Whitson Engineers 2018, Greenfield Development LLC 2019.
NOTES:
1. Numbers may vary due to rounding.
2. CalEEMod default land use subtype. Descriptions of the model default land use categories and subtypes are found in the User's Guide for CalEEMod Version 2016.3.2 available online at: http://www.aqmd.gov/caleemod/user's-guide
3. Expressed in square feet.
4. Right-of-way dedication to the City of Greenfield for future city street improvements.
5. Landscaping and storm water facilities are not substantial sources of operational emissions and are included in the model only to capture GHG emissions from construction activities.

Table 2 Operational Stationary Sources and Off-road Equipment

Equipment Type	Number[1]	Fuel Type	Output Rating
Emergency Generators	2	diesel	4,023 HP[1]
Pallet Movers	2	electric	Default[2]

Source: Greenfield Development LLC 2019
Notes:
1. Assumed number and Horsepower (HP) based on experience with similar projects.
2. CalEEMod default.

Methodology

Unless otherwise noted, model inputs are based upon the information provided by the applicant regarding the proposed improvements and use of the site. Estimates of operational stationary and off-road equipment are made based on the consultant's familiarity with similar facilities in the City of Greenfield. Construction and operational GHG emissions estimates are derived for the proposed project based on the project characteristics information presented in Table 1. The model estimates unmitigated emissions that would be generated by the proposed project. Operational GHG emissions estimates are also derived for the existing development on the site (baseline).

Assumptions

Unless otherwise noted, data inputs for the project model are based on the following primary assumptions:

1. The assumed operational date for Phase I is 2020 and Phase II is 2022.
2. Operational GHG emissions volumes from existing development on the site is estimated using the CalEEMod default land use subtype "Manufacturing", which consists of areas where the primary activity is the conversion of raw materials or parts into finished products. This use generally includes office, warehouse, and research and development functions.
3. Construction emissions and operational emissions generated by the proposed Phase I and Phase II components of the project are estimated using the following CalEEMod default land use subtypes:
    a. Emissions generated by the reuse of existing structures, proposed greenhouses, research/education buildings, and storage and processing structures are assumed to be similar to emissions that would be generated by the CalEEMod default land use subtype "Manufacturing". The model default trip generation rate for manufacturing has been modified based on information provided by the traffic consultant (Keith Higgins 2019);
    b. Emissions from the proposed parking lot are assumed to be similar to the emissions that would be generated by the CalEEMod default land use subtype "Parking Lot", which is defined as a single surface parking lot typically covered with asphalt;

c. Emissions from the right-of-way dedication are assumed to be similar to the emissions that would be generated by the CalEEMod default land use subtype "Other Asphalt Surfaces", which is defined as an asphalt area not used as a parking lot;

d. Emissions from the proposed loading docks, landscaping, and storm water facilities are assumed to be similar to the emissions that would be generated by the CalEEMod default land use subtype "Other Non-Asphalt Surfaces".

4. It is assumed that there will be two diesel backup generators (operating for 1.5 hours quarterly) and two electric pallet movers at the project site during Phase II operational activities based on information from the applicant and experience with similar projects.

5. The model's default CO_2 intensity factor of 641 pounds/megawatt hour is adjusted to 290 pounds/megawatt hour to reflect Pacific Gas & Electric energy intensity projections for 2020, which is the horizon year for the provider's energy intensity factor projections. The intensity factor has been falling, in significant part due to the increasing percentage of Pacific Gas & Electric's energy portfolio obtained from renewable energy. Emissions intensity data is from Pacific Gas & Electric's *Greenhouse Gas Factors: Guidance for PG&E Customers*, dated November 2015.

Modeling Scenarios

Baseline

The baseline for criteria air pollutant emissions that affect air quality are already quantified in air quality management plans. CalEEMod default values for baseline conditions assume new development on a vacant site. Therefore, the baseline scenario for GHG emissions consists of GHG emissions volumes that are generated by the existing use (refer to Table 1) of the project site as of 2018.

Proposed Project

Two construction and operational scenarios for Phase I and Phase II are modeled. Phase I is assumed to be operational in the year 2020 and Phase II is assumed to be operational in the year 2022.

Operational Emissions Data Inputs

Unmitigated operational emissions estimates were modeled for baseline conditions (existing project site land use conditions) and for proposed project conditions (Phase I and Phase II).

Each air district (or county) assigns trip lengths for urban and rural settings, which are incorporated into the CalEEMod defaults. The air district default values for the North Central Coast Air Basin are the same regardless of a project's location within the tri-county area; therefore, the model's defaults were set to "urban" and the jurisdictional authority parameters are based on the model defaults for the air district. As noted previously, the model default trip generation rates for the proposed uses are adjusted based on information provided by the traffic consultant (Keith Higgins 2019).

Construction Emissions Data Inputs

The CalEEMod program models construction GHG emissions associated with land use development projects and allows for the input of project-specific construction information including phasing and equipment information, if known. CalEEMod default construction parameters allow estimates of short term construction GHG emissions based upon statewide empirical data collected and analyzed by the California Air Resources Board.

Use of the model's default construction emissions data for a proposed project is recommended by the local air district if detailed construction information is not yet available. The air district also recommends amortizing the short term GHG construction emissions over a 30-year time period to yield an annual emissions volume. Information regarding type of construction equipment by phase for the proposed project was not yet available in detail sufficient to provide data inputs to the model; therefore, consistent with air district guidance, the model defaults were utilized for construction equipment, based on the project size and land use data presented in Table 1.

Carbon Sequestration Potential Data Inputs

Information regarding proposed tree plantings is not yet available in detail sufficient to conduct an analysis of changes to the carbon sequestration potential of the site from the planting of new trees; therefore, this calculation was not conducted for this assessment.

However, the proposed project would replace cropland, which is identified as a natural community in the model; therefore, the one-time only loss in carbon sequestration value attributable to converting 8.5 acres of cropland to urban uses is included in this assessment.

Results

Criteria air pollutant emissions are reported in pounds per day. GHG emissions are reported on an annual basis in metric tons of carbon dioxide equivalent (MT CO_2e). Detailed model results for criteria pollutant emissions (summer and winter) and annual GHG emissions are included as attachments to this assessment.

Operational Criteria Pollutant Emissions

Criteria pollutant emissions generated by the proposed project for both summer and winter are reported in this assessment. Unmitigated operational criteria pollutant emissions resulting from project operations in summer and winter are summarized in Table 3, Phase I Unmitigated Operational Criteria Pollutant Emissions and Table 4, Phase II Unmitigated Operational Criteria Pollutant Emissions

Table 3 Phase I Unmitigated Operational Criteria Pollutant Emissions[1,2]

Emissions	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO_x)	Sulfur Oxides (SO_x)	Particulate Matter (PM_{10})	Carbon Monoxide (CO)
Summer	1.13	1.70	0.01	0.74	3.84
Winter	1.11	1.80	0.01	0.74	4.01

SOURCE: EMC Planning Group 2019
NOTES:
1. Expressed in pounds per day.
2. Results may vary due to rounding.

Table 4 Phase II Unmitigated Operational Criteria Pollutant Emissions[1,2]

Emissions	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO_x)	Sulfur Oxides (SO_x)	Particulate Matter (PM_{10})	Carbon Monoxide (CO)
Summer	30.18	107.43	0.21	10.19	88.61
Winter	30.01	108.15	0.20	10.19	89.73

SOURCE: EMC Planning Group 2019
NOTES:
1. Expressed in pounds per day.
2. Results may vary due to rounding.

GHG Emissions

Baseline GHG Emissions

Baseline (existing) GHG emissions volume generated by existing development on the site is approximately 234.62 MT CO_2e of GHG emissions per year.

Construction GHG Emissions

Construction activity during Phase I would generate an estimated 15.66 MT CO_2e of unmitigated GHG emissions. Construction activity during Phase II would generate an estimated 687.75 MT CO_2e of unmitigated GHG emissions. Therefore, construction activity associated with the proposed project would generate 703.41 MT CO_2e of unmitigated GHG emissions. When averaged over a thirty-year operational lifetime, the amortized construction emissions equal 23.45 MT CO_2e per year.

Operational GHG Emissions

The model results indicate that proposed project would generate annual unmitigated operational GHG emissions of 236.62 MT CO_2e per year during Phase I and 2,301.49 MT CO_2e per year during Phase II. The total unmitigated operational GHG emissions from the proposed project at build-out is the sum of Phase I and Phase II unmitigated operational emissions, or 2,538.11 MT CO_2e per year. The unmitigated emissions estimates for each phase are summarized in Table 5, Phase I Unmitigated Operational GHG Emissions and Table 6, Phase II Unmitigated Operational GHG Emissions.

Table 5 Phase I Unmitigated Operational GHG Emissions[1,2]

Emissions Sources	Bio CO_2	NBio CO_2	CH_4	N_2O	CO_2e
Area	0.00	<0.01	<0.01	0.00	<0.01
Energy	0.00	77.37	<0.01	<0.01	77.92
Mobile	0.00	126.20	<0.01	0.00	126.38
Waste	7.36	0.00	0.44	0.00	18.25
Water	2.15	4.82	0.22	<0.01	14.07
Total	**9.51**	**208.39**	**0.66**	**<0.01**	**236.62**

Source: EMC Planning Group 2019
Note:
1. Expressed in MT CO_2e per year.
2. Results may vary due to rounding.

Table 6 Phase II Unmitigated Operational GHG Emissions[1,2]

Emissions Sources	Bio CO_2	NBio CO_2	CH_4	N_2O	CO_2e
Area	0.00	<0.01	<0.01	0.00	<0.01
Energy	0.00	692.88	0.04	0.01	697.82
Mobile	0.00	1,143.88	0.06	0.00	1,145.35
Off-road	0.00	132.01	0.04	0.00	133.08
Stationary	0.00	18.38	<0.01	0.00	18.45
Waste	69.92	0.00	4.13	0.00	173.23
Water	20.38	45.72	2.10	0.05	133.56
Total	**90.30**	**2,032.87**	**6.37**	**0.06**	**2,301.49**

Source: EMC Planning Group 2019
Note:
1. Expressed in MT CO_2e per year.
2. Results may vary due to rounding.

Carbon Sequestration Potential

Model results indicating the change in carbon sequestration potential on the site are shown in Section 2.3 of the model results for Phase II annual emissions. The model estimates the one-time loss in sequestration potential from converting cropland to urban uses as 52.70 MT CO_2e. The loss in sequestration potential is equivalent to 1.76 MT CO_2e per year, averaged over thirty years. This amount is added to the project's annual operational GHG emissions.

GHG Emissions Attributable to the Proposed Project

The estimated total GHG emissions that would be attributable to the proposed project consist of the sum of amortized construction emissions, the unmitigated operational emissions, and amortized annual loss of carbon sequestration potential, less the estimated baseline emissions generated by existing uses on the site. The net unmitigated GHG emissions attributable to the proposed project are presented in Table 7, Summary of Unmitigated GHG Emissions Attributable to the Project.

Table 7 Summary of Unmitigated GHG Emissions Attributable to the Project[1,2]

Annual Operations	Amortized Construction	Annual Project Emissions[3]	Sequestration Potential (change)	Existing Emissions[4]	Net Project Emissions
2,538.11	23.45	2,561.56	1.76	<234.62>	2,328.70

SOURCE: EMC Planning Group 2019
NOTES:
1. Expressed in MT CO2e per year.
2. Results may vary due to rounding.
3. Sum of amortized construction and unmitigated operational emissions.
4. <Brackets> Indicate deductions.

Sources

1. Trinity Consultants. November 2017. *California Emissions Estimator (CalEEMod) Version 2016.3.2*. http://www.aqmd.gov/caleemod/home

2. Trinity Consultants. November 2017. *CalEEMod User's Guide (Version 2016.3.2)*. http://www.aqmd.gov/caleemod/user's-guide

3. Monterey Bay Air Resources District. February 2008. *CEQA Air Quality Guidelines*. http://mbard.org/pdf/CEQA_full%20(1).pdf

4. Pacific Gas & Electric. November 2015. *Greenhouse Gas Factors: Guidance for PG&E Customers*; Accessed August 1, 2018. https://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf

5. Higgins, Keith, Traffic Engineer. Email message to consultant, 2 January 2019.

6. Whitson Engineers. 2018. *Site Plan*. Monterey, CA.

7. Schuetz, Dann, Greenfield Development LLC. Email message to consultant, 2 January 2019.

Greenfield Organix C2 Expansion_Existing

Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	29.26	1000sqft	0.67	29,260.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - from client

Construction Phase - Existing Conditions. No Construction

Vehicle Trips -

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	100.00	1.00

tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	2.00	1.00
tblConstructionPhase	NumDays	5.00	1.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1347	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.3000e-004	7.3000e-004	0.0000	0.0000	7.8000e-004
Energy	4.1600e-003	0.0378	0.0318	2.3000e-004		2.8800e-003	2.8800e-003		2.8800e-003	2.8800e-003	0.0000	72.9824	72.9824	3.9700e-003	1.4100e-003	73.5027
Mobile	0.0511	0.2525	0.6177	1.4100e-003	0.0974	2.2600e-003	0.0997	0.0262	2.1400e-003	0.0283	0.0000	128.5996	128.5996	8.0400e-003	0.0000	128.8007
Waste						0.0000	0.0000		0.0000	0.0000	7.3645	0.0000	7.3645	0.4352	0.0000	18.2453
Water						0.0000	0.0000		0.0000	0.0000	2.1467	4.8161	6.9628	0.2210	5.3100e-003	14.0680
Total	**0.1899**	**0.2903**	**0.6498**	**1.6400e-003**	**0.0974**	**5.1400e-003**	**0.1025**	**0.0262**	**5.0200e-003**	**0.0312**	**9.5112**	**206.3988**	**215.9100**	**0.6682**	**6.7200e-003**	**234.6174**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0511	0.2525	0.6177	1.4100e-003	0.0974	2.2600e-003	0.0997	0.0262	2.1400e-003	0.0283	0.0000	128.5996	128.5996	8.0400e-003	0.0000	128.8007
Unmitigated	0.0511	0.2525	0.6177	1.4100e-003	0.0974	2.2600e-003	0.0997	0.0262	2.1400e-003	0.0283	0.0000	128.5996	128.5996	8.0400e-003	0.0000	128.8007

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	111.77	43.60	18.14	258,837	258,837
Total	111.77	43.60	18.14	258,837	258,837

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.519082	0.034220	0.197247	0.144611	0.028729	0.006420	0.017935	0.035737	0.003069	0.003058	0.007579	0.001135	0.001179

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	31.7920	31.7920	3.1800e-003	6.6000e-004	32.0675
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	31.7920	31.7920	3.1800e-003	6.6000e-004	32.0675
NaturalGas Mitigated	4.1600e-003	0.0378	0.0318	2.3000e-004		2.8800e-003	2.8800e-003		2.8800e-003	2.8800e-003	0.0000	41.1904	41.1904	7.9000e-004	7.6000e-004	41.4352
NaturalGas Unmitigated	4.1600e-003	0.0378	0.0318	2.3000e-004		2.8800e-003	2.8800e-003		2.8800e-003	2.8800e-003	0.0000	41.1904	41.1904	7.9000e-004	7.6000e-004	41.4352

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	771879	4.1600e-003	0.0378	0.0318	2.3000e-004		2.8800e-003	2.8800e-003		2.8800e-003	2.8800e-003	0.0000	41.1904	41.1904	7.9000e-004	7.6000e-004	41.4352

Total		**4.1600e-003**	**0.0378**	**0.0318**	**2.3000e-004**		**2.8800e-003**	**2.8800e-003**		**2.8800e-003**	**2.8800e-003**	**0.0000**	**41.1904**	**41.1904**	**7.9000e-004**	**7.6000e-004**	**41.4352**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	241688	31.7920	3.1800e-003	6.6000e-004	32.0675
Total		**31.7920**	**3.1800e-003**	**6.6000e-004**	**32.0675**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1347	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.3000e-004	7.3000e-004	0.0000	0.0000	7.8000e-004
Unmitigated	0.1347	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.3000e-004	7.3000e-004	0.0000	0.0000	7.8000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0203					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1143					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.3000e-004	7.3000e-004	0.0000	0.0000	7.8000e-004
Total	**0.1347**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.3000e-004**	**7.3000e-004**	**0.0000**	**0.0000**	**7.8000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.9628	0.2210	5.3100e-003	14.0680
Unmitigated	6.9628	0.2210	5.3100e-003	14.0680

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	6.76638 / 0	6.9628	0.2210	5.3100e-003	14.0680
Total		**6.9628**	**0.2210**	**5.3100e-003**	**14.0680**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.3645	0.4352	0.0000	18.2453
Unmitigated	7.3645	0.4352	0.0000	18.2453

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Manufacturing	36.28	7.3645	0.4352	0.0000	18.2453
Total		**7.3645**	**0.4352**	**0.0000**	**18.2453**

Greenfield Organix C2 Expansion_Phase 1

Monterey Bay Unified APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	29.26	1000sqft	0.67	29,260.00	0
Parking Lot	238.00	Space	2.14	95,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - from site plan

Construction Phase - No demolition and bldg construction

Vehicle Trips - from traffic consultant

Energy Use -

Land Use Change -

Table Name	Column Name	Default Value	New Value

tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	6.00	5.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	3.00	5.00
tblConstructionPhase	PhaseEndDate	5/9/2019	4/26/2019
tblConstructionPhase	PhaseEndDate	4/11/2019	4/12/2019
tblConstructionPhase	PhaseEndDate	4/25/2019	4/19/2019
tblConstructionPhase	PhaseEndDate	4/3/2019	4/5/2019
tblConstructionPhase	PhaseStartDate	4/26/2019	4/20/2019
tblConstructionPhase	PhaseStartDate	4/4/2019	4/6/2019
tblConstructionPhase	PhaseStartDate	4/12/2019	4/13/2019
tblGrading	AcresOfGrading	2.50	3.00
tblGrading	AcresOfGrading	7.50	4.50
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	WD_TR	3.82	3.93

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	89.6291	22.7837	12.4776	0.0252	6.7405	1.0737	7.8142	3.4007	0.9878	4.3885	0.0000	2,497.6794	2,497.6794	0.7710	0.0000	2,516.9545
Maximum	**89.6291**	**22.7837**	**12.4776**	**0.0252**	**6.7405**	**1.0737**	**7.8142**	**3.4007**	**0.9878**	**4.3885**	**0.0000**	**2,497.6794**	**2,497.6794**	**0.7710**	**0.0000**	**2,516.9545**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
Area	0.7848	2.5000e-004	0.0275	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0585	0.0585	1.6000e-004		0.0624
Energy	0.0228	0.2073	0.1742	1.2400e-003		0.0158	0.0158		0.0158	0.0158		248.7925	248.7925	4.7700e-003	4.5600e-003	250.2710
Mobile	0.3187	1.4916	3.6409	0.0100	0.7157	0.0117	0.7274	0.1918	0.0110	0.2028		1,010.1072	1,010.1072	0.0540		1,011.4564
Total	**1.1263**	**1.6992**	**3.8425**	**0.0112**	**0.7157**	**0.0276**	**0.7433**	**0.1918**	**0.0269**	**0.2187**		**1,258.9582**	**1,258.9582**	**0.0589**	**4.5600e-003**	**1,261.7898**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Mitigated	0.3187	1.4916	3.6409	0.0100	0.7157	0.0117	0.7274	0.1918	0.0110	0.2028		1,010.1072	1,010.1072	0.0540		1,011.4564
Unmitigated	0.3187	1.4916	3.6409	0.0100	0.7157	0.0117	0.7274	0.1918	0.0110	0.2028		1,010.1072	1,010.1072	0.0540		1,011.4564

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	114.99	43.60	18.14	265,549	265,549
Parking Lot	0.00	0.00	0.00		
Total	114.99	43.60	18.14	265,549	265,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.533000	0.030830	0.199754	0.134871	0.025112	0.005817	0.017861	0.037451	0.003065	0.002809	0.007291	0.001110	0.001028

Parking Lot	0.533000	0.030830	0.199754	0.134871	0.025112	0.005817	0.017861	0.037451	0.003065	0.002809	0.007291	0.001110	0.001028

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0228	0.2073	0.1742	1.2400e-003		0.0158	0.0158		0.0158	0.0158		248.7925	248.7925	4.7700e-003	4.5600e-003	250.2710
NaturalGas Unmitigated	0.0228	0.2073	0.1742	1.2400e-003		0.0158	0.0158		0.0158	0.0158		248.7925	248.7925	4.7700e-003	4.5600e-003	250.2710

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	2114.74	0.0228	0.2073	0.1742	1.2400e-003		0.0158	0.0158		0.0158	0.0158		248.7925	248.7925	4.7700e-003	4.5600e-003	250.2710
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0228**	**0.2073**	**0.1742**	**1.2400e-003**		**0.0158**	**0.0158**		**0.0158**	**0.0158**		**248.7925**	**248.7925**	**4.7700e-003**	**4.5600e-003**	**250.2710**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7848	2.5000e-004	0.0275	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0585	0.0585	1.6000e-004		0.0624
Unmitigated	0.7848	2.5000e-004	0.0275	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0585	0.0585	1.6000e-004		0.0624

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1224					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6599					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.5800e-003	2.5000e-004	0.0275	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0585	0.0585	1.6000e-004		0.0624
Total	**0.7848**	**2.5000e-004**	**0.0275**	**0.0000**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**		**0.0585**	**0.0585**	**1.6000e-004**		**0.0624**

Greenfield Organix C2 Expansion_Phase 1 - Monterey Bay Unified APCD Air District, Winter

Greenfield Organix C2 Expansion_Phase 1

Monterey Bay Unified APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	29.26	1000sqft	0.67	29,260.00	0
Parking Lot	238.00	Space	2.14	95,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - from site plan

Construction Phase - No demolition and bldg construction

Vehicle Trips - from traffic consultant

Energy Use -

Land Use Change -

Table Name	Column Name	Default Value	New Value

tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	6.00	5.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	3.00	5.00
tblConstructionPhase	PhaseEndDate	5/9/2019	4/26/2019
tblConstructionPhase	PhaseEndDate	4/11/2019	4/12/2019
tblConstructionPhase	PhaseEndDate	4/25/2019	4/19/2019
tblConstructionPhase	PhaseEndDate	4/3/2019	4/5/2019
tblConstructionPhase	PhaseStartDate	4/26/2019	4/20/2019
tblConstructionPhase	PhaseStartDate	4/4/2019	4/6/2019
tblConstructionPhase	PhaseStartDate	4/12/2019	4/13/2019
tblGrading	AcresOfGrading	2.50	3.00
tblGrading	AcresOfGrading	7.50	4.50
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	WD_TR	3.82	3.93

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	89.6337	22.7938	12.4777	0.0252	6.7405	1.0737	7.8142	3.4007	0.9878	4.3885	0.0000	2,493.3992	2,493.3992	0.7709	0.0000	2,512.6716
Maximum	**89.6337**	**22.7938**	**12.4777**	**0.0252**	**6.7405**	**1.0737**	**7.8142**	**3.4007**	**0.9878**	**4.3885**	**0.0000**	**2,493.3992**	**2,493.3992**	**0.7709**	**0.0000**	**2,512.6716**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
Area	0.7848	2.5000e-004	0.0275	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0585	0.0585	1.6000e-004		0.0624
Energy	0.0228	0.2073	0.1742	1.2400e-003		0.0158	0.0158		0.0158	0.0158		248.7925	248.7925	4.7700e-003	4.5600e-003	250.2710
Mobile	0.3012	1.5896	3.8048	9.5000e-003	0.7157	0.0119	0.7275	0.1918	0.0112	0.2029		959.6535	959.6535	0.0553		961.0350
Total	**1.1088**	**1.7971**	**4.0064**	**0.0107**	**0.7157**	**0.0277**	**0.7434**	**0.1918**	**0.0270**	**0.2188**		**1,208.5045**	**1,208.5045**	**0.0602**	**4.5600e-003**	**1,211.3684**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Mitigated	0.3012	1.5896	3.8048	9.5000e-003	0.7157	0.0119	0.7275	0.1918	0.0112	0.2029		959.6535	959.6535	0.0553		961.0350
Unmitigated	0.3012	1.5896	3.8048	9.5000e-003	0.7157	0.0119	0.7275	0.1918	0.0112	0.2029		959.6535	959.6535	0.0553		961.0350

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	114.99	43.60	18.14	265,549	265,549
Parking Lot	0.00	0.00	0.00		
Total	114.99	43.60	18.14	265,549	265,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.533000	0.030830	0.199754	0.134871	0.025112	0.005817	0.017861	0.037451	0.003065	0.002809	0.007291	0.001110	0.001028

Parking Lot	0.533000	0.030830	0.199754	0.134871	0.025112	0.005817	0.017861	0.037451	0.003065	0.002809	0.007291	0.001110	0.001028

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0228	0.2073	0.1742	1.2400e-003		0.0158	0.0158		0.0158	0.0158		248.7925	248.7925	4.7700e-003	4.5600e-003	250.2710
NaturalGas Unmitigated	0.0228	0.2073	0.1742	1.2400e-003		0.0158	0.0158		0.0158	0.0158		248.7925	248.7925	4.7700e-003	4.5600e-003	250.2710

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	2114.74	0.0228	0.2073	0.1742	1.2400e-003		0.0158	0.0158		0.0158	0.0158		248.7925	248.7925	4.7700e-003	4.5600e-003	250.2710
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0228**	**0.2073**	**0.1742**	**1.2400e-003**		**0.0158**	**0.0158**		**0.0158**	**0.0158**		**248.7925**	**248.7925**	**4.7700e-003**	**4.5600e-003**	**250.2710**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7848	2.5000e-004	0.0275	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0585	0.0585	1.6000e-004		0.0624
Unmitigated	0.7848	2.5000e-004	0.0275	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0585	0.0585	1.6000e-004		0.0624

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1224					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6599					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.5800e-003	2.5000e-004	0.0275	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0585	0.0585	1.6000e-004		0.0624
Total	**0.7848**	**2.5000e-004**	**0.0275**	**0.0000**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**		**0.0585**	**0.0585**	**1.6000e-004**		**0.0624**

Greenfield Organix C2 Expansion_Phase 1 - Monterey Bay Unified APCD Air District, Annual

Greenfield Organix C2 Expansion_Phase 1

Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	29.26	1000sqft	0.67	29,260.00	0
Parking Lot	238.00	Space	2.14	95,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - from site plan

Construction Phase - No demolition and bldg construction

Vehicle Trips - from traffic consultant

Energy Use -

Land Use Change -

Table Name	Column Name	Default Value	New Value

tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	6.00	5.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	3.00	5.00
tblConstructionPhase	PhaseEndDate	5/9/2019	4/26/2019
tblConstructionPhase	PhaseEndDate	4/11/2019	4/12/2019
tblConstructionPhase	PhaseEndDate	4/25/2019	4/19/2019
tblConstructionPhase	PhaseEndDate	4/3/2019	4/5/2019
tblConstructionPhase	PhaseStartDate	4/26/2019	4/20/2019
tblConstructionPhase	PhaseStartDate	4/4/2019	4/6/2019
tblConstructionPhase	PhaseStartDate	4/12/2019	4/13/2019
tblGrading	AcresOfGrading	2.50	3.00
tblGrading	AcresOfGrading	7.50	4.50
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	WD_TR	3.82	3.93

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2398	0.1472	0.0937	1.7000e-004	0.0199	6.9700e-003	0.0269	8.9300e-003	6.4400e-003	0.0154	0.0000	15.5504	15.5504	4.5300e-003	0.0000	15.6635
Maximum	**0.2398**	**0.1472**	**0.0937**	**1.7000e-004**	**0.0199**	**6.9700e-003**	**0.0269**	**8.9300e-003**	**6.4400e-003**	**0.0154**	**0.0000**	**15.5504**	**15.5504**	**4.5300e-003**	**0.0000**	**15.6635**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Area	0.1431	3.0000e-005	3.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6300e-003	6.6300e-003	2.0000e-005	0.0000	7.0800e-003
Energy	4.1600e-003	0.0378	0.0318	2.3000e-004		2.8800e-003	2.8800e-003		2.8800e-003	2.8800e-003	0.0000	77.3654	77.3654	4.4100e-003	1.5000e-003	77.9236
Mobile	0.0430	0.2236	0.5174	1.3800e-003	0.0998	1.6900e-003	0.1015	0.0268	1.6000e-003	0.0284	0.0000	126.2037	126.2037	7.0200e-003	0.0000	126.3792
Waste						0.0000	0.0000		0.0000	0.0000	7.3645	0.0000	7.3645	0.4352	0.0000	18.2453
Water						0.0000	0.0000		0.0000	0.0000	2.1467	4.8161	6.9628	0.2210	5.3100e-003	14.0680
Total	**0.1903**	**0.2615**	**0.5527**	**1.6100e-003**	**0.0998**	**4.5800e-003**	**0.1044**	**0.0268**	**4.4900e-003**	**0.0313**	**9.5112**	**208.3918**	**217.9030**	**0.6676**	**6.8100e-003**	**236.6232**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0430	0.2236	0.5174	1.3800e-003	0.0998	1.6900e-003	0.1015	0.0268	1.6000e-003	0.0284	0.0000	126.2037	126.2037	7.0200e-003	0.0000	126.3792
Unmitigated	0.0430	0.2236	0.5174	1.3800e-003	0.0998	1.6900e-003	0.1015	0.0268	1.6000e-003	0.0284	0.0000	126.2037	126.2037	7.0200e-003	0.0000	126.3792

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	114.99	43.60	18.14	265,549	265,549
Parking Lot	0.00	0.00	0.00		
Total	114.99	43.60	18.14	265,549	265,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.533000	0.030830	0.199754	0.134871	0.025112	0.005817	0.017861	0.037451	0.003065	0.002809	0.007291	0.001110	0.001028
Parking Lot	0.533000	0.030830	0.199754	0.134871	0.025112	0.005817	0.017861	0.037451	0.003065	0.002809	0.007291	0.001110	0.001028

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	36.1750	36.1750	3.6200e-003	7.5000e-004	36.4885
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	36.1750	36.1750	3.6200e-003	7.5000e-004	36.4885
NaturalGas Mitigated	4.1600e-003	0.0378	0.0318	2.3000e-004		2.8800e-003	2.8800e-003		2.8800e-003	2.8800e-003	0.0000	41.1904	41.1904	7.9000e-004	7.6000e-004	41.4352
NaturalGas Unmitigated	4.1600e-003	0.0378	0.0318	2.3000e-004		2.8800e-003	2.8800e-003		2.8800e-003	2.8800e-003	0.0000	41.1904	41.1904	7.9000e-004	7.6000e-004	41.4352

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	771879	4.1600e-003	0.0378	0.0318	2.3000e-004		2.8800e-003	2.8800e-003		2.8800e-003	2.8800e-003	0.0000	41.1904	41.1904	7.9000e-004	7.6000e-004	41.4352
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.1600e-003**	**0.0378**	**0.0318**	**2.3000e-004**		**2.8800e-003**	**2.8800e-003**		**2.8800e-003**	**2.8800e-003**	**0.0000**	**41.1904**	**41.1904**	**7.9000e-004**	**7.6000e-004**	**41.4352**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
Manufacturing	241688	31.7920	3.1800e-003	6.6000e-004	32.0675
Parking Lot	33320	4.3830	4.4000e-004	9.0000e-005	4.4210
Total		**36.1750**	**3.6200e-003**	**7.5000e-004**	**36.4885**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1431	3.0000e-005	3.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6300e-003	6.6300e-003	2.0000e-005	0.0000	7.0800e-003
Unmitigated	0.1431	3.0000e-005	3.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6300e-003	6.6300e-003	2.0000e-005	0.0000	7.0800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1204					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.2000e-004	3.0000e-005	3.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6300e-003	6.6300e-003	2.0000e-005	0.0000	7.0800e-003
Total	**0.1431**	**3.0000e-005**	**3.4300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6300e-003**	**6.6300e-003**	**2.0000e-005**	**0.0000**	**7.0800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

Mitigated	6.9628	0.2210	5.3100e-003	14.0680
Unmitigated	6.9628	0.2210	5.3100e-003	14.0680

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	6.76638 / 0	6.9628	0.2210	5.3100e-003	14.0680
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**6.9628**	**0.2210**	**5.3100e-003**	**14.0680**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.3645	0.4352	0.0000	18.2453
Unmitigated	7.3645	0.4352	0.0000	18.2453

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	36.28	7.3645	0.4352	0.0000	18.2453
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.3645**	**0.4352**	**0.0000**	**18.2453**

Greenfield Organix C2 Expansion_Phase 2

Monterey Bay Unified APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	277.79	1000sqft	6.38	277,788.00	0
Other Non-Asphalt Surfaces	79.00	1000sqft	1.81	79,000.00	0
Other Non-Asphalt Surfaces	2.88	1000sqft	0.07	2,880.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - from client and site plan

Vehicle Trips - from traffic consultant

Energy Use -

Land Use Change - loss in ag land acreage from project manager

Operational Off-Road Equipment - asuumption based on information from client and experience with similar projects

Stationary Sources - Emergency Generators and Fire Pumps - Assumption based on information from client and experience with similar projects

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	4,023.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.50
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	6.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	WD_TR	3.82	3.93

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1551	42.4798	24.2268	0.0572	18.2141	2.1986	20.4128	9.9699	2.0228	11.9927	0.0000	5,655.8304	5,655.8304	1.1983	0.0000	5,675.0386
2021	195.1801	24.5641	23.2230	0.0566	1.6399	0.9887	2.6286	0.4440	0.9297	1.3737	0.0000	5,599.9641	5,599.9641	0.7527	0.0000	5,618.7814
Maximum	**195.1801**	**42.4798**	**24.2268**	**0.0572**	**18.2141**	**2.1986**	**20.4128**	**9.9699**	**2.0228**	**11.9927**	**0.0000**	**5,655.8304**	**5,655.8304**	**1.1983**	**0.0000**	**5,675.0386**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.0447	3.4000e-004	0.0368	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0839
Energy	0.2165	1.9683	1.6534	0.0118		0.1496	0.1496		0.1496	0.1496		2,361.9815	2,361.9815	0.0453	0.0433	2,376.0175

Mobile	2.5751	12.4033	28.8891	0.0904	6.7924	0.0859	6.8783	1.8193	0.0806	1.8999		9,150.1571	9,150.1571	0.4512		9,161.4373
Offroad	0.5348	4.4892	7.5286	0.0116		0.2436	0.2436		0.2241	0.2241		1,119.3535	1,119.3535	0.3620		1,128.4040
Stationary	19.8060	88.5714	50.5012	0.0952		2.9135	2.9135		2.9135	2.9135		10,132.0959	10,132.0959	1.4205		10,167.6090
Total	**30.1772**	**107.4324**	**88.6091**	**0.2090**	**6.7924**	**3.3928**	**10.1852**	**1.8193**	**3.3680**	**5.1873**		**22,763.6666**	**22,763.6666**	**2.2792**	**0.0433**	**22,833.5517**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.5751	12.4033	28.8891	0.0904	6.7924	0.0859	6.8783	1.8193	0.0806	1.8999		9,150.1571	9,150.1571	0.4512		9,161.4373
Unmitigated	2.5751	12.4033	28.8891	0.0904	6.7924	0.0859	6.8783	1.8193	0.0806	1.8999		9,150.1571	9,150.1571	0.4512		9,161.4373

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	1,091.71	413.90	172.23	2,521,067	2,521,067
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	1,091.71	413.90	172.23	2,521,067	2,521,067

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897

Other Non-Asphalt Surfaces	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897			

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2165	1.9683	1.6534	0.0118		0.1496	0.1496		0.1496	0.1496		2,361.9815	2,361.9815	0.0453	0.0433	2,376.0175
NaturalGas Unmitigated	0.2165	1.9683	1.6534	0.0118		0.1496	0.1496		0.1496	0.1496		2,361.9815	2,361.9815	0.0453	0.0433	2,376.0175

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	20076.8	0.2165	1.9683	1.6534	0.0118		0.1496	0.1496		0.1496	0.1496		2,361.9815	2,361.9815	0.0453	0.0433	2,376.0175
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2165**	**1.9683**	**1.6534**	**0.0118**		**0.1496**	**0.1496**		**0.1496**	**0.1496**		**2,361.9815**	**2,361.9815**	**0.0453**	**0.0433**	**2,376.0175**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.0447	3.4000e-004	0.0368	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0839
Unmitigated	7.0447	3.4000e-004	0.0368	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0839

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.0676					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.9737					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.4200e-003	3.4000e-004	0.0368	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0839
Total	**7.0447**	**3.4000e-004**	**0.0368**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0787**	**0.0787**	**2.1000e-004**		**0.0839**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Other Material Handling Equipment	2	8.00	260	168	0.40	Electrical

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Other Material Handling Equipment	0.5348	4.4892	7.5286	0.0116		0.2436	0.2436		0.2241	0.2241		1,119.3535	1,119.3535	0.3620		1,128.4040
Total	**0.5348**	**4.4892**	**7.5286**	**0.0116**		**0.2436**	**0.2436**		**0.2241**	**0.2241**		**1,119.3535**	**1,119.3535**	**0.3620**		**1,128.4040**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	1.5	6	4023	0.73	Diesel

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	19.8060	88.5714	50.5012	0.0952		2.9135	2.9135		2.9135	2.9135		10,132.0959	10,132.0959	1.4205		10,167.6090
Total	**19.8060**	**88.5714**	**50.5012**	**0.0952**		**2.9135**	**2.9135**		**2.9135**	**2.9135**		**10,132.0959**	**10,132.0959**	**1.4205**		**10,167.6090**

Greenfield Organix C2 Expansion_Phase 2 - Monterey Bay Unified APCD Air District, Winter

Greenfield Organix C2 Expansion_Phase 2

Monterey Bay Unified APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	277.79	1000sqft	6.38	277,788.00	0
Other Non-Asphalt Surfaces	79.00	1000sqft	1.81	79,000.00	0
Other Non-Asphalt Surfaces	2.88	1000sqft	0.07	2,880.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - from client and site plan

Vehicle Trips - from traffic consultant

Energy Use -

Land Use Change - loss in ag land acreage from project manager

Operational Off-Road Equipment - asuumption based on information from client and experience with similar projects

Stationary Sources - Emergency Generators and Fire Pumps - Assumption based on information from client and experience with similar projects

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	4,023.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.50
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	6.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	WD_TR	3.82	3.93

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1625	42.4958	24.4779	0.0558	18.2141	2.1986	20.4128	9.9699	2.0228	11.9927	0.0000	5,521.1667	5,521.1667	1.1980	0.0000	5,540.5691
2021	195.1915	24.7220	23.4358	0.0553	1.6399	0.9896	2.6295	0.4440	0.9306	1.3746	0.0000	5,467.8537	5,467.8537	0.7606	0.0000	5,486.8685
Maximum	**195.1915**	**42.4958**	**24.4779**	**0.0558**	**18.2141**	**2.1986**	**20.4128**	**9.9699**	**2.0228**	**11.9927**	**0.0000**	**5,521.1667**	**5,521.1667**	**1.1980**	**0.0000**	**5,540.5691**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.0447	3.4000e-004	0.0368	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0839
Energy	0.2165	1.9683	1.6534	0.0118		0.1496	0.1496		0.1496	0.1496		2,361.9815	2,361.9815	0.0453	0.0433	2,376.0175

Mobile	2.4080	13.1205	30.0107	0.0859	6.7924	0.0872	6.8796	1.8193	0.0818	1.9011		8,694.0881	8,694.0881	0.4643		8,705.6961
Offroad	0.5348	4.4892	7.5286	0.0116		0.2436	0.2436		0.2241	0.2241		1,119.3535	1,119.3535	0.3620		1,128.4040
Stationary	19.8060	88.5714	50.5012	0.0952		2.9135	2.9135		2.9135	2.9135		10,132.0959	10,132.0959	1.4205		10,167.6090
Total	**30.0100**	**108.1496**	**89.7307**	**0.2045**	**6.7924**	**3.3940**	**10.1864**	**1.8193**	**3.3692**	**5.1885**		**22,307.5977**	**22,307.5977**	**2.2923**	**0.0433**	**22,377.8105**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.4080	13.1205	30.0107	0.0859	6.7924	0.0872	6.8796	1.8193	0.0818	1.9011		8,694.0881	8,694.0881	0.4643		8,705.6961
Unmitigated	2.4080	13.1205	30.0107	0.0859	6.7924	0.0872	6.8796	1.8193	0.0818	1.9011		8,694.0881	8,694.0881	0.4643		8,705.6961

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	1,091.71	413.90	172.23	2,521,067	2,521,067
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	1,091.71	413.90	172.23	2,521,067	2,521,067

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897

Other Non-Asphalt Surfaces	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897			

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2165	1.9683	1.6534	0.0118		0.1496	0.1496		0.1496	0.1496		2,361.9815	2,361.9815	0.0453	0.0433	2,376.0175
NaturalGas Unmitigated	0.2165	1.9683	1.6534	0.0118		0.1496	0.1496		0.1496	0.1496		2,361.9815	2,361.9815	0.0453	0.0433	2,376.0175

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	20076.8	0.2165	1.9683	1.6534	0.0118		0.1496	0.1496		0.1496	0.1496		2,361.9815	2,361.9815	0.0453	0.0433	2,376.0175
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2165**	**1.9683**	**1.6534**	**0.0118**		**0.1496**	**0.1496**		**0.1496**	**0.1496**		**2,361.9815**	**2,361.9815**	**0.0453**	**0.0433**	**2,376.0175**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.0447	3.4000e-004	0.0368	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0839
Unmitigated	7.0447	3.4000e-004	0.0368	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0839

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.0676					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.9737					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.4200e-003	3.4000e-004	0.0368	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0839
Total	**7.0447**	**3.4000e-004**	**0.0368**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0787**	**0.0787**	**2.1000e-004**		**0.0839**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Other Material Handling Equipment	2	8.00	260	168	0.40	Electrical

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Other Material Handling Equipment	0.5348	4.4892	7.5286	0.0116		0.2436	0.2436		0.2241	0.2241		1,119.3535	1,119.3535	0.3620		1,128.4040
Total	**0.5348**	**4.4892**	**7.5286**	**0.0116**		**0.2436**	**0.2436**		**0.2241**	**0.2241**		**1,119.3535**	**1,119.3535**	**0.3620**		**1,128.4040**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	1.5	6	4023	0.73	Diesel

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	19.8060	88.5714	50.5012	0.0952		2.9135	2.9135		2.9135	2.9135		10,132.0959	10,132.0959	1.4205		10,167.6090
Total	**19.8060**	**88.5714**	**50.5012**	**0.0952**		**2.9135**	**2.9135**		**2.9135**	**2.9135**		**10,132.0959**	**10,132.0959**	**1.4205**		**10,167.6090**

Greenfield Organix C2 Expansion_Phase 2 - Monterey Bay Unified APCD Air District, Annual

Greenfield Organix C2 Expansion_Phase 2

Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	277.79	1000sqft	6.38	277,788.00	0
Other Non-Asphalt Surfaces	79.00	1000sqft	1.81	79,000.00	0
Other Non-Asphalt Surfaces	2.88	1000sqft	0.07	2,880.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - from client and site plan

Vehicle Trips - from traffic consultant

Energy Use -

Land Use Change - loss in ag land acreage from project manager

Operational Off-Road Equipment - asuumption based on information from client and experience with similar projects

Stationary Sources - Emergency Generators and Fire Pumps - Assumption based on information from client and experience with similar projects

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	4,023.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.50
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	6.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	WD_TR	3.82	3.93

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.4004	3.6754	3.0419	6.8400e-003	0.3267	0.1637	0.4904	0.1297	0.1533	0.2830	0.0000	611.7418	611.7418	0.0973	0.0000	614.1735
2021	1.9908	0.3807	0.3987	8.2000e-004	0.0187	0.0171	0.0358	5.0500e-003	0.0160	0.0211	0.0000	73.2486	73.2486	0.0133	0.0000	73.5806
Maximum	**1.9908**	**3.6754**	**3.0419**	**6.8400e-003**	**0.3267**	**0.1637**	**0.4904**	**0.1297**	**0.1533**	**0.2830**	**0.0000**	**611.7418**	**611.7418**	**0.0973**	**0.0000**	**614.1735**

Total 687.75

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.2855	4.0000e-005	4.6000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.9300e-003	8.9300e-003	2.0000e-005	0.0000	9.5100e-003

Energy	0.0395	0.3592	0.3017	2.1600e-003		0.0273	0.0273		0.0273	0.0273	0.0000	692.8790	692.8790	0.0377	0.0134	697.8183
Mobile	0.3457	1.8513	4.0905	0.0125	0.9476	0.0124	0.9600	0.2545	0.0117	0.2661	0.0000	1,143.8761	1,143.8761	0.0589	0.0000	1,145.3480
Offroad	0.0695	0.5836	0.9787	1.5000e-003		0.0317	0.0317		0.0291	0.0291	0.0000	132.0099	132.0099	0.0427	0.0000	133.0772
Stationary	0.0396	0.1771	0.1010	1.9000e-004		5.8300e-003	5.8300e-003		5.8300e-003	5.8300e-003	0.0000	18.3834	18.3834	2.5800e-003	0.0000	18.4478
Waste						0.0000	0.0000		0.0000	0.0000	69.9223	0.0000	69.9223	4.1323	0.0000	173.2295
Water						0.0000	0.0000		0.0000	0.0000	20.3801	45.7235	66.1036	2.0978	0.0504	133.5593
Total	**1.7798**	**2.9713**	**5.4766**	**0.0163**	**0.9476**	**0.0773**	**1.0248**	**0.2545**	**0.0739**	**0.3284**	**90.3023**	**2,032.8807**	**2,123.1831**	**6.3719**	**0.0638**	**2,301.4895**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
Vegetation Land Change	-52.7000
Total	**-52.7000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3457	1.8513	4.0905	0.0125	0.9476	0.0124	0.9600	0.2545	0.0117	0.2661	0.0000	1,143.8761	1,143.8761	0.0589	0.0000	1,145.3480
Unmitigated	0.3457	1.8513	4.0905	0.0125	0.9476	0.0124	0.9600	0.2545	0.0117	0.2661	0.0000	1,143.8761	1,143.8761	0.0589	0.0000	1,145.3480

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	1,091.71	413.90	172.23	2,521,067	2,521,067

Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	1,091.71	413.90	172.23	2,521,067	2,521,067

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897
Other Non-Asphalt Surfaces	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	301.8264	301.8264	0.0302	6.2400e-003	304.4419
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	301.8264	301.8264	0.0302	6.2400e-003	304.4419
NaturalGas Mitigated	0.0395	0.3592	0.3017	2.1600e-003		0.0273	0.0273		0.0273	0.0273	0.0000	391.0525	391.0525	7.5000e-003	7.1700e-003	393.3764
NaturalGas Unmitigated	0.0395	0.3592	0.3017	2.1600e-003		0.0273	0.0273		0.0273	0.0273	0.0000	391.0525	391.0525	7.5000e-003	7.1700e-003	393.3764

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	7.32805e+006	0.0395	0.3592	0.3017	2.1600e-003		0.0273	0.0273		0.0273	0.0273	0.0000	391.0525	391.0525	7.5000e-003	7.1700e-003	393.3764
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0395**	**0.3592**	**0.3017**	**2.1600e-003**		**0.0273**	**0.0273**		**0.0273**	**0.0273**	**0.0000**	**391.0525**	**391.0525**	**7.5000e-003**	**7.1700e-003**	**393.3764**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	2.29453e+006	301.8264	0.0302	6.2400e-003	304.4419
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**301.8264**	**0.0302**	**6.2400e-003**	**304.4419**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.2855	4.0000e-005	4.6000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.9300e-003	8.9300e-003	2.0000e-005	0.0000	9.5100e-003
Unmitigated	1.2855	4.0000e-005	4.6000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.9300e-003	8.9300e-003	2.0000e-005	0.0000	9.5100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Architectural Coating	0.1948					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0902					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.3000e-004	4.0000e-005	4.6000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.9300e-003	8.9300e-003	2.0000e-005	0.0000	9.5100e-003
Total	**1.2855**	**4.0000e-005**	**4.6000e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.9300e-003**	**8.9300e-003**	**2.0000e-005**	**0.0000**	**9.5100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	66.1036	2.0978	0.0504	133.5593
Unmitigated	66.1036	2.0978	0.0504	133.5593

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	64.2389 / 0	66.1036	2.0978	0.0504	133.5593
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**66.1036**	**2.0978**	**0.0504**	**133.5593**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e

	MT/yr			
Mitigated	69.9223	4.1323	0.0000	173.2295
Unmitigated	69.9223	4.1323	0.0000	173.2295

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	344.46	69.9223	4.1323	0.0000	173.2295
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**69.9223**	**4.1323**	**0.0000**	**173.2295**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Other Material Handling Equipment	2	8.00	260	168	0.40	Electrical

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Other Material Handling Equipment	0.0695	0.5836	0.9787	1.5000e-003		0.0317	0.0317		0.0291	0.0291	0.0000	132.0099	132.0099	0.0427	0.0000	133.0772
Total	**0.0695**	**0.5836**	**0.9787**	**1.5000e-003**		**0.0317**	**0.0317**		**0.0291**	**0.0291**	**0.0000**	**132.0099**	**132.0099**	**0.0427**	**0.0000**	**133.0772**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Emergency Generator	2	1.5	6	4023	0.73	Diesel

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0396	0.1771	0.1010	1.9000e-004		5.8300e-003	5.8300e-003		5.8300e-003	5.8300e-003	0.0000	18.3834	18.3834	2.5800e-003	0.0000	18.4478
Total	**0.0396**	**0.1771**	**0.1010**	**1.9000e-004**		**5.8300e-003**	**5.8300e-003**		**5.8300e-003**	**5.8300e-003**	**0.0000**	**18.3834**	**18.3834**	**2.5800e-003**	**0.0000**	**18.4478**

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-52.7000	0.0000	0.0000	-52.7000

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	8.5 / 0	-52.7000	0.0000	0.0000	-52.7000
Total		**-52.7000**	**0.0000**	**0.0000**	**-52.7000**

APPENDIX B

ODOR MANAGEMENT PLAN

This is the written Odor Management Plan for GREENFIELD ORGANIX (hereinafter sometimes referred to as “We”, “Us”, “Our”, or “Collective”). This plan addresses and meets the Requirements of Chapter 5.28.020 of the City of Greenfield (hereinafter sometimes referred to as the "City") Medical Marijuana Ordinance ("Medical Marijuana Ordinance").

INTRODUCTION

The proposed cultivation and dispensing of medical cannabis could impact the environment and cause odors. A preliminary evaluation has been made of possible significant impacts of odors to the environment and mitigation measures that can be incorporated into the planning, design, and operation of the Collective. The primary purpose of Odor Management Plan is to demonstrate how the Collective will comply with the applicable environmental laws and regulations pertaining to the Collective facilities.

SCRUBBING AND TREATMENT OF AIR

The Collective intends to use a Closed Growing Environment (CGE), or closed loop aeration system that keeps all environmental conditions contained within a production room, as opposed to an open aeration system that brings in air from outside at its facilities. In a CGE setup, each room, where plants are stored or processed, is sealed from the others, bringing in no outside air. Contrary to common belief, plants do not need fresh air from outside to thrive, which explains how plants can survive in places like space stations and space shuttles where air does not exist.

By integrating a CGE setup into our production processing rooms, it gives us the ability to manually control a production room's environment, creating ideal plant conditions to foster plant growth, avoid problems associated with an open aeration setup and sustain our environmental objectives. A Closed Growing Environment means there are no air vents pushing air to the outside or vents pulling air in. These enclosed interior environments are not affected by outside conditions, providing a barrier to contain smell within our facility and control pests from entering from outside our facility. By being able to provide plants with an optimal temperature, humidity and CO2 levels it can have a large impact on crop yield and quality while minimizing our impact to the environment.

Cultivators who are not using a Closed Growing Environment expose themselves to significant problems. In an Open Growing Environment setup, to control a growing climate inside of a production room, ventilation fans are used to introduce fresh air and exhaust warm or humid air, helping control temperature and humidity while also maintaining minimal levels of CO2. Although this is a common method of climate control for most cultivators, a significant disadvantage is the outside conditions’ strongly influence the inside conditions. Consequently, it becomes difficult to cool a room on a hot day or control humidity on a rainy or humid day, requiring expending additional resources to preserve necessary plant conditions.

In an open system controlling the right balance of temperature and humidity becomes difficult. For instance, in a cool, humid climate, the room can be "overcooled" when trying to lower the humidity. The opposite is true in a hot, humid climate where a room could be over humidified when trying to cool it. Seasonal changes make it difficult to correctly balance temperature and humidity levels.

Before leaving the production room, the air will run through a series of active carbon filters. The air is conditioned with humidifiers, dehumidifies and air conditioning.

The treatment of air in a CGE setup also helps avoid odor related security and nuisance problems. Cannabis produces heavy odors due to evaporation of volatile terpenoids. As such, in order to have minimal impact to the outside and inside environment and produce more robust plants, GREENFIELD ORGANIX intends to use this system of air circulation and scrubbing air.

Liaising with Community and Local Agencies

Neighbors in close proximity to our facilities will have the name of one or more contact persons on our staff whom they can notify day or night in case there is a problem impacting them or that they feel may impact us.

We will periodically reach out to neighbors to ensure that there are no unreported problems of this sort.

We also will reach out to agencies to develop a professional working relationship and a coherent contingency plan for incidents that require an agency involvement at our facility.
We will maintain an incident log for a period of not less than two (2) years with reports of incidents that triggered an event.

INNOVATION / RESEARCH & DESIGN

Having already established a sustainable agenda, the Collective will continue to explore its innovative thinking in the pursuit of ways to expand the Collect

APPENDIX C

ADT TABLE

GREENFIELD ORGANIX

AVERAGE DAILY TRAFFIC

	STREET	EXISTING	PROJECT ASSIGNMENT	EXISTING + PROJECT		BACKGROUND		BACKGROUND + PROJECT		GENERAL PLAN BUILDOUT		GENERAL PLAN BUILDOUT + PROJECT	
		ADT	ADT	ADT	% Increase Above Existing	ADT	% Increase Above Existing	ADT	% Increase Above Existing	ADT	% Increase Above Existing	ADT	% Increase Above Existing
1.	10th Street												
	So. of Walnut	1,730	160	1,890	9%	2,230	29%	2,390	38%	3,500	102%	3,660	112%
	Walnut - Cherry	920	500	1,420	54%	1,260	37%	1,760	91%	3,080	235%	3,580	289%
2.	12th Street												
	Walnut - Cherry	990	30	1,020	3%	1,260	27%	1,290	30%	5,090	414%	5,120	417%
	No. of Cherry	900	10	910	1%	1,140	27%	1,150	28%	4,530	403%	4,540	404%
3.	Cherry Avenue												
	12th - 10th	210	40	250	19%	260	24%	300	43%	5,090	2324%	5,130	2343%
	10th - El Camino	1,690	250	1,940	15%	1,960	16%	2,210	31%	5,100	202%	5,350	217%
	East of El Camino	1,430	20	1,450	1%	1,870	31%	1,890	32%	2,900	103%	2,920	104%
4.	El Camino Real												
	So. of Walnut	7,080	130	7,210	2%	8,510	20%	8,640	22%	14,820	109%	14,950	111%
	Walnut - Cherry	4,400	70	4,470	2%	5,570	27%	5,640	28%	14,960	240%	15,030	242%
	No. of Cherry	3,520	160	3,680	5%	8,510	142%	8,670	146%	15,570	342%	15,730	347%
5.	Walnut Avenue												
	12th - 10th	5,000	30	5,030	1%	7,500	50%	7,530	51%	13,030	161%	13,060	161%
	10th - El Camino	6,090	320	6,410	5%	8,860	45%	9,180	51%	14,190	133%	14,510	138%
	East of El Camino	10,270	280	10,550	3%	13,340	30%	13,620	33%	22,770	122%	23,050	124%

APPENDIX D

TRAFFIC IMPACT ANALYSIS

Keith Higgins

Traffic Engineer

GREENFIELD ORGANIX
TRAFFIC IMPACT ANALYSIS

DRAFT REPORT

GREENFIELD, CALIFORNIA

Prepared for
EMC Planning Group
Monterey, CA 93940

Prepared by
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January 18, 2019

TABLE OF CONTENTS

1 INTRODUCTION 1

1.1 Scope of Work 1
1.2 Study Network 1
1.3 Traffic Operation Evaluation Methodologies 2
1.4 Level of Service Standards 2
1.4.1 City of Greenfield 2
1.4.2 County of Monterey 3
1.5 Modeling of Right Turn on Red (RTOR) 3
1.6 Significance Criteria 3
1.6.1 City of Greenfield 3
1.6.2 County of Monterey 4
1.7 Greenfield Transportation Impact Mitigation Fee 4
1.8 Regional Transportation Development Impact Fee 4

2 EXISTING TRAFFIC CONDITIONS 5

2.1 Existing Traffic Network 5
2.2 Existing Pedestrian Network 6
2.3 Existing Bicycle Network 6
2.4 Existing Transit Service 7
2.5 Existing Traffic Conditions 7
2.5.1 Vehicle Circulation 7
2.5.2 Pedestrian Circulation 8
2.5.3 Bicycle Circulation 8

3 EXISTING PLUS PROJECT CONDITIONS 9

3.1 Project Trip Generation 9
3.2 Project Trip Distribution and Assignment 10
3.3 Existing Plus Project Traffic Conditions 10
3.3.1 Vehicle Circulation 10
3.3.2 Pedestrian Circulation 10
3.3.3 Bicycle Circulation 10
3.3.4 Transit Circulation 10
3.3.5 Transportation Impact Fees 10

4 BACKGROUND WITHOUT PROJECT CONDITIONS 12

4.1 Background Traffic Volumes 12
4.2 Background Without Project Traffic Conditions 12
4.2.1 Vehicle Circulation 12
4.2.2 Pedestrian Circulation 12
4.2.3 Bicycle Circulation 12
4.2.4 Transit Circulation 13

5 BACKGROUND PLUS PROJECT CONDITIONS 14

5.1 Background Plus Project Traffic Volumes 14
5.2 Background Plus Project Conditions Traffic Conditions 14
5.2.1 Vehicle Circulation 14
5.2.2 Pedestrian Circulation 14
5.2.3 Bicycle Circulation 14
5.2.4 Transit Circulation 14

6 GENERAL PLAN BUILDOUT WITHOUT PROJECT CONDITIONS 15

6.1 General Plan Buildout Without Project Traffic Conditions 15
6.1.1 Vehicle Circulation – Intersections 15
6.1.2 Vehicle Circulation - Segments 16
6.1.3 Pedestrian Circulation 17
6.1.4 Bicycle Circulation 17
6.1.5 Transit Circulation 17

7 GENERAL PLAN BUILDOUT WITH PROJECT CONDITIONS 18

7.1 Derivation of Cumulative Plus Project Condition Traffic Volumes 18
7.2 General Plan Plus Project Traffic Conditions 18
7.2.1 Vehicle Circulation - Intersections 18
7.2.2 Pedestrian Circulation 18
7.2.3 Bicycle Circulation 18
7.2.4 Transit Circulation 18

8 SITE ACCESS AND INTERNAL CIRCULATION 19

8.1 Site Access 19
8.2 Internal Circulation 19

9 PROJECT VICINITY PARKING ANALYSIS 20

9.1 Existing Parking Conditions 20
9.2 Greenfield Organix Parking Analysis 21

10 MITIGATIONS 23

10.1 Improvements Recommended for Existing Conditions 23
10.2 Existing Plus Project Impact Mitigations 23
10.3 Improvements Recommended for Background Conditions 23
10.4 Background Plus Project Impact Mitigations 23
10.5 General Plan Impact Mitigations 23
10.6 Project Impact Mitigations at General Plan Buildout 24

11 REFERENCES 25

11.1 List of References 25
11.2 List of Contacts 25

LIST OF EXHIBITS

1. Project Location Map and Study Area

2. Project Site Plan

3. Existing Intersection Lane Configurations and Traffic Controls

4. Existing Conditions – AM and PM Peak Hour Volumes

5A. Intersection Levels of Service
5B. Recommended Intersection Improvements

6. Project Trip Generation

7. Project Trip Distribution and Assignment – AM and PM Peak Hour Volumes

8. Existing Plus Project Conditions – AM and PM Peak Hour Volumes

9. List of Background Projects

10. Background Projects Trip Generation

11. Background Without Project Conditions – AM and PM Peak Hour Volumes

12. Background Plus Project Conditions – AM and PM Peak Hour Volumes

13. Cumulative Without Project Conditions – AM and PM Peak Hour Volumes

14. Cumulative Plus Project Conditions – AM and PM Peak Hour Volumes

15. Map of Parking Occupancy Survey Locations

16. Summary of Parking Occupancy Survey Results

LIST OF APPENDICES

A. Level of Service Descriptions

B. Intersection Traffic Volume Counts

C. Intersection Level of Service Calculations – Existing Conditions

D. Intersection Level of Service Calculations – Existing Plus Project Conditions

E. Intersection Level of Service Calculations – Background Without Project Conditions

F. Intersection Level of Service Calculations – Background Plus Project Conditions

G. Intersection Level of Service Calculations – General Plan Without Project Conditions

H. Intersection Level of Service Calculations – General Plan Plus Project Conditions

I. Warrant Worksheets

J. Parking Occupancy Survey Data

1 INTRODUCTION

Greenfield Organix, a cannabis cultivation facility, is being proposed at the southwest corner of the 10th Street / Cherry Avenue intersection in the northern part of the City of Greenfield, Monterey County, California. The project will have a total of 213,444 square feet of greenhouses and 93,604 square feet of manufacturing, distribution and administration for a total of 307,048 gross square feet of floor area. It is expected to employ approximately 110 persons, with 75 in greenhouse cultivation (i.e., warehousing), 20 in manufacturing and distribution, 10 in administration and five in security. The hours of operation will be from 7am until 9pm. This will involve different work shifts and some overlapping shifts with respect to cultivation. It was formerly occupied by a food processing facility, which is no longer in operation. No credit is given for traffic generated by any previous use at the site. The locations of the project site and study area are indicated on **Exhibit 1**. The site plan is shown on **Exhibit 2**.

Vehicular, pedestrian, bicycle and transit circulation issues were evaluated at the project site and the immediately surrounding street network.

1.1 Scope of Work

This report addresses the following topics:

- Existing vehicular, pedestrian and bicycle circulation at the project access and the surrounding street network.
- Assessment of potential impacts to vehicular, pedestrian, bicycle and transit circulation due to the project, and recommendations to minimize or alleviate those impacts.
- Assessment of potential Background and General Plan Buildout traffic impacts.
- Assessment of site access and on-site circulation.

1.2 Study Network

The AM and PM peak periods are analyzed at the following intersections:

1. Twelfth Street / Cherry Avenue
2. Tenth Street / Cherry Avenue
3. El Camino Real / Cherry Avenue
4. Tenth Street / Walnut Avenue
5. El Camino Real / Walnut Avenue

In addition, the proposed project driveways on 10th Street are also analyzed.

Exhibit 3 indicates the existing traffic control and lane configurations at the study intersections.

Traffic operations were analyzed for the following scenarios:

1. Existing Conditions
2. Existing Plus Project Conditions
3. Background Without Project Conditions
4. Background Plus Project Conditions
5. General Plan Buildout Without Project Conditions
6. General Plan Buildout Plus Project Conditions

Improvements to offset impacts for each scenario are recommended where warranted.

1.3 Traffic Operation Evaluation Methodologies

Intersection traffic operations were evaluated based upon the level of service (LOS) concept. LOS is a qualitative description of an intersection's operations, ranging from LOS A to LOS F. Level of Service "A" represents free flow uncongested traffic conditions. Level of Service "F" represents highly congested traffic conditions with unacceptable delay to vehicles at intersections. The intermediate levels of service represent incremental levels of congestion and delay between these two extremes. The analysis was performed using the *2010 Highway Capacity Manual* methodologies. LOS descriptions for each type of existing traffic control at the study intersections (i.e., signal and one-way stop) are included as **Appendix A**.

Intersection traffic operations were evaluated using the Synchro© traffic analysis software (Version 10). The average delay is then correlated to a level of service. For two-way stop-controlled intersections, only the vehicle delay for side street traffic is analyzed. LOS for each side street movement is based on the distribution of gaps in the major street traffic stream and driver judgment in selecting gaps. For signalized intersections, the overall intersection delay is used to determine LOS.

1.4 Level of Service Standards

The study area is within the City of Greenfield, except for the 12th Street/Cherry Avenue intersection, which is in the unincorporated area of Monterey County.

1.4.1 City of Greenfield

The standard for congestion levels in Greenfield is LOS C, except for El Camino Real in the downtown area (from Walnut Avenue to Elm Avenue), where the standard is LOS D. LOS E is considered the maximum acceptable level of service for unsignalized intersections (based on the delay at the worst approach for one- and two-way stop-

controlled intersections and the average delay at all-way stop and roundabout controlled intersections).

1.4.2 County of Monterey

The Monterey County General Plan has established LOS D as the minimum acceptable level of service for signalized intersections and road segments. LOS E is considered the maximum acceptable level of service for unsignalized intersections (based on the delay at the worst approach for one- and two-way stop-controlled intersections and the average delay at all-way stop and roundabout controlled intersections).

1.5 Modeling of Right Turn on Red (RTOR)

All signalized study intersections allow right turns on red (RTOR), which generally reduce the overall intersection delay, thus improving the overall intersection level of service. There are several options to model right turns on red with different traffic analysis software packages, but the only method prescribed by the HCM for modeling RTOR is to reduce the input volumes to account for vehicles turning right on red. Where an exclusive right turn lane movement runs concurrent with a protected left turn phase from the cross street, the HCM allows for the right turn volume to be reduced by the number of simultaneous left turns. However, the length of the right turn lane affects the number of vehicles that can turn right on red. This is because a short right turn lane can result in right turning vehicles being trapped in the queue with vehicles in the through lane. For the purposes of this analysis, it is assumed that no vehicles would be able to turn right on red at any of the study intersections.

1.6 Significance Criteria

According to the California Environmental Quality Act (CEQA) guidelines, a project may have a significant effect on the environment if it would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. Neither Caltrans nor the City of Greenfield have established formal significance criteria for roadways under their jurisdiction. Therefore, the following significance criteria have been used within this study, based upon the jurisdiction of each study intersection:

1.6.1 City of Greenfield

For the purposes of this analysis, a significant impact would occur in either of the following two conditions at City of Greenfield facilities:

- A significant impact would occur if an intersection operating at LOS A, B, C or D degrades to LOS D, E or F; or
- For intersections and roadway segments already operating at LOS E or F, a significant impact would occur if the addition of project trips causes the intersection delay to increase by more than 5.0 seconds.

1.6.2 County of Monterey

An impact at a signalized study intersection is defined to occur under the following conditions:

- An impact would occur if an intersection operating at LOS A, B, C, or D degrades by one or more letter grades to LOS E or F. For intersections already operating at LOS E, an impact would occur if operations degrade to LOS F. For intersections already operating at LOS F, the addition of any project traffic to the facility is considered an impact.
- An impact at an unsignalized study intersection is defined to occur under the following conditions:
  - An impact would occur if an all-way stop controlled or roundabout controlled intersection, based on the average delay, operates at LOS F or any traffic signal warrant is met.
  - An impact would occur if a two-way stop-controlled intersection, based on the worst approach delay, operates at LOS F or any traffic signal warrant is met.
- An impact at a study road segment is defined to occur under the following conditions:
  - An impact would occur if a roadway segment operating at LOS A through LOS E degrades to a lower level of service E or F. If a segment is already operating at LOS F any increase during the peak hour (one vehicle) is considered an impact.

1.7 Greenfield Transportation Impact Mitigation Fee

The City of Greenfield has adopted a Transportation Impact Fee (TIF) that funds various roadway and intersection improvements in Greenfield. It is applied to all new development projects in the city.

1.8 Regional Transportation Development Impact Fee

The Transportation Agency for Monterey County (TAMC) and its member jurisdictions have adopted a county-wide, regional development impact fee to cover the costs for studies and construction of many improvements throughout Monterey County. This impact fee, which went into effect on August 27, 2008, is applied to all new development within Monterey County. The governing document for the fee is the Regional Impact Fee Nexus Study Update (March 26, 2008) prepared by Kimley-Horn Associates, Inc. The Regional Impact Fee Nexus Study Update was updated again in 2013.

2 EXISTING TRAFFIC CONDITIONS

This chapter evaluates Existing traffic conditions and includes a description of the project setting.

2.1 Existing Traffic Network

The project site is located at the southwest corner of the 10th Street/Cherry Avenue intersection. Two driveways currently serve the project site, which is unoccupied.

The site is bordered by a similar cannabis facility currently under construction to the west of the northerly half of the site.

A similar cannabis cultivation facility is also in operation on the north side of Cherry Avenue, just east of 10th Street. The southerly portion of the site is bordered by undeveloped lands to the west and a multi-family residential facility to the south. The surrounding area includes a mix of industrial, agricultural and residential development. The Greenfield City Hall is located about 300 feet to the east at the southwest corner of the El Camino Real/Cherry Avenue intersection.

The site would be directly accessed via 10th Street, which has northwest-southeast orientation, but is considered to have a north-south orientation in this study. City-wide access to the project site is provided by Cherry Avenue, El Camino Real, Walnut Avenue and 12th Street. The following is a brief description of each street in the study area.

Cherry Avenue is a two-lane, undivided local street with an east-west orientation. It extends from 12th Street, which is outside of the City in the west and terminates just west of US 101. It is designated as a two-lane local street in the Greenfield General Plan. It has a 48-foot curb-to-curb width with on-street parking and bike lanes, which is consistent with the width indicated in the General Plan.

El Camino Real is a primary access route through downtown Greenfield and extends the entire length of the City. It has a north-south direction. It provides access to Highway 101 to the north and south of the City, Greenfield Elementary School, and Greenfield High School. It is currently a two-lane arterial with left and right turn channelization south of Walnut Avenue. It is designated as a four-lane arterial north of Walnut Avenue and south of Elm Avenue in the Greenfield General Plan. In the downtown area it is a two-lane collector with on street parking and low operational speeds, which is consistent with its designation as a two-lane collector in the Greenfield General Plan.

Walnut Avenue is currently a two-lane street running in the east-west direction through the City. This road provides access to Highway 101, Greenfield Elementary School, and Santa Lucia Square. It is planned to be a four-lane divided arterial from El Camino Real to Highway 101, a four to six-lane divided arterial just east of Highway 101, a two-

lane divided arterial west of 3rd Street and a two-lane divided arterial between 10th Street and El Camino Real. West of 10th Street it will be a two-lane collector street.
10th Street is a two-lane, north-south local street that begins at Cherry Avenue and ends at Elm Avenue. The existing fully improved section has a width of 40 feet, curb-to-curb, which is adequate for the relatively low volumes expected on this street.

12th Street is currently a two-lane road running in the north-south direction. This road currently begins at Cypress Avenue and ends at Elm Avenue. It is planned to be a two-lane divided arterial with a curb-to-curb width of 62 feet with bike lanes, on-street parking and median left turn lane north of Oak Avenue. It will extend to Thorne Road north of Greenfield at General Plan Buildout.

2.2 Existing Pedestrian Network

Sidewalks are currently provided along both sides of Cherry Avenue east of 10th Street, both sides of El Camino Real (except the east side between Walnut Avenue and Cherry Avenue), the south side of Walnut Avenue east of 12th Street and the north side of Walnut Avenue east of 10th Street.

Sidewalks are not provided along Cherry Avenue west of 10th Street or along the west side of 10th Street along the project frontage.

2.3 Existing Bicycle Network

There are four types of bicycle facilities defined by Caltrans. Each type is described below:

1. Bike path (Class I) – A separate right-of-way designed for the exclusive use of bicycle and pedestrian traffic with cross-flow minimized.
2. Bike lane (Class II) – A striped lane for one-way bike travel on a street or highway, typically including signs placed along the street segment.
3. Bike route (Class III) – Provides a shared use with pedestrian or motor vehicle traffic. Typically, these facilities are city streets with signage designating the segment for Bike Route without additional striping or facilities.
4. Separated bikeways (Class IV) – A bikeway for the exclusive use of bicycles and includes a separation between the bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible posts, inflexible barriers, or on-street parking.

Class II bike lanes are provided along El Camino Real between Apple Avenue and Thorne Road and along Cherry Avenue between 10th Street and El Camino Real. An eastbound Class II bike lane is provided along the south side of Walnut Avenue east of El Camino Real.

In the immediate project vicinity, Class II bike lanes are planned for Cherry Avenue and 12th Street. A Class III bike route is planned for 10th Street.

2.4 Existing Transit Service

Monterey-Salinas Transit (MST) operates five express bus routes (Routes 23, 82, 84 and 86) along El Camino Real through Greenfield. They have one or two stops in each Route 23 operates 10 round trips per weekday and extends from Salinas to San Lucas. Route 82 operates two round trips per weekday and extends from Carmel Valley to Fort Hunter Liggett. Route 84 has four round trips per weekday and extends from Soledad to Paso Robles. Route 86 includes one round trip per weekday and extends from San Jose to King City. Weekend service is also provided by each route. Each route stops in each of the cities in the Salinas Valley. The routes all stop on El Camino at Walnut Avenue, approximately one-fourth mile from the project site, which is about a five-minute walk. Detailed route information is available on the MST website at www.mst.org.

2.5 Existing Traffic Conditions

2.5.1 Vehicle Circulation

The existing intersection turning movement volumes were collected during the AM (7:00 – 9:00 AM) and PM (4:00 – 6:00) peak hours for the Walnut Avenue intersections with 10th Street and El Camino Real on Thursday, December 20, 2018. Traffic counts were also taken at the Cherry Avenue intersections with 10th Street and El Camino Real on Thursday, December 6, 2018. Traffic data was collected for cars, trucks, buses, bicyclists, and pedestrians. From these counts, the AM and PM peak hour volumes were derived. **Appendix B** contains the new traffic count data collected at these study intersections. Traffic counts were also taken recently at the El Camino Real/Walnut Avenue intersection on Tuesday, November 6, 2018 and are also included in **Appendix B**. These counts were higher in the morning peak hour than the December 20 counts, so are used in this analysis. The November volumes are also used to adjust other counts in order to analyze in a worst-case existing condition.

Exhibit 4 depicts the peak turning movement volumes for the study intersections under Existing Conditions.

Existing levels of service at the study intersections are summarized on **Exhibit 5A**. Recommended intersection improvements are summarized on **Exhibit 5B**. The LOS calculation sheets for Existing conditions can be found in **Appendix C**.

All study intersections currently operate at or better than their respective level of service standards. No improvements are recommended for existing vehicular traffic operations.

2.5.2 Pedestrian Circulation

The highest pedestrian traffic was observed at the El Camino Real/Walnut Avenue intersection during the morning peak hour. This was associated with school children traveling to Greenfield Elementary School.

Pedestrian traffic was also observed at the existing cannabis cultivation facility on the north side of Cherry Avenue immediately east of the 10th Street intersection. This was generated by employees parked at locations on the south side of Cherry Avenue. Existing cannabis facility vehicles park along 10th Street south of Cherry Avenue, along the south curb line of Cherry Avenue between 10th Street and El Camino Real in the existing vacant field on the southeast corner of the 10th Street/Cherry Avenue intersection. As discussed in the parking study section of this report, there were a total of about 70 cars parked in these three areas. Based on the parking occupancy data, about 58 pedestrians crossed 10th Street in the AM peak hour and about 30 pedestrians crossed in the PM peak hour. However, many of these crossed at mid-block locations between parked cars, rather than at the painted crosswalk on the east leg of Cherry Avenue at its intersection with 10th Street. Crossings also occurred when there was no ambient light and no street lighting.

Northbound 10th Street approach volumes including pedestrians and vehicles at Cherry Avenue total 120 in the AM peak hour and 52 in the PM peak hour. This is below the 200 units per hour for eight hours to meet the warrants in the California Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD also states that “Other criteria that may be considered in an engineering study include the need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes. Given the high pedestrian traffic, much of it between parked cars with limited visibility and often periods of darkness, all-way stop control should be considered at the 10th Street/Cherry Avenue intersection. This would provide better protection for pedestrians crossing not only in the crosswalk but also randomly along Cherry Avenue. Street lighting is also recommended along Cherry Avenue and at its intersections with El Camino Real and 10th Street.

2.5.3 Bicycle Circulation

There is very little bicycle traffic at any of the study intersections. The existing and planned bike lanes identified in the General Plan street classifications will adequately accommodate bike traffic.

3 EXISTING PLUS PROJECT CONDITIONS

3.1 Project Trip Generation

The project is expected to employ approximately 110 persons, with 75 in greenhouse cultivation (i.e., warehousing), 20 in manufacturing and distribution, 10 in administration and five in security. The 35 non-cultivation employees are all considered manufacturing for this analysis. The hours of operation will be from 7am until 9pm. This will involve different work shifts and some overlapping shifts with respect to cultivation.

Trip generation data is not available for cannabis cultivation facilities, or even for nurseries. Greenfield Organix trip generation is estimated based on the closest comparable land uses published in the "Trip Generation Manual," Institute of Transportation Engineers (ITE), 10th Edition, 1027. This is the most recent version of the primary reference manual used by the traffic engineering and transportation planning industry.

The project is comprised of two land uses - Manufacturing (ITE Land Use Code 140), which includes the 93,604 square feet of manufacturing, distribution and administration and 213,444 square feet of Warehousing (ITE Land Use Code 150). The Manufacturing trip generation rate is higher than Warehousing based on square footage. However, the Warehousing trip generation rate is higher than Manufacturing based on trips per employee. The Manufacturing land use has higher rates per square foot than Warehousing because of its higher employment density per square foot. On the other hand, Warehousing has a higher trip generation rate per employee than Manufacturing because of its higher amount of non-employee traffic due to typically higher amounts of shipping and receiving as well as sales activities.

Project trip generation is estimated based on the number of employees. The project includes 75 warehousing employees and 35 manufacturing employees. These will generate about 465 total daily trips with 59 in the morning peak hour and 62 in the evening peak hour. This is indicated in **Exhibit 6**, Section A.

Project trips can also be estimated based on the floor areas of manufacturing and warehousing. As indicated in **Exhibit 6**, Section B, this results in an estimate of about 492 daily trips with 70 in the morning peak hour and 77 in the evening peak hour.

The most conservative project daily and peak hour trips is based on square footage. This is a reasonable worst case forecast and is used in the traffic analysis.

3.2 Project Trip Distribution and Assignment

Exhibit 7 depicts the trip distribution for the project. This distribution was derived based upon existing traffic distributions at the Cherry Avenue and 10th Street intersections as well as the locations of population subareas within commute distance of the project. The project trip distribution was combined with the project trip generation to estimate the project trip assignment depicted on **Exhibit 7**.

3.3 Existing Plus Project Traffic Conditions

3.3.1 Vehicle Circulation

The trip assignment was added to the existing traffic volumes in **Exhibit 4** to estimate Existing Plus Project volumes, which are depicted on **Exhibit 8**.

Existing Plus Project intersection levels of service are summarized on **Exhibit 5A**. Recommended intersection improvements are summarized on **Exhibit 5B**. The LOS calculation sheets for Existing Plus Project conditions can be found in **Appendix D**.

All study intersections under Existing Plus Project conditions continue to operate at or better than their respective level of service standards. No improvements are required.

3.3.2 Pedestrian Circulation

The project is anticipated to generate little to no pedestrian traffic, due to the generous amount of on-site parking. Therefore, the project would not represent a significant impact to pedestrian circulation.

3.3.3 Bicycle Circulation

The project is anticipated to generate minimal bicycle traffic, again due to the relative isolation of the project site from major population areas and the lack of bicycle facilities in the study area. Therefore, the project would not represent a significant impact to bicycle circulation.

3.3.4 Transit Circulation

The project is anticipated to generate a minimal increase in transit usage by employees or visitors to the project site. Therefore, the project would not represent a significant demand for, or impact to transit service.

3.3.5 Transportation Impact Fees

The project would be responsible for payment of the Greenfield Transportation Impact Fee, which would represent the project's contribution towards transportation improvements throughout the City of Greenfield that are funded by the fee program. The City of Greenfield will determine the exact fee amount attributable to this project.

The project will also be responsible for paying the Transportation Agency for Monterey County (TAMC) regional development impact fee to cover the costs for studies and construction of various regional transportation improvements throughout Monterey County. The City of Greenfield will determine the fee subject to approval by TAMC.

4 BACKGROUND WITHOUT PROJECT CONDITIONS

This chapter describes Background Without Project Conditions, which represents traffic conditions with the additional traffic from land development that is approved but not yet built. Background Without Project volumes will be experienced approximately 10 years beyond Existing conditions. This scenario does not include trips from the proposed project.

4.1 Background Traffic Volumes

Background traffic growth on the study street network was estimated based on traffic growth anticipated from known projects throughout the City. Traffic increases from Background projects in the "South of Walnut Annexation – Greenfield Village Traffic Impact Study," Higgins Associates, August 25, 2006, was used as a primary reference to estimate background traffic growth, with adjustments to reflect projects that have already been constructed and projects that have been approved but not yet constructed since 2006. Background projects are located on **Exhibit 9**, with corresponding trip generation included on **Exhibit 10**. The resulting Background Without Project conditions traffic volumes depicted in **Exhibit 11**.

4.2 Background Without Project Traffic Conditions

4.2.1 Vehicle Circulation

Background Without Project intersection levels of service are summarized on **Exhibit 5A**. The LOS calculation sheets for Background Without Project conditions can be found in **Appendix E**.

All study intersections would continue to operate at or better than their respective level of service standards under Background Without Project conditions. As indicated on **Exhibit 5B**, no improvements will be required at the study intersections to accommodate Background traffic growth.

4.2.2 Pedestrian Circulation

Background pedestrian volumes are anticipated to be like existing conditions. Background projects will be required to provide frontage improvements including sidewalks to accommodate pedestrian traffic at each individual site. Background pedestrian traffic increases will not represent a significant impact to pedestrian circulation.

4.2.3 Bicycle Circulation

Background bicycle volumes are anticipated to be like existing conditions. Background projects will be required to provide frontage improvements including shoulder widening consistent with City street classifications, which will include bike lanes on streets above a local street classification. This will accommodate bicycle traffic at each individual site.

Background bicycle traffic increases will not represent a significant impact to bicycle circulation.

4.2.4 Transit Circulation

Background projects are anticipated to generate a minimal increase in transit usage by employees or visitors to the project site. Therefore, Background development will not represent a significant demand for, or impact to transit service.

5 BACKGROUND PLUS PROJECT CONDITIONS

This chapter describes Background Conditions plus traffic from the proposed project.

5.1 Background Plus Project Traffic Volumes

Project trips (**Exhibit 7**) described in the Existing Plus Project development scenario included in Chapter 3 were added to the Background Without Project volumes (**Exhibit 11**) to estimate Background Plus Project volumes shown in **Exhibit 12**.

5.2 Background Plus Project Conditions Traffic Conditions

5.2.1 Vehicle Circulation

Background Plus Project intersection levels of service are summarized on **Exhibit 5A**. Recommended intersection improvements are summarized on **Exhibit 5B**. The LOS calculation sheets for Background Plus Project traffic conditions can be found in **Appendix F**.

The study intersections would operate at or better than their respective level of service standards with Background Plus Project traffic. No improvements will be required to mitigate project traffic when added to Background traffic.

5.2.2 Pedestrian Circulation

Pedestrian traffic under Background Plus Project conditions is not anticipated to significantly increase over Existing Plus Project conditions. Therefore, the project would not represent a significant impact to pedestrian circulation under Background Plus Project conditions.

5.2.3 Bicycle Circulation

Bicycle traffic under Background Plus Project conditions is not anticipated to significantly increase over Existing Plus Project conditions. Therefore, the project would not represent a significant impact to bicycle circulation under Background Plus Project conditions.

5.2.4 Transit Circulation

Transit demand under Background Plus Project conditions is not anticipated to significantly increase over Existing Plus Project conditions. Therefore, the project would not represent a significant impact to transit circulation under Background Plus Project conditions.

6 GENERAL PLAN BUILDOUT WITHOUT PROJECT CONDITIONS

This section describes traffic conditions with the buildout of the City of Greenfield General Plan without Project traffic. The General Plan land uses are essentially the same as adopted in 2005. The forecast volumes developed for the General Plan Buildout conditions therefore are currently valid. The General Plan Circulation and Environmental Impact Report traffic study forecasted peak hour segment volumes by Higgins Associates. These volumes were converted into peak hour turning volumes in the General Plan Buildout (GPBO) Traffic Conditions section of the "South of Walnut Annexation – Greenfield Village Traffic Impact Study," Higgins Associates, August 25, 2006. These volumes are used in this analysis with several adjustments to reflect actual traffic growth that has occurred in the 14 years since the forecasts were developed.

Exhibit 13 contains the General Plan Without Project traffic volumes at the study intersections.

6.1 General Plan Buildout Without Project Traffic Conditions

6.1.1 Vehicle Circulation – Intersections

General Plan Buildout Without Project conditions AM and PM intersection levels of service are summarized on **Exhibit 5A**. The LOS calculation sheets for Cumulative Without Project traffic conditions can be found in **Appendix G**.

Many of the study intersections under General Plan Without Project conditions would operate at or better than their respective level of service standards. However, the following three intersections would operate below their respective level of service standards:

1. The **El Camino Real / Cherry Avenue** intersection will operate at LOS E during the AM peak hour and LOS F during the PM peak hour, which is below the LOS standard of C. It will warrant signalization. With this improvement, the intersection will operate at LOS B during the AM and PM peak hours.
2. The **10th Street / Walnut Avenue** intersection would operate at LOS C during the AM peak hour and LOS F during the PM peak hour. Its LOS standard is C. It will require signalization as well as separate eastbound and westbound Walnut Avenue left turn lanes. With these improvements, the intersection will operate at LOS B during the AM and PM peak hours.
3. The **El Camino Real/ Walnut Avenue** intersection will operate at LOS F during the AM and PM peak hours, which is below the LOS standard of D. The following improvements are recommended at this intersection:

a. Restripe eastbound Walnut Avenue as one left turn lane, one through lane and one shared through-right turn lane.

b. Widen westbound Walnut Avenue to add one right turn lane.

c. Restripe southbound El Camino Real as two left turn lanes, one through lane and one right turn lane.

With these improvements, the intersection will operate at LOS C during the AM peak hour and LOS D during the PM peak hour.

d. The widening and modifications of the intersection described above are consistent with the street improvements recommended in the 2005 Greenfield General Plan. A northbound El Camino Real right turn lane will not be required to achieve LOS D, but should also be considered because it will further improve the LOS at relatively low cost.

Alternatively, this intersection could be converted into a two-lane roundabout, as recommended in *Transportation Agency for Monterey County Regional Roundabout Study Using Caltrans' Intersection Control Evaluation,* Kittelson and Associates, March 2016. This was determined to be feasible and would achieve an acceptable level of service. However, it may require more right of way and initially be more expensive than conventional intersection improvements. The TAMC study would require more detailed review to confirm that a two-lane roundabout will be able to be implemented when project implementation is being planned.

6.1.2 Vehicle Circulation - Segments

The following streets will require widening to the ultimate widths identified in the Greenfield General Plan Circulation Element.

1. Cherry Avenue is designated as a two-lane local street in the Greenfield General Plan. This requires widening to a 48-foot curb-to-curb width with on-street parking and bike lanes.
2. El Camino Real has been widened to its ultimate width. Sidewalks will be required along segments where they are currently missing. This includes the east side of El Camino Real north of Walnut Avenue.
3. Walnut Avenue will need to be widened to a four-lane divided arterial from El Camino Real to Highway 101, a four to six-lane divided arterial just east of Highway 101, a two-lane divided arterial west of 3rd Street and a two-lane divided arterial between 10th Street and El Camino Real.
4. 10th Street will be required to be widened to 40 feet, curb-to-curb, with curb, gutter, sidewalk and street lights along both sides of the street.
5. 12th Street will be required to be widened to a two-lane divided arterial with a curb-to-curb width of 62 feet with bike lanes, on-street parking and median left

turn lane north of Oak Avenue. It will be extended to Thorne Road north of Greenfield at General Plan Buildout.

6. The 12th Street/Cherry Avenue intersection will require left turn channelization, which is included in the two-lane divided arterial street section that is its designation in the Greenfield General Plan.

6.1.3 Pedestrian Circulation

Sidewalks will be constructed as standard frontage improvements for all development in the City. If segments are missing because older land uses did not include sidewalk construction at the time they were developed, they should be constructed.

6.1.4 Bicycle Circulation

Class II bike lanes are planned for Cherry Avenue and 12th Street. These will be implemented on individual street segments when the ultimate street widths are constructed.

6.1.5 Transit Circulation

Based on recent informal discussions with MST staff, MST currently has no plans to expand bus service to include local routes within South County cities. MST will maintain the existing express routes currently in place. Additional buses could be added on the existing routes to enhance service.

7 GENERAL PLAN BUILDOUT WITH PROJECT CONDITIONS

This section describes anticipated traffic conditions with the addition of Project traffic to Greenfield General Plan Buildout traffic volumes.

7.1 Derivation of Cumulative Plus Project Condition Traffic Volumes

The project trip assignment depicted on **Exhibit 7** was combined with the General Plan Buildout volumes to forecast General Plan Buildout Plus Project volumes, which are depicted on **Exhibit 14**.

7.2 General Plan Plus Project Traffic Conditions

7.2.1 Vehicle Circulation - Intersections

General Plan Plus Project AM and PM intersection levels of service are summarized on **Exhibit 5A**. Recommended intersection improvements are summarized on **Exhibit 5B**. The LOS calculation sheets for General Plan Plus Project traffic conditions can be found in **Appendix H**.

The study intersections will experience imperceptible increases in delay from the addition of Project traffic to otherwise expected General Plan Buildout conditions. The increases in delay are less than 17 seconds at the location with the highest increase. The mitigations described for General Plan Without Project will adequately mitigate traffic impacts including the Project.

7.2.2 Pedestrian Circulation

The Project will not noticeably increase pedestrian activity above levels expected under General Plan Buildout conditions.

7.2.3 Bicycle Circulation

The Project will not noticeably increase bicycle activity above levels expected under General Plan Buildout conditions. Therefore, the project would not represent a significant contribution to General Plan Buildout impacts to bicycle circulation.

7.2.4 Transit Circulation

The Project will not noticeably increase transit demand above levels expected under General Plan Buildout conditions. The project would therefore not represent a significant contribution to General Plan transit demand.

8 SITE ACCESS AND INTERNAL CIRCULATION

This section summarizes the site access and internal circulation analysis, including operations of the project driveway operations.

8.1 Site Access

As shown on **Exhibit 2**, the project site would have three driveways on 10th Street and one driveway on Cherry Avenue. The center driveway is proposed to be located about 680 feet south of Cherry Avenue and 610 feet north of Walnut Avenue. It will be the main driveway. Full access including left and right turns into and out of the 10th Street driveways is proposed. The northerly driveway on 10th Street is proposed to be located about 80 feet south of Cherry Avenue. This driveway would also have full access to and from 10th Street. The southern driveway on 10th Street would be located 315 feet north of Walnut Avenue. The Cherry Avenue driveway is proposed to be located about 600 feet west of 10th Street adjacent to the western boundary of the site. Both the southern 10th Street and Cherry Avenue driveways will be limited to emergency and occasional maintenance access and egress. No regular traffic activity is proposed at these locations for security. There will also be a driveway connecting the project with cannabis facility to the west, which will reduce the need to use public streets between the two sites.

Appendix I contains a northbound left turn warrant evaluated at the project main driveway. The warrant was not found to be met for any of the analysis scenarios. Hence, a northbound left turn lane on 10th Street at the project driveways is not necessary.

8.2 Internal Circulation

The on-site circulation system appears straight-forward. No changes are recommended. Adequacy for on-site truck maneuvering should be verified. On-site loading and unloading should also be confirmed.

9 PROJECT VICINITY PARKING ANALYSIS

9.1 Existing Parking Conditions

The City of Greenfield requested a parking occupancy survey of the project vicinity. This is due to the existing high utilization of on-street parking along Cherry Avenue and 10th Street near the proposed project. Parking occupancy was collected for nine sub-areas in the study area, as depicted on **Exhibit 15**. The sub-areas are as follows.

1. 10th Street – west curb line along north half of block between Walnut Avenue and Cherry Avenue
2. 10th Street – west curb line along south half of block between Walnut Avenue and Cherry Avenue
3. 10th Street – east curb line along south half of block between Walnut Avenue and Cherry Avenue
4. 10th Street – east curb line along north half of block between Walnut Avenue and Cherry Avenue
5. Vacant Lot on southeast corner of 10th Street/Cherry Avenue intersection
6. Cherry Avenue – south curb line between 10th Street and El Camino Real
7. American Legion – south parking lot along Cherry Avenue
8. American Legion – north parking lot
9. Cherry Avenue – north curb line between 10th Street and El Camino Real

The parking occupancy survey was conducted on Thursday, December 20, 2018 from 7:00 AM until 6:30 PM. The results are contained in **Appendix J** and tabulated on **Exhibit 16**. The total parking demand varied from 81 occupied spaces at 7:00 AM to a peak demand of 192 occupied spaces at 9:30 AM and a low demand of 24 occupied spaces at 6:30 PM. The parking demand exceeded 173 spaces from 8:30 AM until 2:30 PM.

The parking demand appeared to be exclusively generated by the existing cannabis facility on the north side of Cherry Avenue immediately east of 10th Street. This is because the persons parking in the study area walked between their cars and the entrance to the cannabis facility. In addition, the only other significant land use in the area is Greenfield City Hall, located at the southwest corner of the El Camino Real/Cherry Avenue Street intersection. Observations of City Hall parking in the rear of City Hall and along the diagonal spaces along the City Hall frontage on El Camino Real were largely unoccupied.

On-street parking was essentially fully occupied along both sides of Cherry Avenue between 10th Street and El Camino Real and the north half of the 10th Street block between Cherry Avenue and Walnut Avenue from 7:00 AM until 2:30 PM. These seemed to be associated with an early work shift at the cannabis facility.

Except for a maximum of 3 cars along the east curb line, on-street parking did not extend to the southerly half of the 10th Street block between Cherry Avenue and Walnut Avenue.

The vacant lot on the southeast corner of the 10th Street / Cherry Avenue intersection (Sub-area 5) had a peak demand of about 36 occupied spaces at 11:30 AM, with parking occupancy of 30 or more cars between 9:00 AM and 4:30 PM. The entire parcel that is available for parking appears to be about 2.5 acres in size, which could park up to 300 cars. However, the parking is mostly concentrated along the south side of Cherry Avenue and east side of 10th Street. The parking currently covers about one-quarter of an acre. The lot is currently unimproved. It was observed to be muddy during a site visit, which occasionally discourages its usage during the winter rainy season.

The American Legion site, which is immediately east of the cannabis facility, has a north parking lot (Sub-area 8) that has about 77 spaces. It was at 90% (69 parked cars) to 100% occupancy (77 parked cars) from 8:30 AM to 2:30 PM. It was over 60% occupied from 3:00 PM to 4:30 PM. The American Legion south lot (Sub-area 7) has about 104 spaces. It had between 6 and 10 parked cars between 8:00 AM and 4:00 PM. Only one to 4 cars were parked during the earlier morning and later evening hours. This lot had substantial available parking.

The existing high on-street parking demand could increase if the vacant parcel on the southeast corner of the 10th Street/Cherry Avenue intersection (Sub-area 5) is developed and no longer available to the existing cannabis facility. All the on-street parking between Cherry Avenue and Walnut Avenue would then be full occupied throughout the day. The loss of access to the American Legion parking areas would create on-street parking deficiencies and increase the number of pedestrians crossing Cherry Avenue.

9.2 Greenfield Organix Parking Analysis

The Greenfield Municipal Code Section 17.58.080 requires one space per 1,000 square feet for the 90,484 square feet of manufacturing, or 91 spaces. One space is required per 3,000 square feet for the 213,444 square feet of warehousing (greenhouse), or 72 spaces. Three spaces per 1,000 square feet for the 3,120 square feet of office is also required, or 10 spaces. The project total parking requirement is 173 spaces. Greenfield Organix will provide 238 parking spaces, which is 65 spaces, or about 38% above the number required. This parking can be used by the adjacent Greenfield Organix project if additional parking demand occurs at that facility.

The parking demand can also be estimated based on the number of Greenfield Organix will have a total of for 110 employees. According to “Parking Generation,” Institute of Transportation Engineers (ITE), 4th Edition, 2010, the parking generation rate per employee for manufacturing uses is 0.97 spaces per employee. The parking generation rate per employee for warehousing is 0.78 parking spaces per employee. Assuming the

higher manufacturing parking generation rate, the project would need about 107 total parking spaces. The project will have a substantial surplus of on-site parking supply. Greenfield Organix will not increase off-site parking demand. It will therefore not create a parking impact.

10 MITIGATIONS

10.1 Improvements Recommended for Existing Conditions

The following improvement is recommended for existing traffic conditions in the study area.

1. Install street lights along Cherry Avenue and at the El Camino Real/Cherry Avenue and 10th Street/Cherry Avenue intersections.
2. The City should consider installing all-way stop control at the 10th Street/Cherry Avenue intersection.

10.2 Existing Plus Project Impact Mitigations

No mitigations are required for Project impacts. The Project will be required to:

1. Construct improvements including curb, gutter, sidewalk and paving for a 40-foot curb-to-curb width along its 10th Street frontage and 48-foot curb-to-curb width along its Cherry Avenue frontage. Street lighting should also be included.
2. Pay the Greenfield Traffic Impact Fee.
3. Pay the TAMC Regional Development Fee.

10.3 Improvements Recommended for Background Conditions

No improvements are recommended for Background traffic conditions in the study area. Individual projects will be responsible for frontage improvements.

10.4 Background Plus Project Impact Mitigations

No mitigations will be required for Project impacts added to Background traffic.

10.5 General Plan Impact Mitigations

The following mitigations will be required for General Plan impacts without the Project.

1. Cherry Avenue is designated as a two-lane local street in the Greenfield General Plan. This requires widening to a 48-foot curb-to-curb width with on-street parking and bike lanes.
2. El Camino Real has been widened to its ultimate width. Sidewalks will be required along segments where they are currently missing. This includes the east side of El Camino Real north of Walnut Avenue.
3. Walnut Avenue will need to be widened to a four-lane divided arterial from El Camino Real to Highway 101, a four to six-lane divided arterial just east of Highway 101, a two-lane divided arterial west of 3rd Street and a two-lane divided arterial between 10th Street and El Camino Real.
4. 10th Street will be required to be widened to 40 feet, curb-to-curb, with curb, gutter, sidewalk and street lights along both sides of the street.

5. 12th Street will be required to be widened to a two-lane divided arterial with a curb-to-curb width of 62 feet with bike lanes, on-street parking and median left turn lane north of Oak Avenue. It will be extended to Thorne Road north of Greenfield at General Plan Buildout.
6. The 12th Street/Cherry Avenue intersection will require left turn channelization, which is included in the two-lane divided arterial street section that is its designation in the Greenfield General Plan.
7. The El Camino Real/Cherry Avenue intersection will require signalization.
8. The 10th Street/Walnut Avenue intersection will require signalization with eastbound lanes westbound left turn lanes. Its 44-foot curb-to-curb width is not wide enough to accommodate left turn lanes. Some existing on-street parking will need to be removed.
9. The El Camino Real/Walnut Avenue intersection will require the following improvements:
    a. Restripe eastbound Walnut Avenue as one left turn lane, one through lane and one shared through-right turn lane.
    b. Widen westbound Walnut Avenue to add a right turn lane.
    c. Restripe southbound El Camino Real at two left turn lanes, one through lane and one right turn lane.
    d. A northbound El Camino Real right turn lane will not be required to achieve LOS D, but should also be considered because it will further improve the LOS at relatively low cost.

    Alternatively, this intersection could be converted into a two-lane roundabout, as recommended in *Transportation Agency for Monterey County Regional Roundabout Study Using Caltrans' Intersection Control Evaluation,* Kittelson and Associates, March 2016.

10.6 Project Impact Mitigations at General Plan Buildout

No mitigations will be required for Project impacts when added to General Plan Buildout traffic.

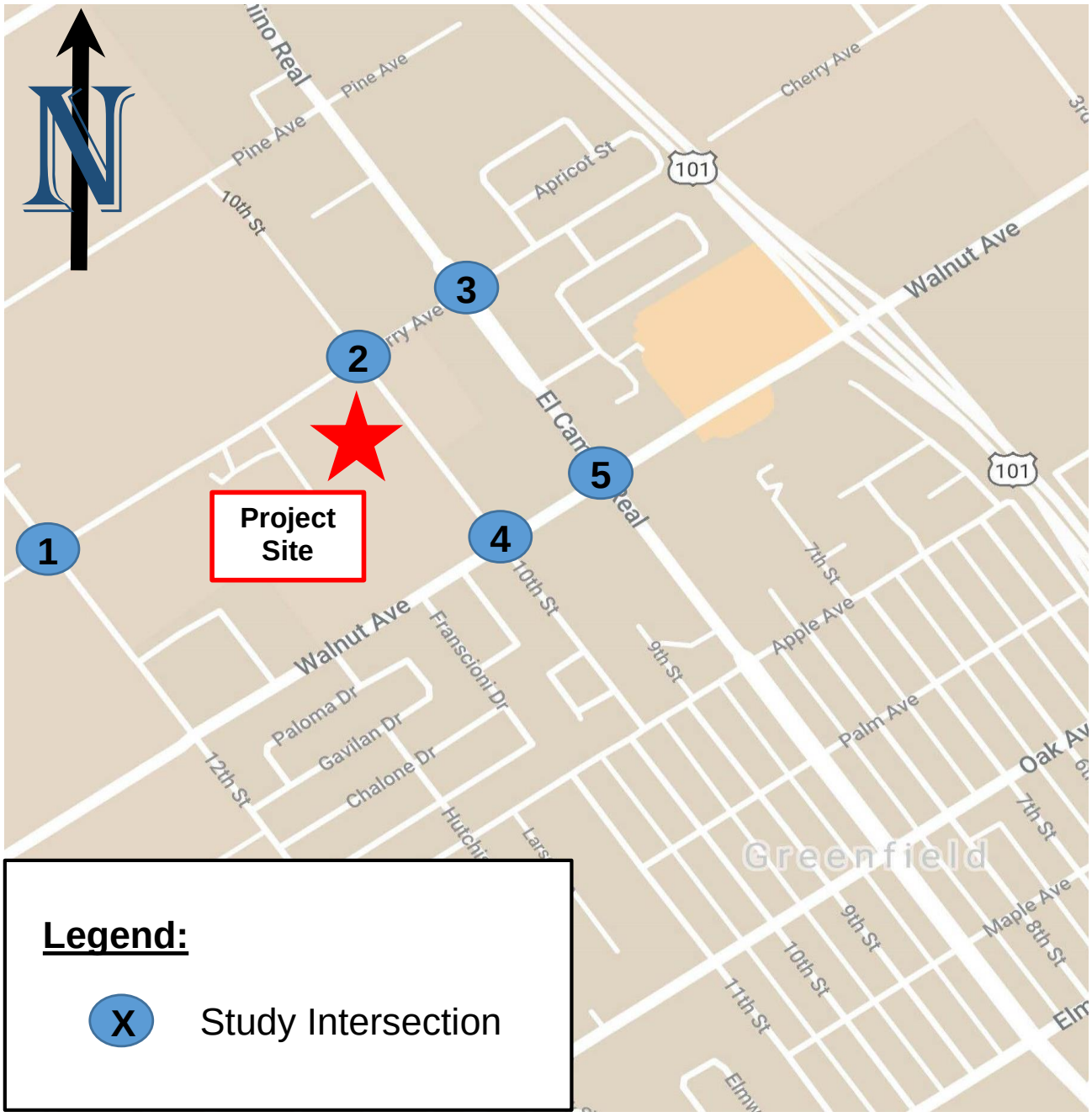
11 REFERENCES

11.1 List of References

1. *2010 Highway Capacity Manual,* Transportation Research Board, 2010.
2. *Guide for the Preparation of Traffic Impact Studies,* California Department of Transportation (Caltrans), December 2002.
3. *Trip Generation Manual,* 10th Edition, Institute of Transportation Engineers, 2017.
4. *Highway Capacity Manual, 6th Edition,* California Department of Transportation, Updated November 20, 2017
5. *A Policy on Geometric Design of Highways and Streets*, 6th Edition, American Association of State Highway and Transportation Officials (AASHTO), 2011
6. *Greenfield 2005 General Plan*
7. *South of Walnut Annexation – Greenfield Village Traffic Impact Study*, Higgins Associates, August 25, 2006

11.2 List of Contacts

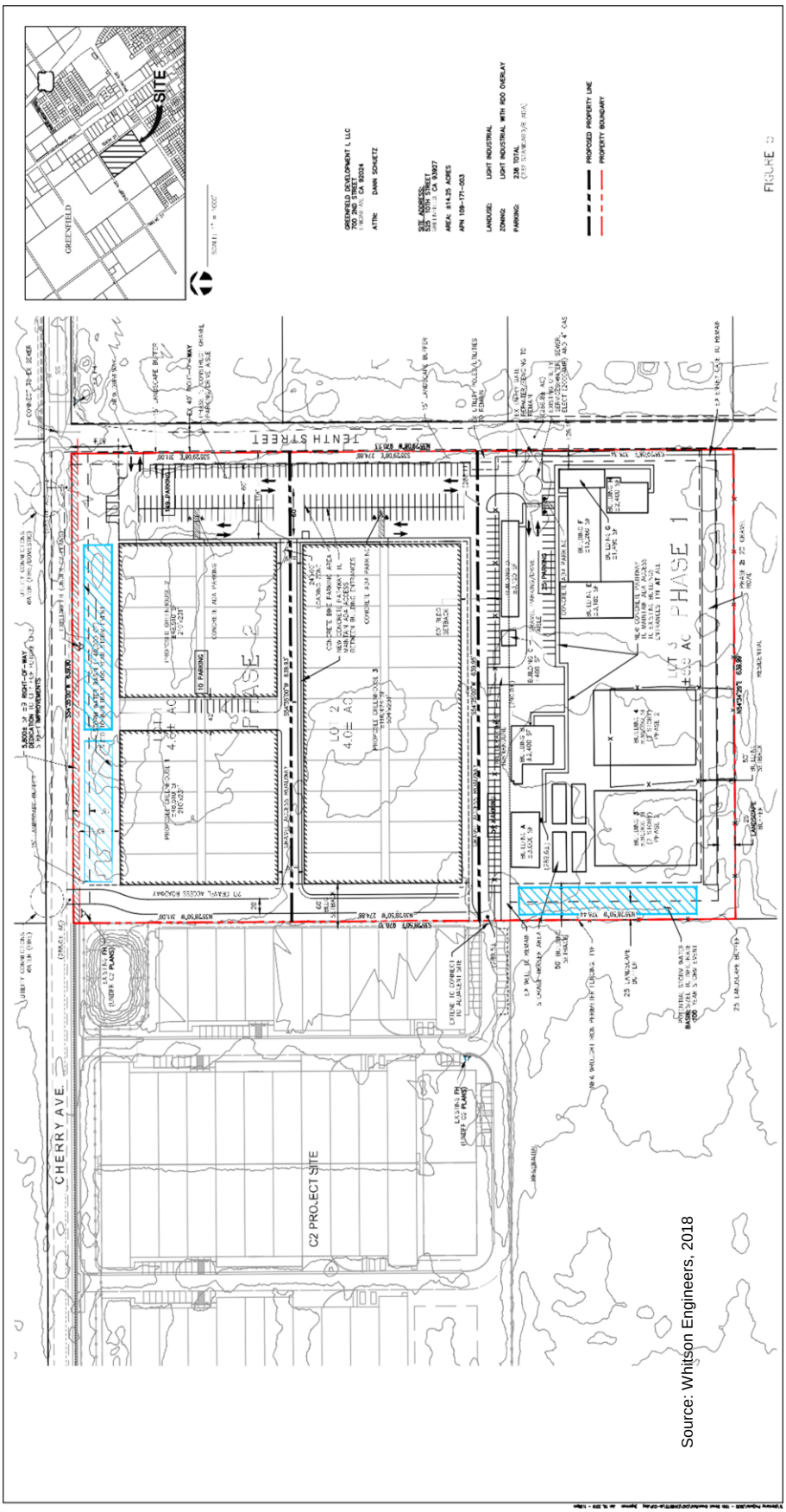
1. Elizabeth King and Rachel Hawkins, EMC Planning Group, Project Consultant
2. Robert Perrault, Greenfield Planning Director



Basemap Source: Google Maps, 2019.

Keith Higgins
Traffic Engineer

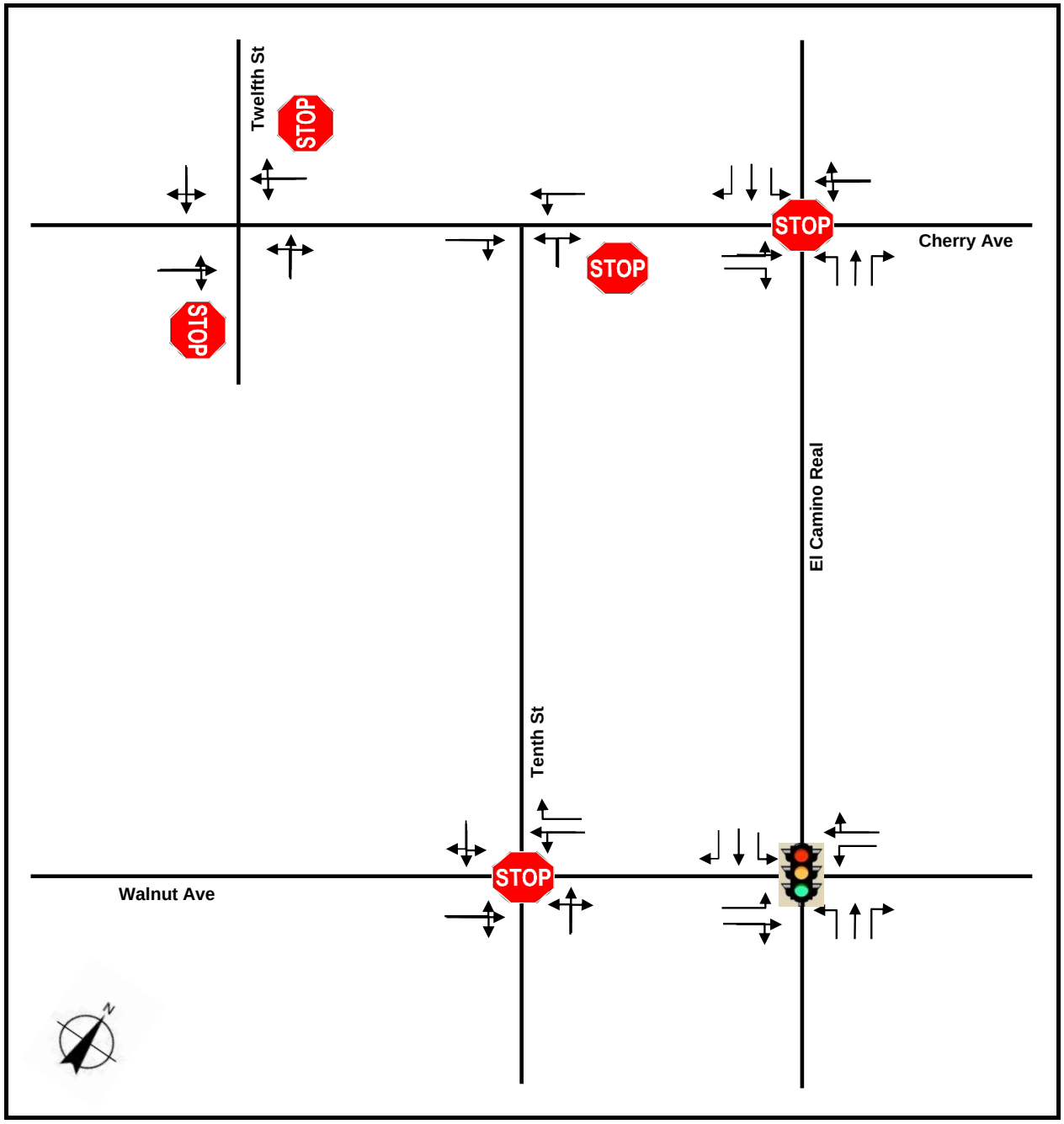
Exhibit 1
Project Location Map
and Study Area



Source: Whitson Engineers, 2018

Keith Higgins
Traffic Engineer

Exhibit 2
Project Site Plan



LEGEND

XX (YY) *= AM Peak Hour (PM Peak Hour)*

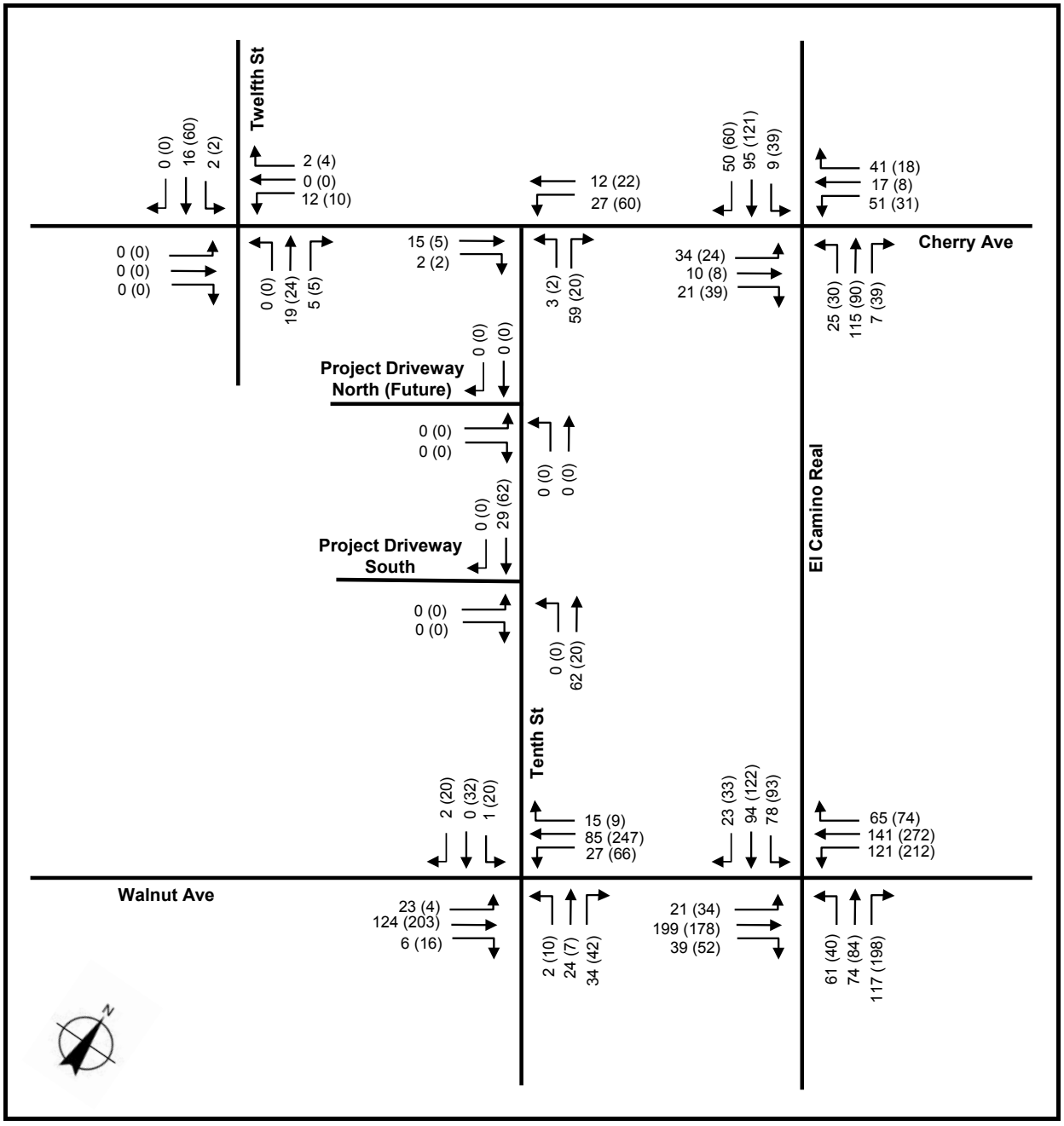
= Lane Configuration

STOP = Stop Sign

= Traffic Signal

Keith Higgins
Traffic Engineer

Exhibit 3
Intersection Lane Configurations and Traffic Controls



LEGEND

XX (YY) *= AM Peak Hour (PM Peak Hour)*

= Traffic Movement

Keith Higgins
Traffic Engineer

Exhibit 4
Existing Peak Hour Volumes

	N-S Street	E-W Street	Existing Intersection Control	LOS Standard	Peak Hour	Existing Conditions		Existing Plus Project Conditions		Background Conditions		Background Plus Project Conditions		General Plan Buildout Conditions		General Plan Plus Project Conditions	
						Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Twelfth Street	Cherry Avenue	Two-Way Stop	E/E	AM	0.0/8.8	A/A	0.0/8.8	A/A	0.0/8.9	A/A	0.0/9.0	A/A	11.0/10.9	B/B	11.0/10.9	B/B
					PM	0.0/9.0	A/A	0.0/9.0	A/A	0.0/9.1	A/A	0.0/9.1	A/A	13.9/14.2	B/B	13.9/14.2	B/B
2	Tenth Street	Cherry Avenue	One-Way Stop	E	AM	9.4	A	9.5	A	9.7	A	9.8	A	11.4	B	11.5	B
					PM	8.9	A	9.0	A	9.4	A	9.5	A	14.2	B	14.5	B
			With Improvement		*AM*	*7.0*	*A*	*7.2*	*A*	*7.3*	*A*	*7.4*	*A*	*8.6*	*A*	*8.6*	*A*
					PM	*7.4*	*A*	*7.4*	*A*	*7.5*	*A*	*7.6*	*A*	*10.0*	*A*	*10.3*	*B*
3	El Camino Real	Cherry Avenue	All-Way Stop	C	AM	9.2	A	9.3	A	9.8	A	9.9	A	42.5	**E**	43.5	**E**
					PM	8.9	A	9.0	A	9.5	A	9.6	A	182.7	**F**	186.8	**F**
			With Improvement		*AM*									*12.1*	*B*	*12.3*	*B*
					PM									*17.4*	*B*	*18.6*	*B*
4	Tenth Street	Walnut Avenue	All-Way Stop	C	AM	8.4	A	8.4	A	9.9	A	10.0	A	19.7	C	21.0	C
					PM	11.9	B	12.6	B	23.7	C	24.4	C	224.8	**F**	241.0	**F**
			With Improvement		*AM*									*11.2*	*B*	*11.4*	*B*
					PM									*16.6*	*B*	*18.6*	*B*
5	El Camino Real	Walnut Avenue	Signal	D	AM	29.5	C	30.0	C	38.6	D	39.7	D	143.6	**F**	151.0	**F**
					PM	27.1	C	28.0	C	38.0	D	39.9	D	229.9	**F**	237.4	**F**
			With Improvement		*AM*									*28.6*	*C*	*31.8*	*C*
					PM									*40.3*	*D*	*47.1*	*D*
6	Tenth Street	Project Driveway (North)	One-Way Stop	E	AM	N/A		9.1	A	N/A		9.3	A	N/A		9.4	A
					PM			9.1	A			9.2	A			9.4	A
7	Tenth Street	Project Driveway (South)	One-Way Stop	E	AM	N/A		8.7	A	N/A		8.8	A	N/A		8.8	A
					PM			8.9	A			9.0	A			9.1	A

Notes:

1. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound.
2. Overall City of Greenfield level of service standard is LOS C. However, Intersection 4 - El Camino Real / Walnut Avenue -- has a level of service standard of LOS D. Side-street standard is assumed as LOS E.
3. For all-way stop intersections, delay is average overall delay in seconds per vehicle (sec/veh). For one- and two-way stop intersections, delays are side-street operations, also in seconds per vehicle (sec/veh).
4. Analysis performed using 2010 Highway Capacity Manual methodologies.
5. Level of service calculations can be found in **Appendices C through H**.
6. LOS highlighted in **red** indicates intersection operating below level of service standard.
7. LOS with a thick black border represents a significant impact. Resulting levels of service with recommended improvements noted under "With Improvement". A list of applied improvements can be found on **Exhibit 5B**.

Keith Higgins
Traffic Engineer

Exhibit 5A
Intersection
Levels of Service

	N-S Street	E-W Street	Existing Intersection Control	Existing Conditions	Existing Plus Project Conditions	Background Without Project Conditions	Background Plus Project Conditions	Cumulative Without Project Conditions	Cumulative Plus Project Conditions
1	Twelfth Street	Cherry Avenue	Two-Way Stop	None Required	None Required	None Required	None Reqired	None Required	None Required
2	Tenth Street	Cherry Avenue	One-Way Stop	Consider Convertion to All-Way Stop Control	Consider Convertion to All-Way Stop Control	Consider Convertion to All-Way Stop Control	Consider Convertion to All-Way Stop Control	Consider Convertion to All-Way Stop Control	Consider Convertion to All-Way Stop Control
3	El Camino Real	Cherry Avenue	All-Way Stop	None Required	None Required	None Required	None Reqired	Signalize Intersection	Signalize Intersection
4	Tenth Street	Walnut Avenue	All-Way Stop	None Required	None Required	None Required	None Reqired	a. Signalize Inersection b. Restripe EB & WB as 1-L, 1-T/R	a. Signalize Inersection b. Restripe EB & WB as 1-L, 1-T/R
5	El Camino Real	Walnut Avenue	Signal	None Required	None Required	None Required	None Reqired	a. Restripe EB as 1-L, 1-T, 1-T/R b. Add WB R c. Restripe SB as 2-L, 1-T, 1-R	a. Restripe EB as 1-L, 1-T, 1-T/R b. Add WB R c. Restripe SB as 2-L, 1-T, 1-R
6	Tenth Street	Project Driveway (North)	One-Way Stop	N/A	None Required	N/A	None Reqired	N/A	Not Required
7	Tenth Street	Project Driveway (South)	One-Way Stop	N/A	None Required	N/A	None Reqired	N/A	Not Required

Notes:

1. L, T, R = Left, Through, Right
2. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound
3. N/A = Not Applicable. Intersection does not exist under this scenario.

Keith Higgins
Traffic Engineer

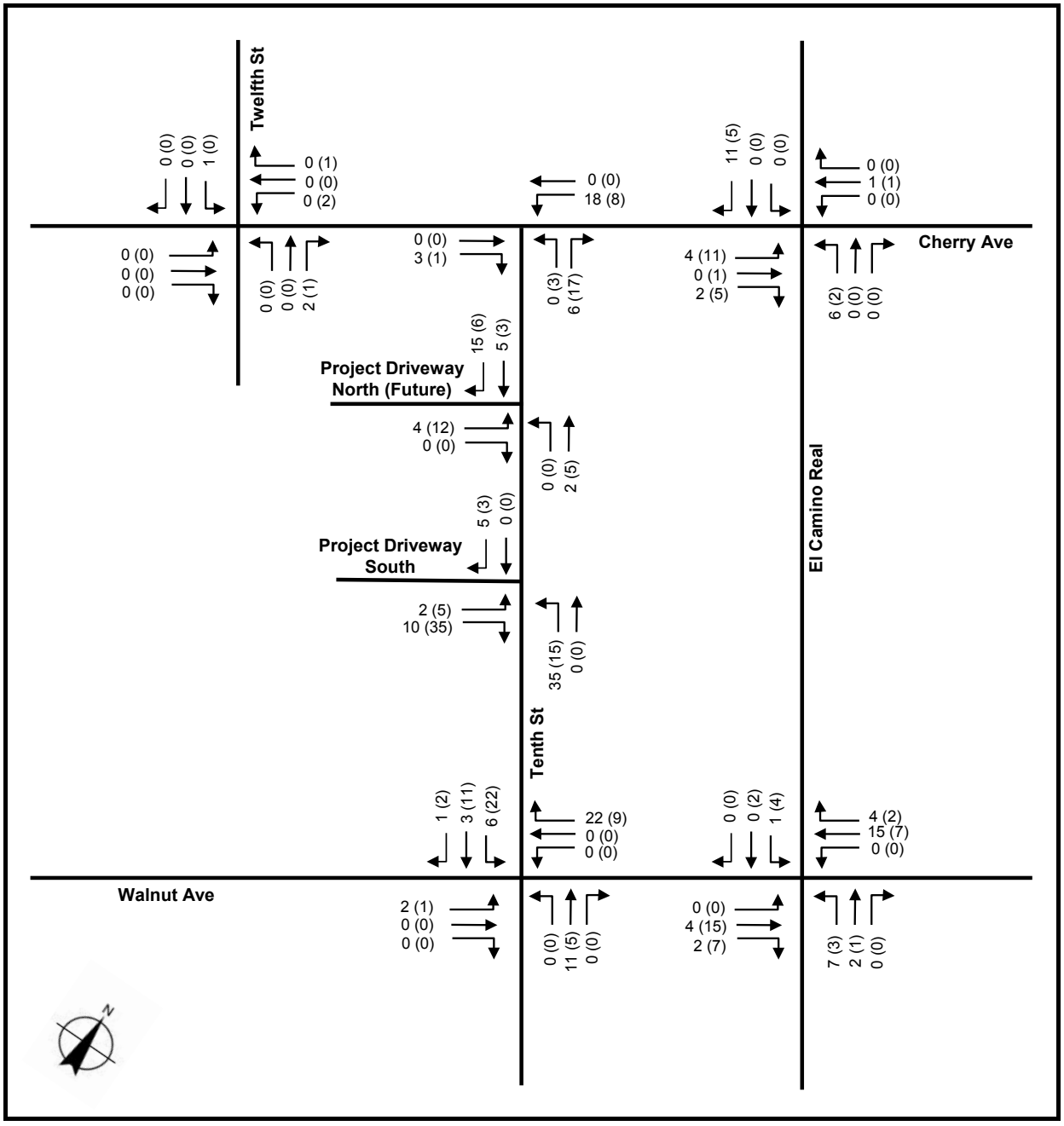
Exhibit 5B
Recommended Intersection Improvements

TRIP GENERATION RATES	ITE LAND USE CODE	DAILY TRIP RATE	AM PEAK HOUR PEAK HOUR RATE	AM PEAK HOUR % OF ADT	AM PEAK HOUR % IN	AM PEAK HOUR % OUT	PM PEAK HOUR PEAK HOUR RATE	PM PEAK HOUR % OF ADT	PM PEAK HOUR % IN	PM PEAK HOUR % OUT
Manufacturing (per employee)	140	2.47	0.37	15%	74%	26%	0.33	13%	39%	61%
Manufacturing (per 1,000 sq. ft.)	140	3.93	0.62	16%	77%	23%	0.67	17%	31%	69%
Warehousing (per employee)	150	5.05	0.61	12%	72%	28%	0.66	13%	36%	64%
Warehousing (per 1,000 sq. ft.)	150	1.74	0.17	10%	77%	23%	0.19	11%	27%	73%
Greenhouse (per 1,000 sq. ft.)	150 (modified)*	0.58	0.06	10%	77%	23%	0.06	11%	27%	73%

PROPOSED USE	PROJECT SIZE		DAILY TRIPS	AM PEAK HOUR TRIPS	AM PEAK HOUR % OF ADT	AM PEAK HOUR TRIPS IN	AM PEAK HOUR TRIPS OUT	PM PEAK HOUR TRIPS	PM PEAK HOUR % OF ADT	PM PEAK HOUR TRIPS IN	PM PEAK HOUR TRIPS OUT
A. Trip Generation Based on Number of Employees											
Manufacturing	35	Employees	86	13	15%	10	3	12	14%	5	7
Warehousing	75	Employees	379	46	12%	33	13	50	13%	18	32
Total	110	Employees	465	59	13%	43	16	62	13%	23	39
B. Trip Generation Based on Square Footage											
Manufacturing	93,604	Sq. Ft.	368	58	16%	45	13	63	17%	20	43
Greenhouse	213,444	Sq. Ft.	124	12	10%	9	3	14	11%	4	10
Total	307,048	Sq. Ft.	492	70	14%	54	16	77	16%	24	53

Notes:

1. Trip generation rates published by Institute of Transportation Engineers (ITE), *Trip Generation Manual,* 10th Edition, 2017.
2. sq. ft. = square feet
3. There is no published trip generation data for greenhouses (warehouse "cultivation"). Based on the City of Greenfield Municipal Code Section 17.58 that requires a parking ratio of 1 space per 1,000 square feet of warehouse compared with one space per 3,000 square feet of warehouse "cultivation", a trip generation rate for greenhouse is assumed to be one-third of the typical rate quoted in the ITE Trip Generation Manual.



LEGEND

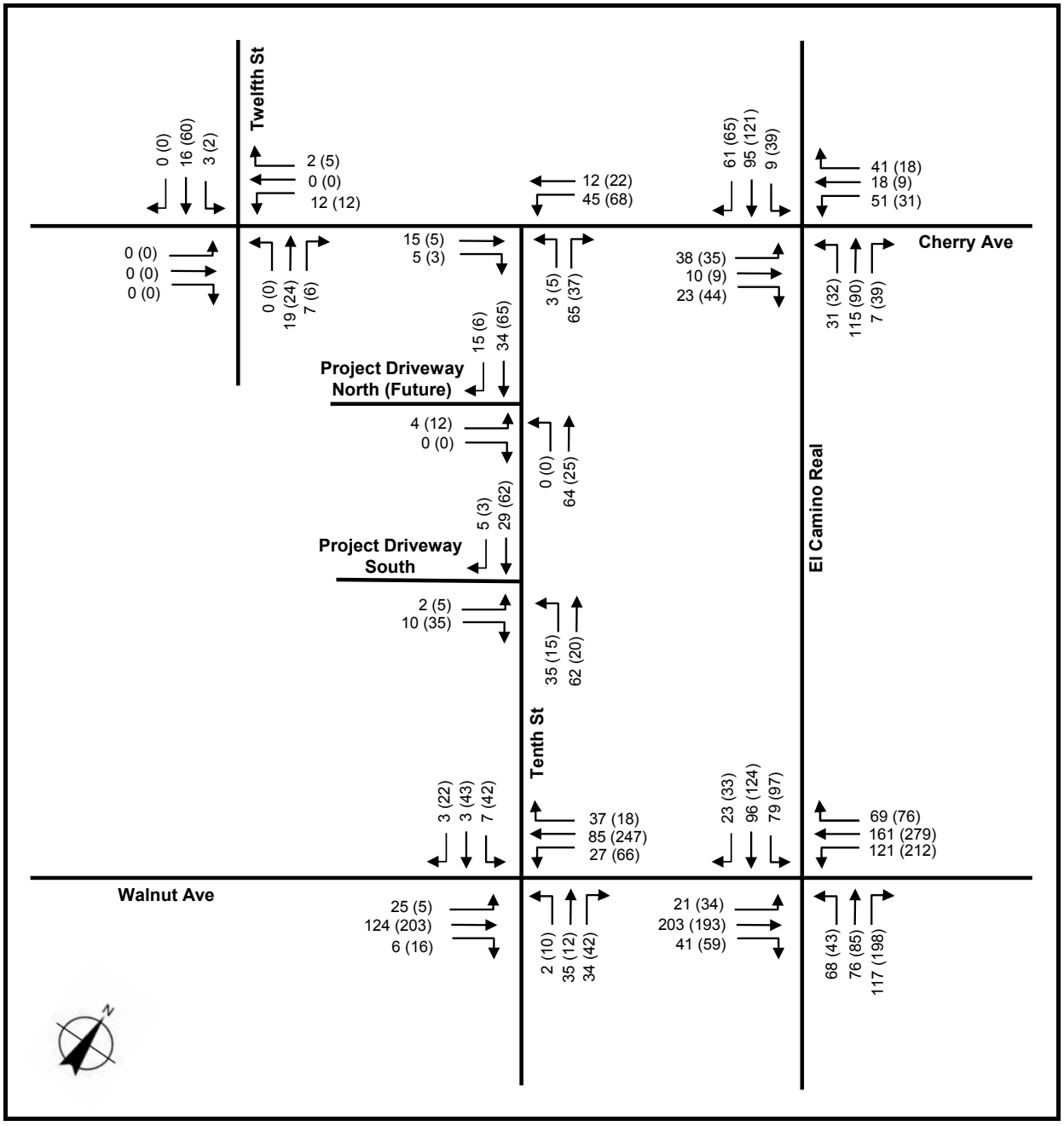
XX (YY) *= AM Peak Hour (PM Peak Hour)*

= Traffic Movement

Keith Higgins
Traffic Engineer

Exhibit 7

Project Traffic Distribution and Assignment



LEGEND

XX (YY) *= AM Peak Hour (PM Peak Hour)*

= Traffic Movement

Keith Higgins
Traffic Engineer

Exhibit 8
Existing Plus Project Peak Hour Volumes

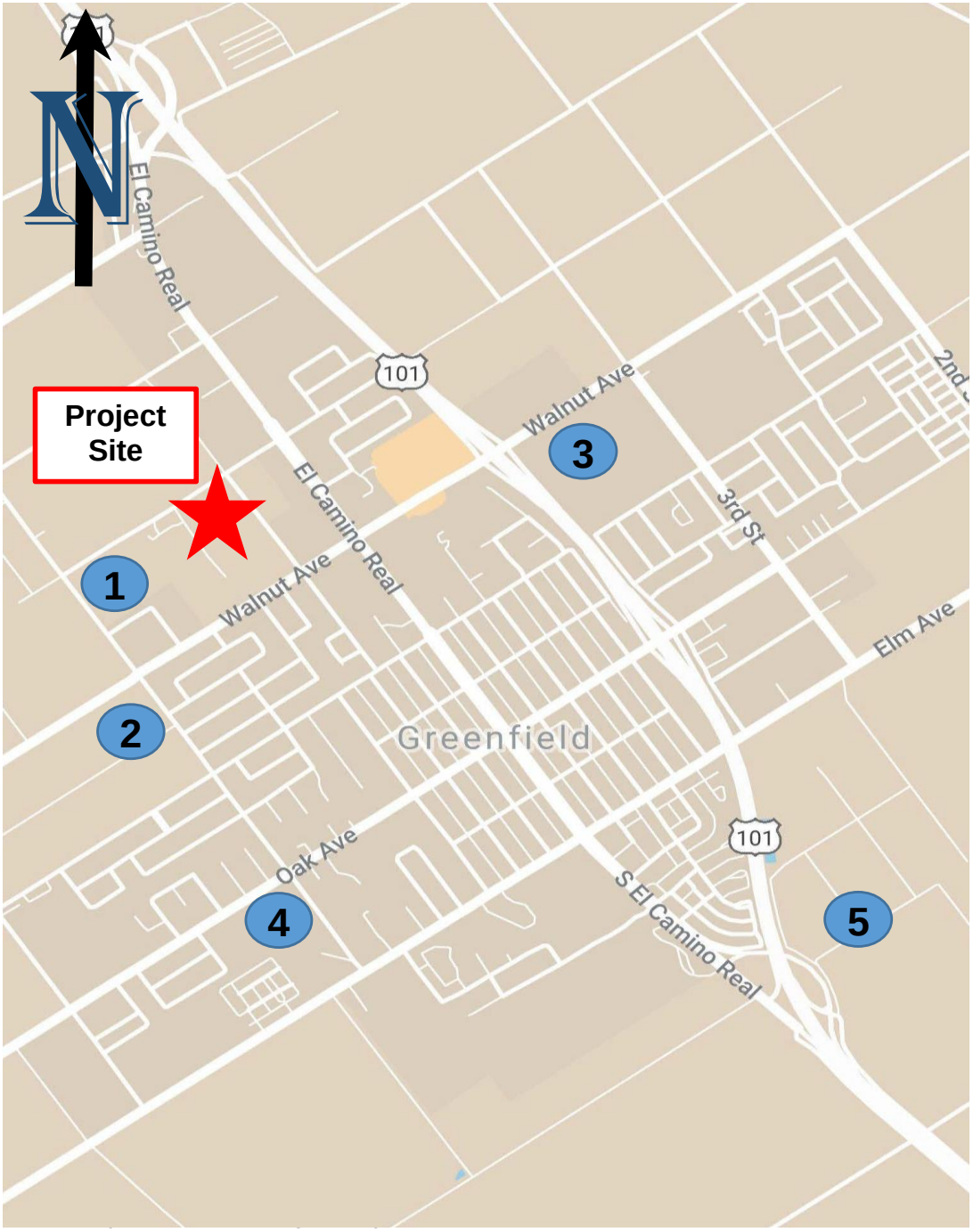
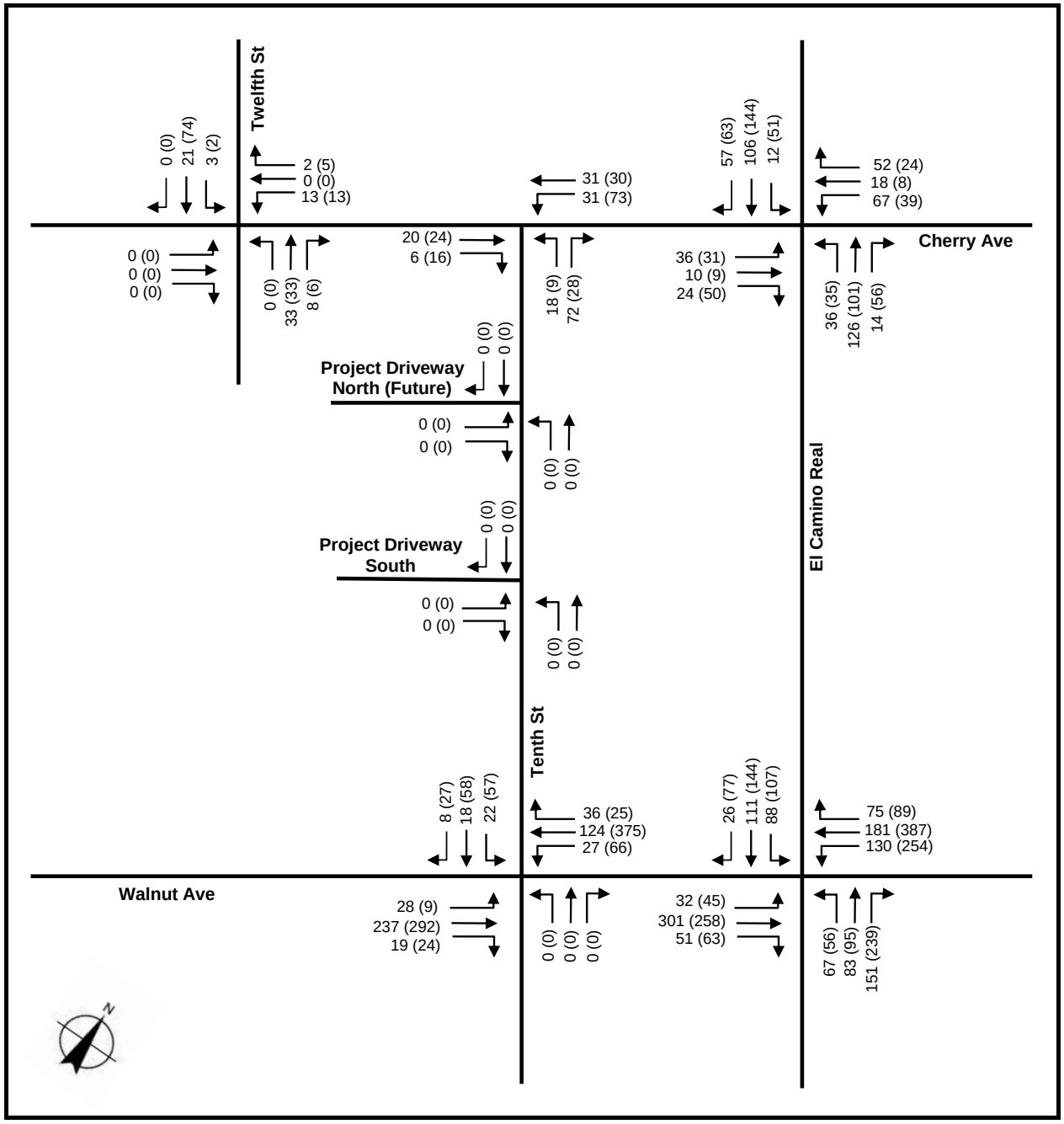


Exhibit 9
Major Background Projects
Location Map

Keith Higgins
Traffic Engineer

	TRIP GENERATION RATES	LAND USE	DAILY TRIP RATE	AM PEAK HOUR PEAK HOUR RATE	AM PEAK HOUR % OF ADT	AM PEAK HOUR % IN	AM PEAK HOUR % OUT	PM PEAK HOUR PEAK HOUR RATE	PM PEAK HOUR % OF ADT	PM PEAK HOUR % IN	PM PEAK HOUR % OUT
1	Greenfield Organix C2	Cannabis Cultivation	246	35	14%	27	8	39	16%	12	27
2	The Villages	Residential and School	5,770	787	14%	3	5	579	10%	3	2
3	Walnut Avenue Specific Plan	Retail and Residential	24,303	597	2%	347	250	2,313	10%	1,180	1,133
4	Southwest Greenfield Development Allowance	Residential	6,412	482	8%	134	348	675	11%	425	250
5	South End Annexation	Mixed Use	39,436	1,219	3%	7	5	3,900	10%	18	21
	Major Background Project Gross Total		76,167	3,120	4%	518	616	7,506	10%	1,639	1,433
	Note: Unless otherwise noted, trip generation estimates are referenced from the respective environmental documents. The only exception is Greenfield Organix C, which is assumed to generate about one-half of the traffic forecasted for Greenfield Organix.										



LEGEND

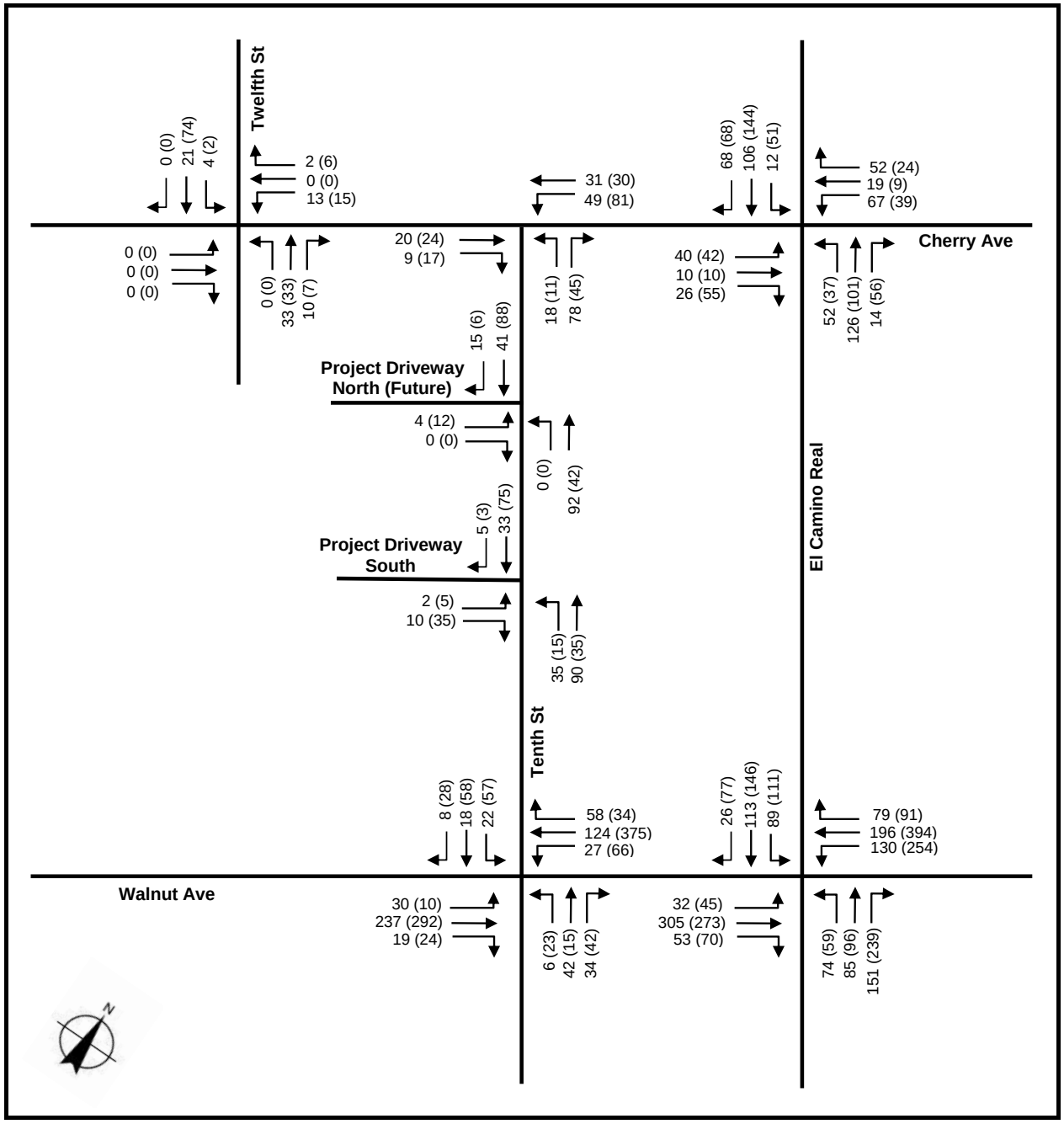
XX (YY) *= AM Peak Hour (PM Peak Hour)*

= Traffic Movement

Keith Higgins
Traffic Engineer

Exhibit 11

Background Without Project Peak Hour Volumes



LEGEND

XX (YY) *= AM Peak Hour (PM Peak Hour)*

= Traffic Movement

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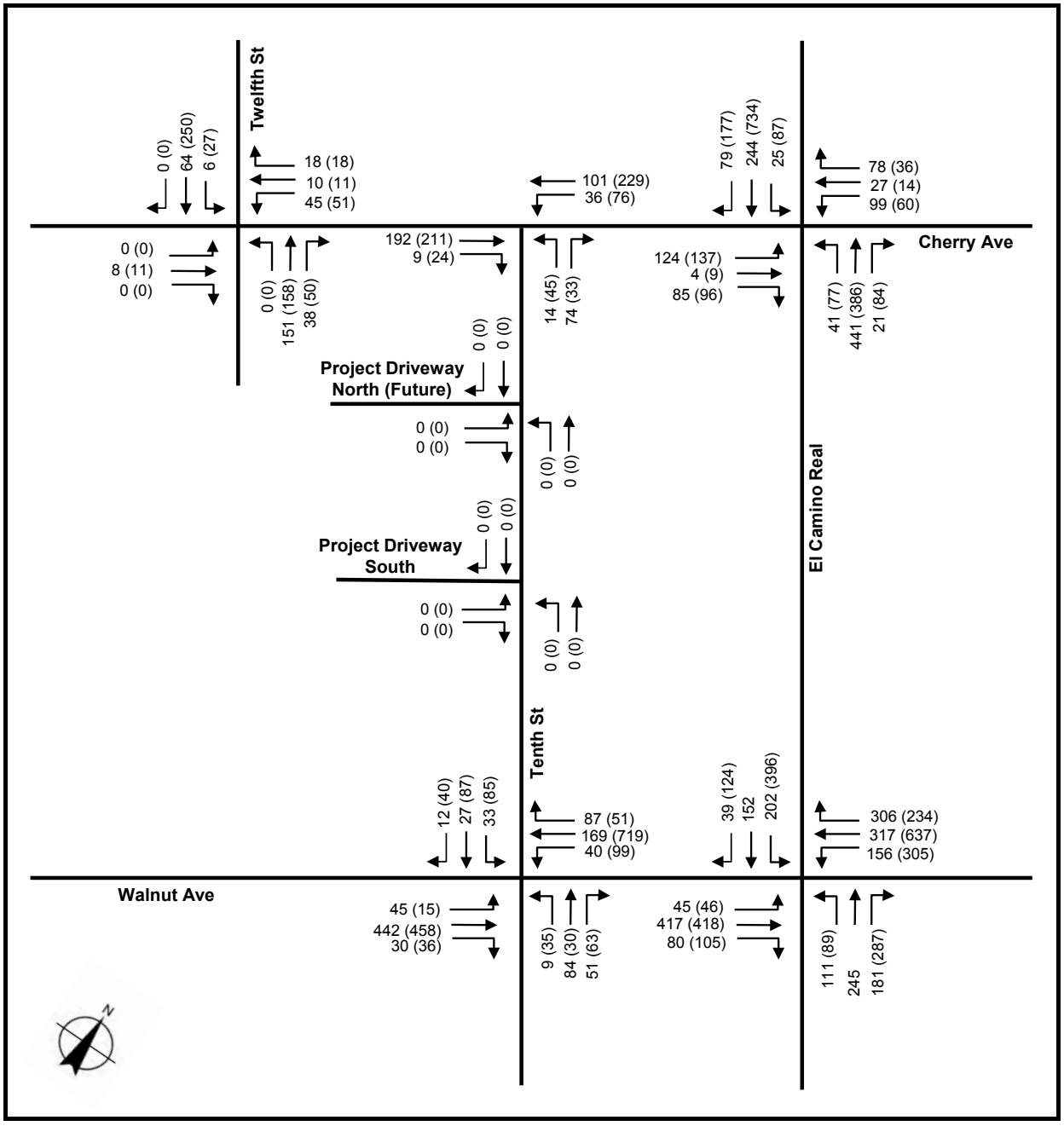
Traffic Engineer

Exhibit 12

Background Plus Project Peak Hour Volumes



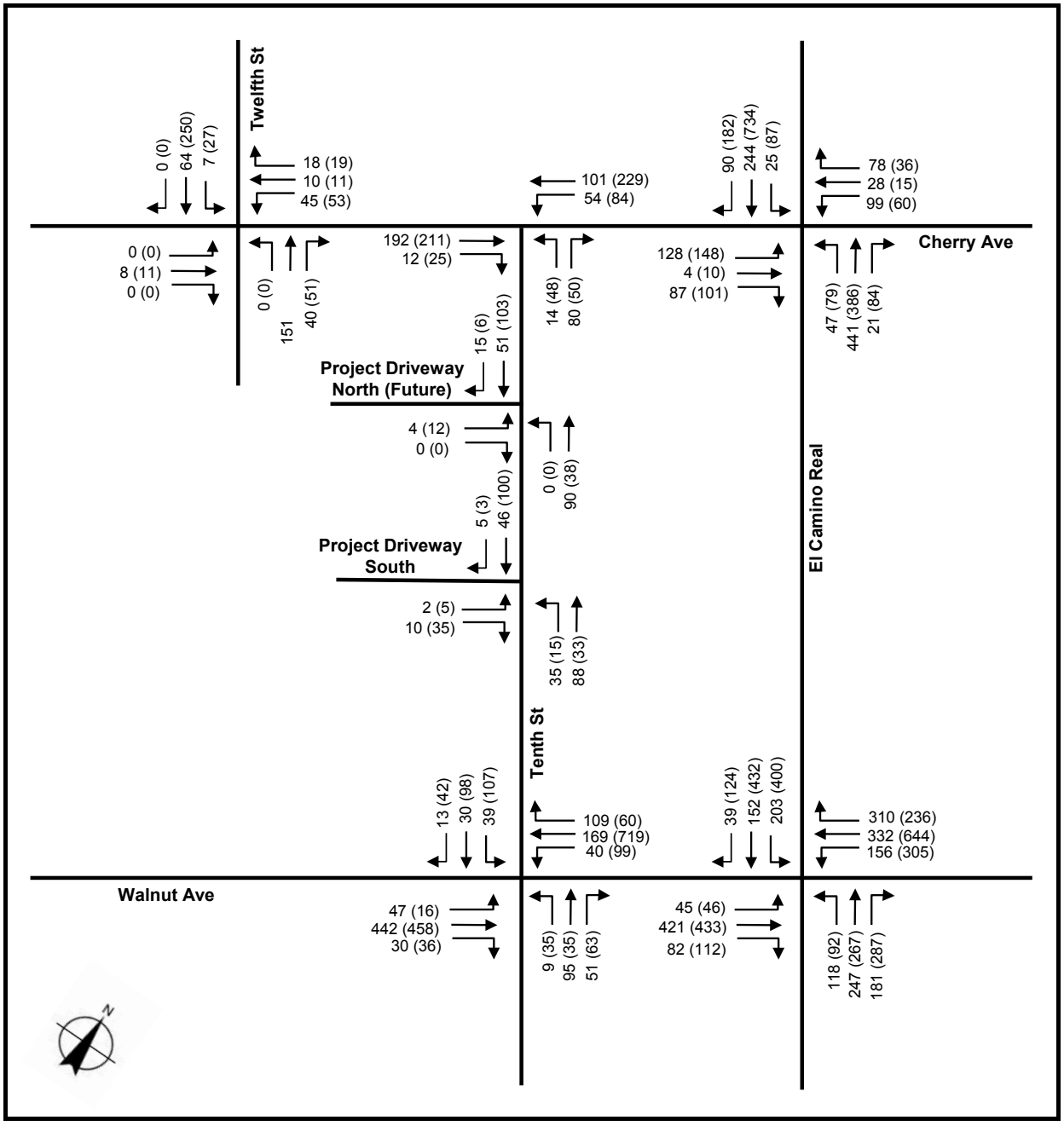
LEGEND

XX (YY) *= AM Peak Hour (PM Peak Hour)*

= Traffic Movement

Keith Higgins
Traffic Engineer

Exhibit 13
General Plan Buildout
Without Project Peak Hour Volumes



LEGEND

XX (YY) *= AM Peak Hour (PM Peak Hour)*

= Traffic Movement

Keith Higgins
Traffic Engineer

Exhibit 14
General Plan Buildout
With Project Peak Hour Volumes

Basemap Source: IDAX Data Solutions, 2019.

Survey Locations:

1. Tenth Street, west curb line, south of Cherry Avenue
2. Tenth Street, west curb line, north of Walnut Avenue
3. Tenth Street, east curb line, north of Walnut Avenue
4. Tenth Street, east curb line, south of Cherry Avenue
5. Vacant Lot at southwest corner of Tenth Street and Cherry Avenue
6. Cherry Avenue, south curb line, between Tenth Street and El Camino Real
7. American Legion, south parking lot
8. American Legion, north parking lot
9. Cherry Avenue, north curb line, between Tenth Street and El Camino Real

Exhibit 15
Map of
Parking Occupancy
Survey Locations

Keith Higgins
Traffic Engineer

Time	Parking Demand										Total Number of Spaces	Total Parking Occupancy
	Subareas									Total		
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*			
7:00 AM	12	0	2	6	7	17	2	19	16	81	356	22.8%
7:30 AM	17	0	4	9	18	**18**	6	36	14	122	356	34.3%
8:00 AM	20	0	4	**11**	22	**18**	7	44	17	143	356	40.2%
8:30 AM	21	0	4	9	29	**18**	10	69	**19**	179	356	50.3%
9:00 AM	**22**	0	4	9	32	**18**	10	**77**	**19**	191	356	53.7%
9:30 AM	**22**	0	**6**	9	33	**18**	10	75	**19**	**192**	356	53.9%
10:00 AM	21	0	**6**	9	32	**18**	10	74	**19**	189	356	53.1%
10:30 AM	21	0	3	9	33	15	10	76	18	185	356	52.0%
11:00 AM	20	0	4	8	34	16	9	74	**19**	184	356	51.7%
11:30 AM	**22**	0	3	8	36	16	10	74	**19**	188	356	52.8%
12:00 PM	20	0	2	7	34	16	**12**	73	**19**	183	356	51.4%
12:30 PM	20	0	2	9	34	16	10	73	**19**	183	356	51.4%
1:00 PM	20	0	3	9	33	16	10	73	**19**	183	356	51.4%
1:30 PM	20	0	2	10	36	**18**	9	71	**19**	185	356	52.0%
2:00 PM	19	0	2	9	**37**	17	10	74	**19**	187	356	52.5%
2:30 PM	14	0	2	8	35	15	10	71	18	173	356	48.6%
3:00 PM	8	0	2	6	31	8	9	63	8	135	356	37.9%
3:30 PM	8	0	2	6	31	7	10	58	11	133	356	37.4%
4:00 PM	7	0	2	5	28	8	8	55	9	122	356	34.3%
4:30 PM	5	0	2	3	26	8	4	47	10	105	356	29.5%
5:00 PM	5	0	0	2	13	8	1	22	9	60	356	16.9%
5:30 PM	2	0	0	1	4	6	1	8	6	28	356	7.9%
6:00 PM	2	0	0	1	4	7	1	6	6	27	356	7.6%
6:30 PM	0	0	2	0	2	9	0	3	8	24	356	6.7%

Notes:
1. Parking occupancy data collected Thursday, December 20, 2018.
2. Locations of parking demand subareas are indicated on **Exhibit 15**.
3. Peak parking demand for each subarea and all surveyd parking are indicated in **bold** typeface.

Keith Higgins
Traffic Engineer

Exhibit 16
Summary of
Parking Occupancy
Survey Results

Appendix A

Level of Service

Descriptions

APPENDIX A1

LEVEL OF SERVICE (LOS) DESCRIPTION
SIGNALIZED INTERSECTIONS

The capacity of an urban street is related primarily to the signal timing and the geometric characteristics of the facility as well as to the composition of traffic on the facility. Geometrics are a fixed characteristic of a facility. Thus, while traffic composition may vary somewhat over time, the capacity of a facility is generally a stable value that can be significantly improved only by initiating geometric improvements. A traffic signal essentially allocates time among conflicting traffic movements that seek to use the same space. The way in which time is allocated significantly affects the operation and the capacity of the intersection and its approaches.

The methodology for signalized intersection is designed to consider individual intersection approaches and individual lane groups within approaches. A lane group consists of one or more lanes on an intersection approach. The outputs from application of the method described in the HCM 2010 are reported on the basis of each lane. For a given lane group at a signalized intersection, three indications are displayed: green, yellow and red. The red indication may include a short period during which all indications are red, referred to as an all-red interval and the yellow indication forms the change and clearance interval between two green phases.

The methodology for analyzing the capacity and level of service must consider a wide variety of prevailing conditions, including the amount and distribution of traffic movements, traffic composition, geometric characteristics, and details of intersection signalization. The methodology addresses the capacity, LOS, and other performance measures for lane groups and the intersection approaches and the LOS for the intersection as a whole.

Capacity is evaluated in terms of the ratio of demand flow rate to capacity (v/c ratio), whereas LOS is evaluated on the basis of control delay per vehicle (in seconds per vehicle). The methodology does not take into account the potential impact of downstream congestion on intersection operation, nor does the methodology detect and adjust for the impacts of turn-pocket overflows on through traffic and intersection operation.

LEVEL OF SERVICE (LOS) CRITERIA FOR SIGNALIZED INTERSECTIONS

(Reference 2010 Highway Capacity Manual)

Level of Service	Control Delay (seconds / vehicle)
A	**<10**
B	**>10 - 20**
C	**>20 - 35**
D	**>35 - 55**
E	**>55 - 80**
F	**>80**

APPENDIX A2

LEVEL OF SERVICE (LOS) DESCRIPTION
UNSIGNALIZED INTERSECTIONS WITH ALL-WAY STOP CONTROL (AWSC)

AWSC intersections require every vehicle to stop at the intersection before proceeding. Since each driver must stop, the judgement as to whether to proceed into the intersection is a function of traffic conditions on the other approaches. While giving priority to the driver on the right is a recognized rule in some areas, it is not a good descriptor of actual intersection operations. What happens is the development of a consensus of right-of-way that alternates between the drivers on the intersection approaches, a consensus that depends primarily on the intersection geometry and the arrival patterns at the stop line.

If no traffic is present on the other approaches, a driver can proceed immediately after the stop is made. If there is traffic on one or more of the other approaches, a driver proceeds only after determining that there are no vehicles currently in the intersection and that it is the driver's turn to proceed. Since no traffic signal controls the stream movement or allocates the right-of-way to each conflicting stream, the rate of departure is controlled by the interaction between the traffic streams themselves.

For AWSC intersections, the average control delay (in seconds per vehicle) is used as the primary measure of performance. Control delay is the increased time of travel for a vehicle approaching and passing through an AWSC intersection, compared with a free-flow vehicle if it were not required to slow down or stop at the intersection.

The criteria for AWSC intersections have different threshold values than do those for signalized intersections, primarily because drivers expect different levels of performance from different kinds of traffic control devices (i.e., traffic signals, two way stop or all way stop, etc.). The expectation is that a signalized intersection is designed to carry higher traffic volumes than an AWSC intersection and a higher level of control delay is acceptable at a signalized intersection for the same LOS.

For AWSC analysis using the HCM 2010 method, the LOS shown reflects the weighted average of the delay on each of the approaches.

LEVEL OF SERVICE (LOS) CRITERIA FOR AWSC INTERSECTIONS
(Reference 2010 Highway Capacity Manual)

Level of Service	Control Delay (seconds / vehicle)
A	**0 - 10**
B	**>10 - 15**
C	**>15 - 25**
D	**>25 - 35**
E	**>35 - 50**
F	**>50**

APPENDIX A3

LEVEL OF SERVICE (LOS) DESCRIPTION
UNSIGNALIZED INTERSECTIONS WITH TWO-WAY STOP CONTROL (TWSC)

TWSC intersections are widely used and stop signs are used to control vehicle movements at such intersections. At TWSC intersections, the stop-controlled approaches are referred to as the minor street approaches; they can be either public streets or private driveways. The intersection approaches that are not controlled by stop signs are referred to as the major street approaches. A three-leg intersection is considered to be a standard type of TWSC intersection if the single minor street approach (i.e. the stem of the T configuration) is controlled by a stop sign. Three-leg intersections where two of the three approaches are controlled by stop signs are a special form of unsignalized intersection control.

At TWSC intersections, drivers on the controlled approaches are required to select gaps in the major street flow through which to execute crossing or turning maneuvers on the basis of judgment. In the presence of a queue, each driver on the controlled approach must use some time to move into the front-of-queue position and prepare to evaluate gaps in the major street flow. Capacity analysis at TWSC intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers on the major street. Both gap acceptance and empirical models have been developed to describe this interaction.

Thus, the capacity of the controlled legs is based on three factors:

- the distribution of gaps in the major street traffic stream;
- driver judgment in selecting gaps through which to execute the desired maneuvers; and
- the follow-up time required by each driver in a queue.

The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, in the absence of incident, control, traffic or geometric delay. Average control delay for any particular minor movement is a function of the capacity of the approach and the degree of saturation and referred to as level of service.

LEVEL OF SERVICE (LOS) CRITERIA FOR TWSC INTERSECTIONS

(Reference 2010 Highway Capacity Manual)

Level of Service	Control Delay (seconds / vehicle)
A	**0 - 10**
B	**>10 - 15**
C	**>15 - 25**
D	**>25 - 35**
E	**>35 - 50**
F	**>50**

Appendix B

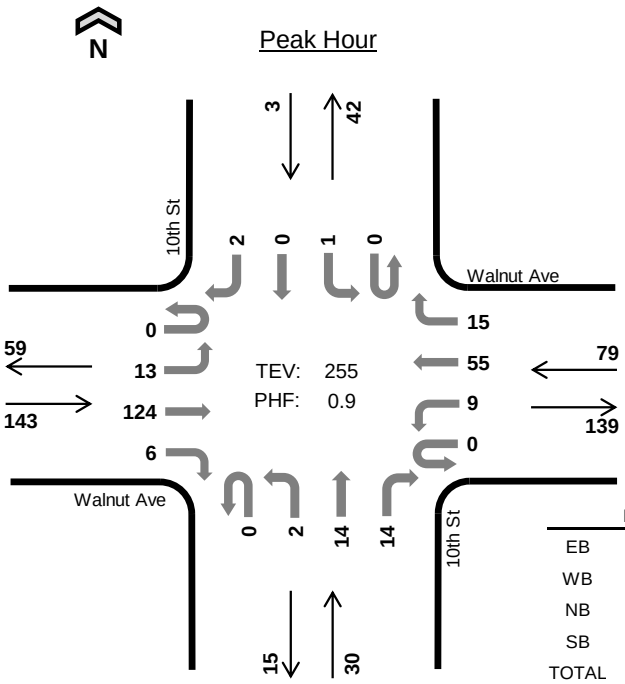
Intersection

Traffic Volume

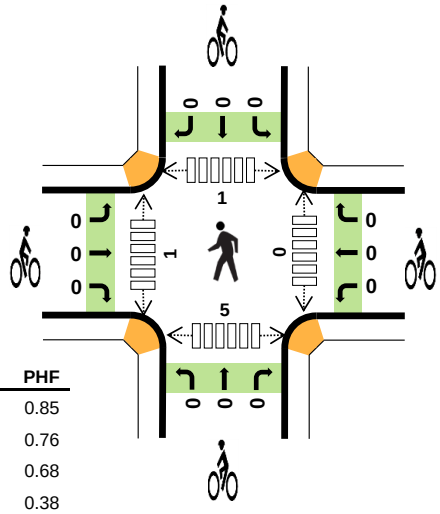
Counts

10th St
Walnut Ave

Date: 12-20-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	2.8%	0.85
WB	2.5%	0.76
NB	0.0%	0.68
SB	0.0%	0.38
TOTAL	2.4%	0.90



Two-Hour Count Summaries

Interval Start		Walnut Ave Eastbound				Walnut Ave Westbound				10th St Northbound				10th St Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	20	0	0	3	4	6	0	0	2	6	0	2	0	0	43	0
7:15 AM		**0**	**0**	**36**	**2**	**0**	**0**	**11**	**2**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**55**	0
7:30 AM		**0**	**3**	**37**	**2**	**0**	**3**	**10**	**5**	**0**	**1**	**3**	**3**	**0**	**0**	**0**	**1**	**68**	0
7:45 AM		**0**	**9**	**27**	**0**	**0**	**3**	**13**	**6**	**0**	**1**	**8**	**2**	**0**	**1**	**0**	**1**	**71**	237
8:00 AM		**0**	**1**	**24**	**2**	**0**	**3**	**21**	**2**	**0**	**0**	**2**	**6**	**0**	**0**	**0**	**0**	**61**	**255**
8:15 AM		0	0	26	2	0	1	7	2	0	0	4	3	0	0	0	1	46	246
8:30 AM		0	3	31	0	0	2	19	2	0	0	0	6	0	0	1	0	64	242
8:45 AM		0	0	25	0	0	2	11	0	0	2	1	9	0	0	0	1	51	222
Count Total		0	16	226	8	0	17	96	25	0	4	21	38	0	3	1	4	459	0
Peak Hour	**All**	**0**	**13**	**124**	**6**	**0**	**9**	**55**	**15**	**0**	**2**	**14**	**14**	**0**	**1**	**0**	**2**	**255**	**0**
	HV	**0**	**0**	**3**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**
	HV%	**-**	**0%**	**2%**	**17%**	**-**	**11%**	**2%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**-**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	1	*1*
7:15 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**1**	**0**	*2*
7:30 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**2**	**1**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**2**	**1**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**5**	***5***
8:15 AM	0	1	1	0	*2*	0	0	0	0	*0*	3	0	0	2	*5*
8:30 AM	2	1	0	1	*4*	0	0	0	0	*0*	1	1	0	0	*2*
8:45 AM	0	0	0	0	*0*	0	0	0	0	*0*	2	0	0	3	*5*
Count Total	6	4	1	2	*13*	0	0	0	0	*0*	6	2	1	11	*20*
Peak Hour	**4**	**2**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**1**	**5**	***7***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Walnut Ave				Walnut Ave				10th St				10th St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
7:15 AM	**0**	**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**	0
7:45 AM	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	4
8:00 AM	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**6**
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2	8
8:30 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	1	0	4	12
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Count Total	0	0	5	1	0	1	2	1	0	0	0	1	0	1	1	0	13	0
Peak Hour	**0**	**0**	**3**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**

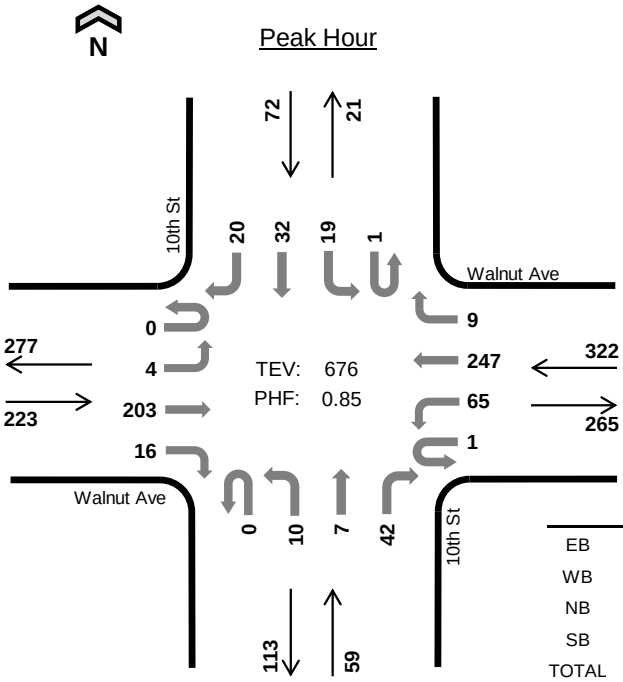
Two-Hour Count Summaries - Bikes

Interval Start	Walnut Ave			Walnut Ave			10th St			10th St			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	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
7:30 AM	**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
8:00 AM	**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
8:30 AM	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
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

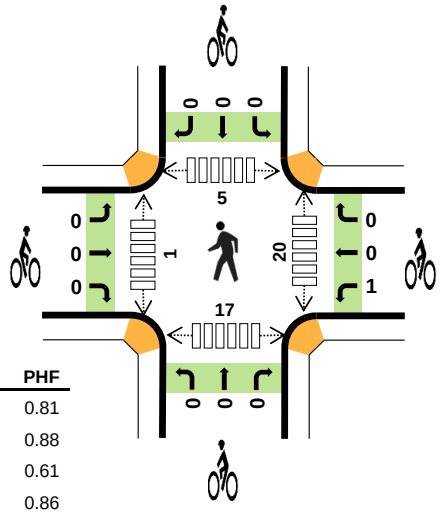
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

10th St
Walnut Ave

Date: 12-20-2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	0.4%	0.81
WB	0.0%	0.88
NB	0.0%	0.61
SB	0.0%	0.86
TOTAL	0.1%	0.85



Two-Hour Count Summaries

Interval Start	Walnut Ave Eastbound				Walnut Ave Westbound				10th St Northbound				10th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	41	6	0	7	37	5	0	2	4	6	0	0	6	1	116	0
4:15 PM	0	3	29	4	0	13	46	0	0	1	3	9	0	0	5	4	117	0
4:30 PM	**0**	**0**	**37**	**4**	**0**	**15**	**51**	**2**	**0**	**0**	**2**	**10**	**0**	**5**	**9**	**6**	**141**	0
4:45 PM	**0**	**2**	**58**	**3**	**0**	**18**	**69**	**5**	**0**	**5**	**4**	**15**	**1**	**4**	**10**	**4**	**198**	572
5:00 PM	**0**	**1**	**59**	**9**	**0**	**15**	**63**	**1**	**0**	**4**	**0**	**11**	**0**	**7**	**8**	**6**	**184**	640
5:15 PM	**0**	**1**	**49**	**0**	**1**	**17**	**64**	**1**	**0**	**1**	**1**	**6**	**0**	**3**	**5**	**4**	**153**	**676**
5:30 PM	0	0	38	2	0	11	53	0	0	7	1	5	0	1	4	7	129	664
5:45 PM	0	0	35	2	1	9	53	1	0	1	0	6	0	1	1	6	116	582
Count Total	0	8	346	30	2	105	436	15	0	21	15	68	1	21	48	38	1,154	0
Peak Hour All	**0**	**4**	**203**	**16**	**1**	**65**	**247**	**9**	**0**	**10**	**7**	**42**	**1**	**19**	**32**	**20**	**676**	**0**
Peak Hour HV	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	2	10	*12*
4:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	1	2	2	*5*
4:30 PM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**5**	**1**	**1**	**5**	*12*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**7**	*9*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**7**	**0**	**2**	**2**	*11*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	***1***	**8**	**0**	**0**	**3**	***11***
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	1	0	0	1	*2*
5:45 PM	0	0	0	0	*0*	1	0	0	0	*1*	0	1	1	1	*3*
Count Total	1	0	0	0	*1*	1	1	0	0	*2*	21	3	10	31	*65*
Peak Hour	**1**	**0**	**0**	**0**	***1***	**0**	**1**	**0**	**0**	***1***	**20**	**1**	**5**	**17**	***43***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Walnut Ave Eastbound				Walnut Ave Westbound				10th St Northbound				10th St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	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	0
4:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**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	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

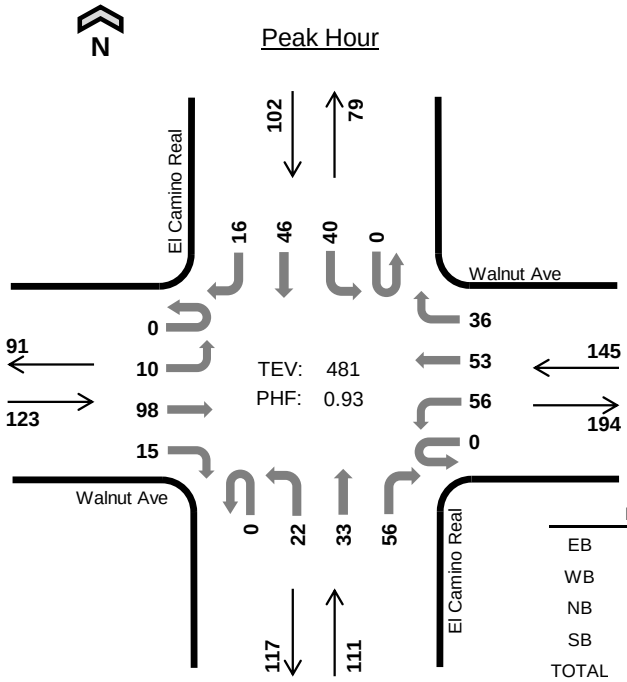
Two-Hour Count Summaries - Bikes

Interval Start	Walnut Ave Eastbound			Walnut Ave Westbound			10th St Northbound			10th St Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	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
4:30 PM	**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
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	2
Count Total	0	0	1	1	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

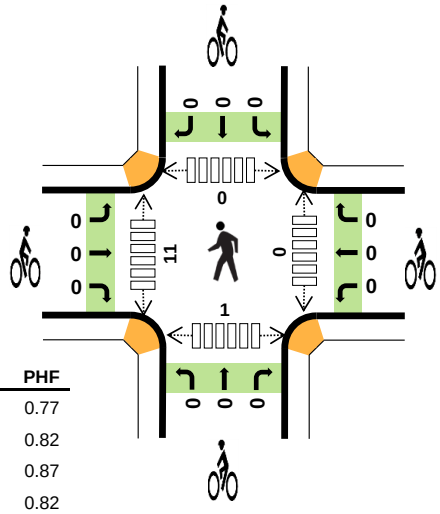
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

El Camino Real
Walnut Ave

Date: 12-20-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	5.7%	0.77
WB	3.4%	0.82
NB	8.1%	0.87
SB	3.9%	0.82
TOTAL	5.2%	0.93



Two-Hour Count Summaries

Interval Start		Walnut Ave Eastbound				Walnut Ave Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		1	2	28	1	0	8	11	6	0	4	6	12	0	4	5	2	90	0
7:15 AM		0	1	34	1	0	9	12	8	0	4	3	16	0	9	3	0	100	0
7:30 AM		0	1	26	6	0	11	14	12	0	4	9	16	0	11	11	2	123	0
7:45 AM		**0**	**1**	**27**	**2**	**0**	**14**	**18**	**12**	**0**	**7**	**5**	**13**	**0**	**11**	**15**	**5**	**130**	443
8:00 AM		**0**	**5**	**25**	**3**	**0**	**17**	**12**	**3**	**0**	**6**	**9**	**17**	**0**	**10**	**8**	**6**	**121**	474
8:15 AM		**0**	**2**	**14**	**4**	**0**	**15**	**8**	**14**	**0**	**3**	**7**	**15**	**0**	**7**	**14**	**0**	**103**	477
8:30 AM		**0**	**2**	**32**	**6**	**0**	**10**	**15**	**7**	**0**	**6**	**12**	**11**	**0**	**12**	**9**	**5**	**127**	**481**
8:45 AM		0	1	20	7	0	23	17	8	0	8	7	15	0	10	13	0	129	480
Count Total		1	15	206	30	0	107	107	70	0	42	58	115	0	74	78	20	923	0
Peak Hour	**All**	**0**	**10**	**98**	**15**	**0**	**56**	**53**	**36**	**0**	**22**	**33**	**56**	**0**	**40**	**46**	**16**	**481**	**0**
	HV	**0**	**1**	**4**	**2**	**0**	**3**	**2**	**0**	**0**	**0**	**7**	**2**	**0**	**1**	**1**	**2**	**25**	**0**
	HV%	**-**	**10%**	**4%**	**13%**	**-**	**5%**	**4%**	**0%**	**-**	**0%**	**21%**	**4%**	**-**	**3%**	**2%**	**13%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	1	0	0	*4*	0	0	0	0	*0*	1	1	0	0	*2*
7:15 AM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	2	0	*2*
7:30 AM	0	2	2	0	*4*	0	0	0	0	*0*	0	2	2	0	*4*
7:45 AM	**2**	**2**	**2**	**1**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	*2*
8:00 AM	**2**	**0**	**3**	**1**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**1**	*3*
8:15 AM	**1**	**1**	**1**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	*2*
8:30 AM	**2**	**2**	**3**	**1**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**5**	**0**	**0**	***5***
8:45 AM	0	0	1	1	*2*	0	0	0	0	*0*	1	0	0	0	*1*
Count Total	10	9	12	5	*36*	0	0	0	0	*0*	2	14	4	1	*21*
Peak Hour	**7**	**5**	**9**	**4**	***25***	**0**	**0**	**0**	**0**	***0***	**0**	**11**	**0**	**1**	***12***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Walnut Ave Eastbound				Walnut Ave Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	4	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	4	0
7:45 AM	**0**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**7**	16
8:00 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**1**	**6**	18
8:15 AM	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**4**	21
8:30 AM	**0**	**1**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**1**	**0**	**1**	**0**	**0**	**8**	**25**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	20
Count Total	0	2	6	2	0	5	3	1	0	0	8	4	0	1	2	2	36	0
Peak Hour	**0**	**1**	**4**	**2**	**0**	**3**	**2**	**0**	**0**	**0**	**7**	**2**	**0**	**1**	**1**	**2**	**25**	**0**

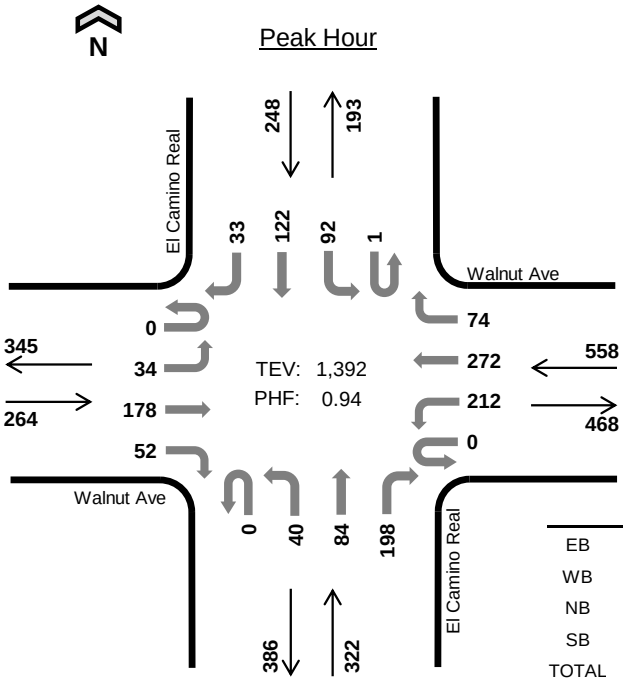
Two-Hour Count Summaries - Bikes

Interval Start	Walnut Ave Eastbound			Walnut Ave Westbound			El Camino Real Northbound			El Camino Real Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	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
7:30 AM	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
8:00 AM	**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
8:30 AM	**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
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

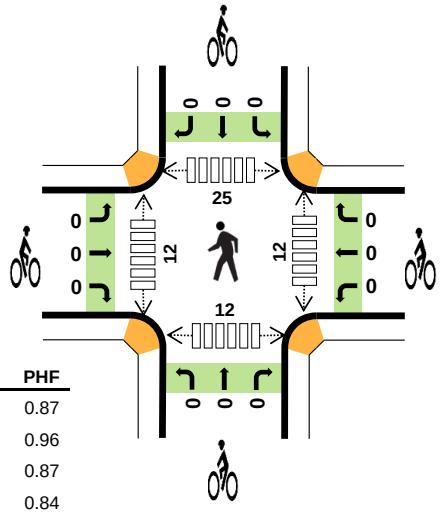
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

El Camino Real
Walnut Ave

Date: 12-20-2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	0.4%	0.87
WB	0.0%	0.96
NB	1.6%	0.87
SB	0.4%	0.84
TOTAL	0.5%	0.94



Two-Hour Count Summaries

Interval Start	Walnut Ave Eastbound				Walnut Ave Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	3	31	11	0	44	35	10	0	10	19	40	0	16	36	12	267	0
4:15 PM	0	4	33	11	0	50	50	14	0	10	18	38	0	15	18	8	269	0
4:30 PM	**0**	**5**	**41**	**12**	**0**	**47**	**64**	**19**	**0**	**9**	**24**	**41**	**0**	**25**	**41**	**8**	**336**	0
4:45 PM	**0**	**14**	**43**	**19**	**0**	**56**	**73**	**16**	**0**	**10**	**21**	**52**	**1**	**14**	**33**	**11**	**363**	1,235
5:00 PM	**0**	**9**	**49**	**12**	**0**	**55**	**67**	**22**	**0**	**13**	**25**	**55**	**0**	**28**	**29**	**8**	**372**	1,340
5:15 PM	**0**	**6**	**45**	**9**	**0**	**54**	**68**	**17**	**0**	**8**	**14**	**50**	**0**	**25**	**19**	**6**	**321**	**1,392**
5:30 PM	0	4	35	7	0	48	51	7	0	13	29	47	0	17	19	8	285	1,341
5:45 PM	0	6	27	5	0	44	56	5	0	12	18	37	0	20	18	10	258	1,236
Count Total	0	51	304	86	0	398	464	110	0	85	168	360	1	160	213	71	2,471	0
Peak Hour All	**0**	**34**	**178**	**52**	**0**	**212**	**272**	**74**	**0**	**40**	**84**	**198**	**1**	**92**	**122**	**33**	**1,392**	**0**
Peak Hour HV	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**1**	**0**	**7**	**0**
Peak Hour HV%	**-**	**0%**	**1%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**5%**	**1%**	**0%**	**0%**	**1%**	**0%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	9	11	8	5	*33*
4:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	8	4	1	2	*15*
4:30 PM	**1**	**0**	**4**	**1**	***6***	**0**	**0**	**0**	**0**	***0***	**2**	**6**	**5**	**2**	*15*
4:45 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**2**	**2**	**2**	**5**	*11*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**5**	**2**	**8**	**0**	*15*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**3**	**2**	**10**	**5**	***20***
5:30 PM	0	0	1	1	*2*	0	0	0	0	*0*	2	10	1	0	*13*
5:45 PM	0	0	0	1	*1*	0	0	0	0	*0*	3	4	5	0	*12*
Count Total	1	0	6	3	*10*	0	0	0	0	*0*	34	41	40	19	*134*
Peak Hour	**1**	**0**	**5**	**1**	***7***	**0**	**0**	**0**	**0**	***0***	**12**	**12**	**25**	**12**	***61***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Walnut Ave Eastbound				Walnut Ave Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	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	0
4:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**1**	**0**	**6**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	7
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	7
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
Count Total	0	0	1	0	0	0	0	0	0	0	5	1	0	1	2	0	10	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**1**	**0**	**7**	**0**

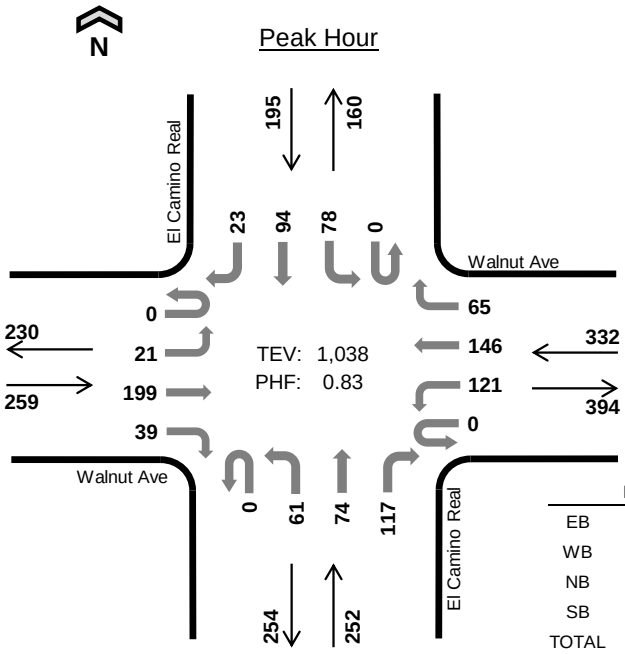
Two-Hour Count Summaries - Bikes

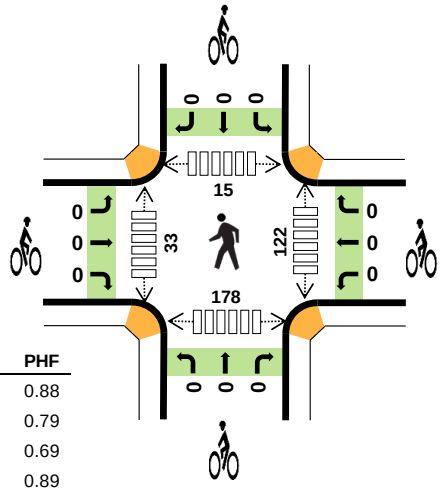
Interval Start	Walnut Ave Eastbound			Walnut Ave Westbound			El Camino Real Northbound			El Camino Real Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**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
5:00 PM	**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**
5:30 PM	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
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

El Camino Real
Walnut Ave

Date: 11-06-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	2.3%	0.88
WB	3.0%	0.79
NB	1.2%	0.69
SB	3.1%	0.89
TOTAL	2.4%	0.83

Two-Hour Count Summaries

Interval Start	Walnut Ave Eastbound				Walnut Ave Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	44	2	0	10	14	3	0	3	9	25	0	9	10	3	134	0
7:15 AM	**0**	**5**	**60**	**9**	**0**	**15**	**26**	**9**	**0**	**5**	**15**	**23**	**0**	**14**	**13**	**5**	**199**	0
7:30 AM	**0**	**8**	**48**	**9**	**0**	**29**	**35**	**15**	**0**	**14**	**17**	**20**	**0**	**25**	**22**	**8**	**250**	0
7:45 AM	**0**	**1**	**54**	**12**	**0**	**36**	**43**	**19**	**0**	**27**	**28**	**36**	**0**	**19**	**30**	**6**	**311**	894
8:00 AM	**0**	**7**	**37**	**9**	**0**	**41**	**42**	**22**	**0**	**15**	**14**	**38**	**0**	**20**	**29**	**4**	**278**	**1,038**
8:15 AM	0	2	30	2	0	33	17	17	0	7	15	26	0	12	15	1	177	1,016
8:30 AM	0	4	24	5	0	18	16	17	0	7	13	24	0	16	22	6	172	938
8:45 AM	0	4	22	13	0	20	21	9	0	8	18	23	0	11	24	4	177	804
Count Total	0	33	319	61	0	202	214	111	0	86	129	215	0	126	165	37	1,698	0
Peak Hour All	**0**	**21**	**199**	**39**	**0**	**121**	**146**	**65**	**0**	**61**	**74**	**117**	**0**	**78**	**94**	**23**	**1,038**	**0**
Peak Hour HV	**0**	**0**	**4**	**2**	**0**	**5**	**3**	**2**	**0**	**0**	**2**	**1**	**0**	**2**	**2**	**2**	**25**	**0**
Peak Hour HV%	**-**	**0%**	**2%**	**5%**	**-**	**4%**	**2%**	**3%**	**-**	**0%**	**3%**	**1%**	**-**	**3%**	**2%**	**9%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	2	4	3	*10*	0	0	0	0	*0*	8	7	0	10	*25*
7:15 AM	**1**	**0**	**1**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**18**	**13**	**4**	**41**	*76*
7:30 AM	**1**	**2**	**1**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**24**	**6**	**0**	**40**	*70*
7:45 AM	**0**	**4**	**0**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**73**	**9**	**10**	**78**	*170*
8:00 AM	**4**	**4**	**1**	**2**	***11***	**0**	**0**	**0**	**0**	***0***	**7**	**5**	**1**	**19**	***32***
8:15 AM	2	1	3	1	*7*	0	0	0	0	*0*	6	10	7	2	*25*
8:30 AM	1	2	2	2	*7*	0	0	0	0	*0*	5	2	0	7	*14*
8:45 AM	1	1	1	1	*4*	0	0	0	0	*0*	2	5	4	1	*12*
Count Total	11	16	13	13	*53*	0	0	0	0	*0*	143	57	26	198	*424*
Peak Hour	**6**	**10**	**3**	**6**	***25***	**0**	**0**	**0**	**0**	***0***	**122**	**33**	**15**	**178**	***348***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Walnut Ave Eastbound				Walnut Ave Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	1	0	0	1	0	1	0	1	2	1	0	0	2	1	10	0
7:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**3**	0
7:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**5**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**6**	24
8:00 AM	**0**	**0**	**2**	**2**	**0**	**3**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**11**	**25**
8:15 AM	0	0	2	0	0	1	0	0	0	0	0	3	0	0	1	0	7	29
8:30 AM	0	0	1	0	0	2	0	0	0	1	1	0	0	1	1	0	7	31
8:45 AM	0	0	1	0	0	1	0	0	0	0	0	1	0	1	0	0	4	29
Count Total	0	0	9	2	0	10	3	3	0	2	5	6	0	4	6	3	53	0
Peak Hour	**0**	**0**	**4**	**2**	**0**	**5**	**3**	**2**	**0**	**0**	**2**	**1**	**0**	**2**	**2**	**2**	**25**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Walnut Ave Eastbound			Walnut Ave Westbound			El Camino Real Northbound			El Camino Real Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	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
7:30 AM	**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
8:00 AM	**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
8:30 AM	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
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Appendix C

Level of Service

Calculations

Existing

Conditions

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	12	0	2	0	19	5	2	16	0
Future Vol, veh/h	0	0	0	12	0	2	0	19	5	2	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	13	0	2	0	21	6	2	18	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	47	49	18	46	46	24	18	0	0	27	0	0
Stage 1	22	22	-	24	24	-	-	-	-	-	-	-
Stage 2	25	27	-	22	22	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	954	843	1061	955	846	1052	1599	-	-	1587	-	-
Stage 1	996	877	-	994	875	-	-	-	-	-	-	-
Stage 2	993	873	-	996	877	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	951	842	1061	954	845	1052	1599	-	-	1587	-	-
Mov Cap-2 Maneuver	951	842	-	954	845	-	-	-	-	-	-	-
Stage 1	996	876	-	994	875	-	-	-	-	-	-	-
Stage 2	991	873	-	995	876	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.8	0	0.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1599	-	-	-	967	1587	-	-
HCM Lane V/C Ratio	-	-	-	-	0.016	0.001	-	-
HCM Control Delay (s)	0	-	-	0	8.8	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	15	2	27	12	3	59
Future Vol, veh/h	15	2	27	12	3	59
Conflicting Peds, #/hr	0	20	20	0	0	58
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	2	30	13	3	66

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	39	0	111	96
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	73	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1571	-	886	960
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	950	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1541	-	851	890
Mov Cap-2 Maneuver	-	-	-	-	851	-
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	950	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.1	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	888	-	-	1541	-
HCM Lane V/C Ratio	0.078	-	-	0.019	-
HCM Control Delay (s)	9.4	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	10	21	51	17	41	25	115	7	9	95	50
Future Vol, veh/h	34	10	21	51	17	41	25	115	7	9	95	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	3	3	3
Mvmt Flow	38	11	23	57	19	46	28	128	8	10	106	56
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	8.9	9.6	9.4	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	77%	0%	47%	100%	0%	0%
Vol Thru, %	0%	100%	0%	23%	0%	16%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	38%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	115	7	44	21	109	9	95	50
LT Vol	25	0	0	34	0	51	9	0	0
Through Vol	0	115	0	10	0	17	0	95	0
RT Vol	0	0	7	0	21	41	0	0	50
Lane Flow Rate	28	128	8	49	23	121	10	106	56
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.046	0.195	0.01	0.083	0.032	0.187	0.017	0.161	0.074
Departure Headway (Hd)	6.003	5.5	4.795	6.084	4.997	5.557	6.009	5.505	4.8
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	593	648	740	585	710	642	593	648	741
Service Time	3.772	3.268	2.563	3.861	2.774	3.325	3.774	3.27	2.565
HCM Lane V/C Ratio	0.047	0.198	0.011	0.084	0.032	0.188	0.017	0.164	0.076
HCM Control Delay	9.1	9.6	7.6	9.4	7.9	9.6	8.9	9.3	8
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0.7	0	0.3	0.1	0.7	0.1	0.6	0.2

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	124	6	27	85	15	2	24	34	1	0	2
Future Vol, veh/h	23	124	6	27	85	15	2	24	34	1	0	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	26	138	7	30	94	17	2	27	38	1	0	2
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.5	8.5	7.7	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	3%	15%	24%	0%	33%
Vol Thru, %	40%	81%	76%	0%	0%
Vol Right, %	57%	4%	0%	100%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	153	112	15	3
LT Vol	2	23	27	0	1
Through Vol	24	124	85	0	0
RT Vol	34	6	0	15	2
Lane Flow Rate	67	170	124	17	3
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.08	0.202	0.169	0.019	0.004
Departure Headway (Hd)	4.328	4.285	4.882	4.06	4.403
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	833	824	728	871	817
Service Time	2.328	2.382	2.659	1.835	2.407
HCM Lane V/C Ratio	0.08	0.206	0.17	0.02	0.004
HCM Control Delay	7.7	8.5	8.7	6.9	7.4
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.3	0.8	0.6	0.1	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	199	39	121	146	65	61	74	117	78	94	23
Future Volume (veh/h)	21	199	39	121	146	65	61	74	117	78	94	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.67	1.00		0.98	1.00		0.79	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1863	1845	1845	1845
Adj Flow Rate, veh/h	25	240	47	146	176	78	73	89	141	94	113	28
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	50	373	73	164	402	178	101	532	356	120	547	439
Arrive On Green	0.03	0.27	0.27	0.09	0.33	0.33	0.06	0.29	0.29	0.07	0.30	0.30
Sat Flow, veh/h	1774	1386	271	1757	1203	533	1774	1863	1245	1757	1845	1481
Grp Volume(v), veh/h	25	0	287	146	0	254	73	89	141	94	113	28
Grp Sat Flow(s),veh/h/ln	1774	0	1657	1757	0	1736	1774	1863	1245	1757	1845	1481
Q Serve(g_s), s	0.9	0.0	9.7	5.2	0.0	7.2	2.6	2.3	5.8	3.3	2.9	0.9
Cycle Q Clear(g_c), s	0.9	0.0	9.7	5.2	0.0	7.2	2.6	2.3	5.8	3.3	2.9	0.9
Prop In Lane	1.00		0.16	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	50	0	446	164	0	580	101	532	356	120	547	439
V/C Ratio(X)	0.50	0.00	0.64	0.89	0.00	0.44	0.72	0.17	0.40	0.79	0.21	0.06
Avail Cap(c_a), veh/h	140	0	471	164	0	580	140	532	356	139	547	439
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	20.5	28.4	0.0	16.5	29.4	17.0	18.2	29.1	16.7	16.0
Incr Delay (d2), s/veh	7.6	0.0	2.8	41.1	0.0	0.5	10.6	0.7	3.3	22.2	0.9	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	0.5	0.0	4.7	4.4	0.0	3.5	1.6	1.3	2.3	2.4	1.6	0.4
LnGrp Delay(d),s/veh	38.0	0.0	23.3	69.5	0.0	17.0	40.0	17.7	21.5	51.2	17.5	16.2
LnGrp LOS	D		C	E		B	D	B	C	D	B	B
Approach Vol, veh/h		312			400			303			235	
Approach Delay, s/veh		24.4			36.1			24.8			30.9	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	22.6	10.4	21.5	8.1	23.3	6.3	25.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.1	5.9	18.0	5.0	18.1	5.0	18.9
Max Q Clear Time (g_c+I1), s	5.3	7.8	7.2	11.7	4.6	4.9	2.9	9.2
Green Ext Time (p_c), s	0.0	0.7	0.0	0.9	0.0	0.5	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	10	0	4	0	24	5	2	60	0
Future Vol, veh/h	0	0	0	10	0	4	0	24	5	2	60	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	11	0	4	0	27	6	2	67	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	103	104	67	101	101	30	67	0	0	33	0	0
Stage 1	71	71	-	30	30	-	-	-	-	-	-	-
Stage 2	32	33	-	71	71	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	877	786	997	880	789	1044	1535	-	-	1579	-	-
Stage 1	939	836	-	987	870	-	-	-	-	-	-	-
Stage 2	984	868	-	939	836	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	873	785	997	879	788	1044	1535	-	-	1579	-	-
Mov Cap-2 Maneuver	873	785	-	879	788	-	-	-	-	-	-	-
Stage 1	939	835	-	987	870	-	-	-	-	-	-	-
Stage 2	980	868	-	938	835	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9	0	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1535	-	-	-	921	1579	-	-
HCM Lane V/C Ratio	-	-	-	-	0.017	0.001	-	-
HCM Control Delay (s)	0	-	-	0	9	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	5	2	60	22	2	20
Future Vol, veh/h	5	2	60	22	2	20
Conflicting Peds, #/hr	0	14	14	0	0	30
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	2	67	24	2	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	22	0	179	51
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	158	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1593	-	811	1017
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	871	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1572	-	766	975
Mov Cap-2 Maneuver	-	-	-	-	766	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	871	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.4	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	951	-	-	1572	-
HCM Lane V/C Ratio	0.026	-	-	0.042	-
HCM Control Delay (s)	8.9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	8	39	31	8	18	30	90	39	39	121	60
Future Vol, veh/h	24	8	39	31	8	18	30	90	39	39	121	60
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	9	43	34	9	20	33	100	43	43	134	67
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	8.7	9.3	8.8	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	75%	0%	54%	100%	0%	0%
Vol Thru, %	0%	100%	0%	25%	0%	14%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	32%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	90	39	32	39	57	39	121	60
LT Vol	30	0	0	24	0	31	39	0	0
Through Vol	0	90	0	8	0	8	0	121	0
RT Vol	0	0	39	0	39	18	0	0	60
Lane Flow Rate	33	100	43	36	43	63	43	134	67
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.055	0.152	0.057	0.061	0.061	0.102	0.07	0.199	0.086
Departure Headway (Hd)	5.961	5.458	4.754	6.126	5.052	5.823	5.839	5.337	4.633
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	598	654	748	581	703	611	611	670	768
Service Time	3.724	3.221	2.517	3.9	2.825	3.6	3.599	3.096	2.392
HCM Lane V/C Ratio	0.055	0.153	0.057	0.062	0.061	0.103	0.07	0.2	0.087
HCM Control Delay	9.1	9.2	7.8	9.3	8.2	9.3	9	9.4	7.8
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.5	0.2	0.2	0.2	0.3	0.2	0.7	0.3

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	203	16	66	247	9	10	7	42	20	32	20
Future Vol, veh/h	4	203	16	66	247	9	10	7	42	20	32	20
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	239	19	78	291	11	12	8	49	24	38	24
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	10.6	13.9	8.9	9.4
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	17%	2%	21%	0%	28%
Vol Thru, %	12%	91%	79%	0%	44%
Vol Right, %	71%	7%	0%	100%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	223	313	9	72
LT Vol	10	4	66	0	20
Through Vol	7	203	247	0	32
RT Vol	42	16	0	9	20
Lane Flow Rate	69	262	368	11	85
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.101	0.355	0.539	0.013	0.129
Departure Headway (Hd)	5.239	4.877	5.269	4.458	5.489
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	675	732	681	796	646
Service Time	3.336	2.95	3.037	2.225	3.583
HCM Lane V/C Ratio	0.102	0.358	0.54	0.014	0.132
HCM Control Delay	8.9	10.6	14.1	7.3	9.4
HCM Lane LOS	A	B	B	A	A
HCM 95th-tile Q	0.3	1.6	3.2	0	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	178	52	212	272	74	40	84	198	93	122	33
Future Volume (veh/h)	34	178	52	212	272	74	40	84	198	93	122	33
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	36	189	55	226	289	79	43	89	211	99	130	35
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	261	76	272	431	118	75	552	457	127	607	502
Arrive On Green	0.04	0.19	0.19	0.15	0.31	0.31	0.04	0.30	0.30	0.07	0.33	0.33
Sat Flow, veh/h	1774	1375	400	1774	1407	385	1774	1863	1541	1774	1863	1540
Grp Volume(v), veh/h	36	0	244	226	0	368	43	89	211	99	130	35
Grp Sat Flow(s),veh/h/ln	1774	0	1775	1774	0	1792	1774	1863	1541	1774	1863	1540
Q Serve(g_s), s	1.2	0.0	8.0	7.7	0.0	11.2	1.5	2.2	7.0	3.4	3.2	1.0
Cycle Q Clear(g_c), s	1.2	0.0	8.0	7.7	0.0	11.2	1.5	2.2	7.0	3.4	3.2	1.0
Prop In Lane	1.00		0.23	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	0	338	272	0	549	75	552	457	127	607	502
V/C Ratio(X)	0.55	0.00	0.72	0.83	0.00	0.67	0.58	0.16	0.46	0.78	0.21	0.07
Avail Cap(c_a), veh/h	145	0	512	299	0	672	142	552	457	142	607	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	0.0	23.7	25.6	0.0	18.9	29.3	16.2	17.9	28.5	15.2	14.5
Incr Delay (d2), s/veh	6.8	0.0	2.9	16.5	0.0	1.9	6.8	0.6	3.3	21.9	0.8	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	4.2	5.0	0.0	5.8	0.9	1.2	3.3	2.4	1.8	0.4
LnGrp Delay(d),s/veh	36.4	0.0	26.7	42.1	0.0	20.8	36.1	16.8	21.2	50.4	16.0	14.8
LnGrp LOS	D		C	D		C	D	B	C	D	B	B
Approach Vol, veh/h		280			594			343			264	
Approach Delay, s/veh		27.9			28.9			21.9			28.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	23.0	14.1	16.4	7.1	24.8	6.8	23.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	10.5	18.0	5.0	18.5	5.1	23.4
Max Q Clear Time (g_c+I1), s	5.4	9.0	9.7	10.0	3.5	5.2	3.2	13.2
Green Ext Time (p_c), s	0.0	0.8	0.1	0.8	0.0	0.6	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	27.1
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	15	2	27	12	3	59
Future Vol, veh/h	15	2	27	12	3	59
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	2	30	13	3	66
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.1	7.4	6.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	5%	0%	69%
Vol Thru, %	0%	88%	31%
Vol Right, %	95%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	62	17	39
LT Vol	3	0	27
Through Vol	0	15	12
RT Vol	59	2	0
Lane Flow Rate	69	19	43
Geometry Grp	1	1	1
Degree of Util (X)	0.067	0.021	0.051
Departure Headway (Hd)	3.481	4.017	4.208
Convergence, Y/N	Yes	Yes	Yes
Cap	1026	892	853
Service Time	1.512	2.039	2.223
HCM Lane V/C Ratio	0.067	0.021	0.05
HCM Control Delay	6.8	7.1	7.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	5	2	60	22	2	20
Future Vol, veh/h	5	2	60	22	2	20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	2	67	24	2	22
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	6.9	7.6	6.7
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	9%	0%	73%
Vol Thru, %	0%	71%	27%
Vol Right, %	91%	29%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	22	7	82
LT Vol	2	0	60
Through Vol	0	5	22
RT Vol	20	2	0
Lane Flow Rate	24	8	91
Geometry Grp	1	1	1
Degree of Util (X)	0.024	0.008	0.105
Departure Headway (Hd)	3.578	3.874	4.13
Convergence, Y/N	Yes	Yes	Yes
Cap	993	924	872
Service Time	1.626	1.898	2.135
HCM Lane V/C Ratio	0.024	0.009	0.104
HCM Control Delay	6.7	6.9	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0	0.4

Appendix D

Level of Service

Calculations

Existing Plus Project

Conditions

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	12	0	2	0	19	7	3	16	0
Future Vol, veh/h	0	0	0	12	0	2	0	19	7	3	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	13	0	2	0	21	8	3	18	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	50	53	18	49	49	25	18	0	0	29	0	0
Stage 1	24	24	-	25	25	-	-	-	-	-	-	-
Stage 2	26	29	-	24	24	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	950	838	1061	951	843	1051	1599	-	-	1584	-	-
Stage 1	994	875	-	993	874	-	-	-	-	-	-	-
Stage 2	992	871	-	994	875	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	946	836	1061	949	841	1051	1599	-	-	1584	-	-
Mov Cap-2 Maneuver	946	836	-	949	841	-	-	-	-	-	-	-
Stage 1	994	873	-	993	874	-	-	-	-	-	-	-
Stage 2	990	871	-	992	873	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.8	0	1.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1599	-	-	-	962	1584	-	-
HCM Lane V/C Ratio	-	-	-	-	0.016	0.002	-	-
HCM Control Delay (s)	0	-	-	0	8.8	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	15	5	45	12	3	65
Future Vol, veh/h	15	5	45	12	3	65
Conflicting Peds, #/hr	0	20	20	0	0	58
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	6	50	13	3	72

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	43	0	153	98
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	113	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1566	-	839	958
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	912	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1536	-	796	888
Mov Cap-2 Maneuver	-	-	-	-	796	-
Stage 1	-	-	-	-	932	-
Stage 2	-	-	-	-	912	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.9	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	883	-	-	1536	-
HCM Lane V/C Ratio	0.086	-	-	0.033	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	10	23	51	18	41	31	115	7	9	95	61
Future Vol, veh/h	38	10	23	51	18	41	31	115	7	9	95	61
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	3	3	3
Mvmt Flow	42	11	26	57	20	46	34	128	8	10	106	68
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	9.1	9.7	9.5	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	79%	0%	46%	100%	0%	0%
Vol Thru, %	0%	100%	0%	21%	0%	16%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	37%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	115	7	48	23	110	9	95	61
LT Vol	31	0	0	38	0	51	9	0	0
Through Vol	0	115	0	10	0	18	0	95	0
RT Vol	0	0	7	0	23	41	0	0	61
Lane Flow Rate	34	128	8	53	26	122	10	106	68
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.058	0.197	0.01	0.091	0.036	0.191	0.017	0.163	0.091
Departure Headway (Hd)	6.053	5.549	4.844	6.145	5.048	5.618	6.051	5.547	4.842
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	588	641	732	578	701	633	588	642	733
Service Time	3.832	3.328	2.622	3.933	2.836	3.398	3.827	3.323	2.617
HCM Lane V/C Ratio	0.058	0.2	0.011	0.092	0.037	0.193	0.017	0.165	0.093
HCM Control Delay	9.2	9.7	7.7	9.6	8	9.7	8.9	9.4	8.1
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.7	0	0.3	0.1	0.7	0.1	0.6	0.3

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	124	6	27	85	37	2	35	34	7	3	3
Future Vol, veh/h	25	124	6	27	85	37	2	35	34	7	3	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	28	138	7	30	94	41	2	39	38	8	3	3
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.7	8.4	7.9	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	3%	16%	24%	0%	54%
Vol Thru, %	49%	80%	76%	0%	23%
Vol Right, %	48%	4%	0%	100%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	71	155	112	37	13
LT Vol	2	25	27	0	7
Through Vol	35	124	85	0	3
RT Vol	34	6	0	37	3
Lane Flow Rate	79	172	124	41	14
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.097	0.213	0.174	0.048	0.019
Departure Headway (Hd)	4.449	4.46	5.032	4.209	4.781
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	807	808	717	856	750
Service Time	2.467	2.475	2.732	1.909	2.803
HCM Lane V/C Ratio	0.098	0.213	0.173	0.048	0.019
HCM Control Delay	7.9	8.7	8.8	7.1	7.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.3	0.8	0.6	0.2	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	203	41	121	161	69	68	76	117	79	96	23
Future Volume (veh/h)	21	203	41	121	161	69	68	76	117	79	96	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.67	1.00		0.98	1.00		0.79	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1863	1845	1845	1845
Adj Flow Rate, veh/h	25	245	49	146	194	83	82	92	141	95	116	28
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	50	371	74	163	407	174	107	531	355	121	542	435
Arrive On Green	0.03	0.27	0.27	0.09	0.33	0.33	0.06	0.29	0.29	0.07	0.29	0.29
Sat Flow, veh/h	1774	1378	276	1757	1218	521	1774	1863	1245	1757	1845	1480
Grp Volume(v), veh/h	25	0	294	146	0	277	82	92	141	95	116	28
Grp Sat Flow(s),veh/h/ln	1774	0	1654	1757	0	1739	1774	1863	1245	1757	1845	1480
Q Serve(g_s), s	0.9	0.0	10.0	5.2	0.0	8.0	2.9	2.4	5.8	3.4	3.0	0.9
Cycle Q Clear(g_c), s	0.9	0.0	10.0	5.2	0.0	8.0	2.9	2.4	5.8	3.4	3.0	0.9
Prop In Lane	1.00		0.17	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	50	0	446	163	0	581	107	531	355	121	542	435
V/C Ratio(X)	0.50	0.00	0.66	0.89	0.00	0.48	0.77	0.17	0.40	0.79	0.21	0.06
Avail Cap(c_a), veh/h	140	0	469	163	0	581	140	531	355	138	542	435
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	20.6	28.5	0.0	16.7	29.4	17.1	18.3	29.1	16.9	16.1
Incr Delay (d2), s/veh	7.6	0.0	3.2	41.5	0.0	0.6	16.9	0.7	3.3	22.4	0.9	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	0.5	0.0	5.0	4.4	0.0	3.9	1.9	1.3	2.3	2.4	1.7	0.4
LnGrp Delay(d),s/veh	38.0	0.0	23.8	70.0	0.0	17.3	46.3	17.8	21.6	51.5	17.8	16.4
LnGrp LOS	D		C	E		B	D	B	C	D	B	B
Approach Vol, veh/h		319			423			315			239	
Approach Delay, s/veh		24.9			35.5			26.9			31.0	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	22.6	10.4	21.6	8.3	23.1	6.3	25.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.1	5.9	18.0	5.0	18.1	5.0	18.9
Max Q Clear Time (g_c+I1), s	5.4	7.8	7.2	12.0	4.9	5.0	2.9	10.0
Green Ext Time (p_c), s	0.0	0.8	0.0	0.9	0.0	0.5	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.0
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	0	0	64	34	15
Future Vol, veh/h	4	0	0	64	34	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	0	0	70	37	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	115	45	53	0	-	0
Stage 1	45	-	-	-	-	-
Stage 2	70	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	881	1025	1553	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	881	1025	1553	-	-	-
Mov Cap-2 Maneuver	881	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1553	-	881	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	0	-	9.1	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	10	35	62	29	5
Future Vol, veh/h	2	10	35	62	29	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	11	38	67	32	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	178	35	37	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	143	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	812	1038	1574	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	884	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	792	1038	1574	-	-	-
Mov Cap-2 Maneuver	792	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	884	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	2.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1574	-	987	-	-
HCM Lane V/C Ratio	0.024	-	0.013	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	12	0	5	0	24	6	2	60	0
Future Vol, veh/h	0	0	0	12	0	5	0	24	6	2	60	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	13	0	6	0	27	7	2	67	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	105	105	67	102	102	31	67	0	0	34	0	0
Stage 1	71	71	-	31	31	-	-	-	-	-	-	-
Stage 2	34	34	-	71	71	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	875	785	997	879	788	1043	1535	-	-	1578	-	-
Stage 1	939	836	-	986	869	-	-	-	-	-	-	-
Stage 2	982	867	-	939	836	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	870	784	997	878	787	1043	1535	-	-	1578	-	-
Mov Cap-2 Maneuver	870	784	-	878	787	-	-	-	-	-	-	-
Stage 1	939	835	-	986	869	-	-	-	-	-	-	-
Stage 2	977	867	-	938	835	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9	0	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1535	-	-	-	921	1578	-	-
HCM Lane V/C Ratio	-	-	-	-	0.021	0.001	-	-
HCM Control Delay (s)	0	-	-	0	9	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	6.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	5	3	68	22	5	37
Future Vol, veh/h	5	3	68	22	5	37
Conflicting Peds, #/hr	0	14	14	0	0	30
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	3	76	24	6	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	23	0	198	52
Stage 1	-	-	-	-	22	-
Stage 2	-	-	-	-	176	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1592	-	791	1016
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	855	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1571	-	743	974
Mov Cap-2 Maneuver	-	-	-	-	743	-
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	855	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.6	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	939	-	-	1571	-
HCM Lane V/C Ratio	0.05	-	-	0.048	-
HCM Control Delay (s)	9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	9	44	31	9	18	32	90	39	39	121	35
Future Vol, veh/h	35	9	44	31	9	18	32	90	39	39	121	35
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	10	49	34	10	20	36	100	43	43	134	39
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	8.8	9.3	8.8	9.1
HCM LOS	A	A	A	A

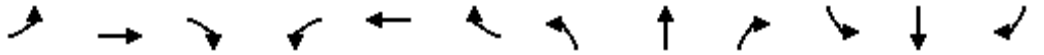
Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	80%	0%	53%	100%	0%	0%
Vol Thru, %	0%	100%	0%	20%	0%	16%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	31%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	32	90	39	44	44	58	39	121	35
LT Vol	32	0	0	35	0	31	39	0	0
Through Vol	0	90	0	9	0	9	0	121	0
RT Vol	0	0	39	0	44	18	0	0	35
Lane Flow Rate	36	100	43	49	49	64	43	134	39
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.059	0.152	0.057	0.083	0.068	0.104	0.071	0.202	0.051
Departure Headway (Hd)	5.979	5.476	4.771	6.107	5.01	5.82	5.903	5.4	4.696
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	596	651	744	583	708	611	604	660	757
Service Time	3.749	3.245	2.541	3.884	2.786	3.601	3.669	3.166	2.461
HCM Lane V/C Ratio	0.06	0.154	0.058	0.084	0.069	0.105	0.071	0.203	0.052
HCM Control Delay	9.1	9.2	7.8	9.4	8.2	9.3	9.1	9.5	7.7
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.5	0.2	0.3	0.2	0.3	0.2	0.8	0.2

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	203	16	66	247	18	10	12	42	42	43	22
Future Vol, veh/h	5	203	16	66	247	18	10	12	42	42	43	22
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	239	19	78	291	21	12	14	49	49	51	26
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	11.3	14.8	9.3	10.2
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	16%	2%	21%	0%	39%
Vol Thru, %	19%	91%	79%	0%	40%
Vol Right, %	66%	7%	0%	100%	21%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	64	224	313	18	107
LT Vol	10	5	66	0	42
Through Vol	12	203	247	0	43
RT Vol	42	16	0	18	22
Lane Flow Rate	75	264	368	21	126
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.116	0.377	0.567	0.028	0.2
Departure Headway (Hd)	5.528	5.147	5.54	4.727	5.73
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	648	701	655	762	626
Service Time	3.57	3.174	3.24	2.427	3.77
HCM Lane V/C Ratio	0.116	0.377	0.562	0.028	0.201
HCM Control Delay	9.3	11.3	15.2	7.6	10.2
HCM Lane LOS	A	B	C	A	B
HCM 95th-tile Q	0.4	1.8	3.6	0.1	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	193	59	212	279	76	43	85	198	97	124	33
Future Volume (veh/h)	34	193	59	212	279	76	43	85	198	97	124	33
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	36	205	63	226	297	81	46	90	211	103	132	35
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	272	84	271	445	121	78	541	447	132	597	493
Arrive On Green	0.04	0.20	0.20	0.15	0.32	0.32	0.04	0.29	0.29	0.07	0.32	0.32
Sat Flow, veh/h	1774	1356	417	1774	1408	384	1774	1863	1540	1774	1863	1539
Grp Volume(v), veh/h	36	0	268	226	0	378	46	90	211	103	132	35
Grp Sat Flow(s),veh/h/ln	1774	0	1773	1774	0	1792	1774	1863	1540	1774	1863	1539
Q Serve(g_s), s	1.3	0.0	9.1	7.9	0.0	11.7	1.6	2.3	7.2	3.6	3.3	1.0
Cycle Q Clear(g_c), s	1.3	0.0	9.1	7.9	0.0	11.7	1.6	2.3	7.2	3.6	3.3	1.0
Prop In Lane	1.00		0.24	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	0	355	271	0	567	78	541	447	132	597	493
V/C Ratio(X)	0.55	0.00	0.75	0.83	0.00	0.67	0.59	0.17	0.47	0.78	0.22	0.07
Avail Cap(c_a), veh/h	142	0	501	292	0	658	139	541	447	139	597	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	24.0	26.2	0.0	18.9	29.9	16.9	18.6	29.0	15.8	15.1
Incr Delay (d2), s/veh	7.0	0.0	4.1	17.4	0.0	2.1	7.0	0.7	3.6	23.6	0.9	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	4.8	5.1	0.0	6.0	0.9	1.3	3.5	2.6	1.8	0.5
LnGrp Delay(d),s/veh	37.2	0.0	28.1	43.6	0.0	21.0	37.0	17.5	22.2	52.6	16.7	15.3
LnGrp LOS	D		C	D		C	D	B	C	D	B	B
Approach Vol, veh/h		304			604			347			270	
Approach Delay, s/veh		29.2			29.4			22.9			30.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	23.0	14.2	17.3	7.3	24.9	6.9	24.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	10.5	18.0	5.0	18.5	5.1	23.4
Max Q Clear Time (g_c+I1), s	5.6	9.2	9.9	11.1	3.6	5.3	3.3	13.7
Green Ext Time (p_c), s	0.0	0.8	0.0	0.8	0.0	0.6	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	28.0
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	0	0	25	65	6
Future Vol, veh/h	12	0	0	25	65	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	0	0	27	71	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	102	75	78	0	-	0
Stage 1	75	-	-	-	-	-
Stage 2	27	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	896	986	1520	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	996	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	896	986	1520	-	-	-
Mov Cap-2 Maneuver	896	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	996	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1520	-	896	-	-
HCM Lane V/C Ratio	-	-	0.015	-	-
HCM Control Delay (s)	0	-	9.1	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	35	15	20	62	3
Future Vol, veh/h	5	35	15	20	62	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	38	16	22	67	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	123	69	70	0	-	0
Stage 1	69	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	872	994	1531	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	862	994	1531	-	-	-
Mov Cap-2 Maneuver	862	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	969	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	3.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1531	-	975	-	-
HCM Lane V/C Ratio	0.011	-	0.045	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	15	5	45	12	3	65
Future Vol, veh/h	15	5	45	12	3	65
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	6	50	13	3	72
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.1	7.6	6.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	4%	0%	79%
Vol Thru, %	0%	75%	21%
Vol Right, %	96%	25%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	68	20	57
LT Vol	3	0	45
Through Vol	0	15	12
RT Vol	65	5	0
Lane Flow Rate	76	22	63
Geometry Grp	1	1	1
Degree of Util (X)	0.074	0.024	0.075
Departure Headway (Hd)	3.516	3.964	4.242
Convergence, Y/N	Yes	Yes	Yes
Cap	1012	902	846
Service Time	1.561	1.994	2.259
HCM Lane V/C Ratio	0.075	0.024	0.074
HCM Control Delay	6.8	7.1	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	5	3	68	22	5	37
Future Vol, veh/h	5	3	68	22	5	37
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	3	76	24	6	41
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	6.9	7.7	6.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	12%	0%	76%
Vol Thru, %	0%	62%	24%
Vol Right, %	88%	38%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	42	8	90
LT Vol	5	0	68
Through Vol	0	5	22
RT Vol	37	3	0
Lane Flow Rate	47	9	100
Geometry Grp	1	1	1
Degree of Util (X)	0.047	0.01	0.116
Departure Headway (Hd)	3.617	3.865	4.173
Convergence, Y/N	Yes	Yes	Yes
Cap	980	923	861
Service Time	1.674	1.9	2.187
HCM Lane V/C Ratio	0.048	0.01	0.116
HCM Control Delay	6.9	6.9	7.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0	0.4

Appendix E

Level of Service

Calculations

Background Without Project

Conditions

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	13	0	2	0	33	8	3	21	0
Future Vol, veh/h	0	0	0	13	0	2	0	33	8	3	21	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	14	0	2	0	37	9	3	23	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	72	75	23	71	71	42	23	0	0	46	0	0
Stage 1	29	29	-	42	42	-	-	-	-	-	-	-
Stage 2	43	46	-	29	29	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	919	815	1054	920	819	1029	1592	-	-	1562	-	-
Stage 1	988	871	-	972	860	-	-	-	-	-	-	-
Stage 2	971	857	-	988	871	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	915	813	1054	918	817	1029	1592	-	-	1562	-	-
Mov Cap-2 Maneuver	915	813	-	918	817	-	-	-	-	-	-	-
Stage 1	988	869	-	972	860	-	-	-	-	-	-	-
Stage 2	969	857	-	986	869	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.9	0	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1592	-	-	-	931	1562	-	-
HCM Lane V/C Ratio	-	-	-	-	0.018	0.002	-	-
HCM Control Delay (s)	0	-	-	0	8.9	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	6	31	31	18	72
Future Vol, veh/h	20	6	31	31	18	72
Conflicting Peds, #/hr	0	20	20	0	0	58
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	7	34	34	20	80

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	49	0	148	104
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	102	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1558	-	844	951
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	922	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1528	-	809	881
Mov Cap-2 Maneuver	-	-	-	-	809	-
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	922	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.7	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	866	-	-	1528	-
HCM Lane V/C Ratio	0.115	-	-	0.023	-
HCM Control Delay (s)	9.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	10	24	67	18	52	36	126	14	12	106	57
Future Vol, veh/h	36	10	24	67	18	52	36	126	14	12	106	57
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	3	3	3
Mvmt Flow	40	11	27	74	20	58	40	140	16	13	118	63
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	9.3	10.5	9.9	9.3
HCM LOS	A	B	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	78%	0%	49%	100%	0%	0%
Vol Thru, %	0%	100%	0%	22%	0%	13%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	38%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	126	14	46	24	137	12	106	57
LT Vol	36	0	0	36	0	67	12	0	0
Through Vol	0	126	0	10	0	18	0	106	0
RT Vol	0	0	14	0	24	52	0	0	57
Lane Flow Rate	40	140	16	51	27	152	13	118	63
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.07	0.225	0.022	0.091	0.04	0.247	0.023	0.191	0.09
Departure Headway (Hd)	6.285	5.78	5.088	6.438	5.345	5.834	6.328	5.823	5.116
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	571	623	707	557	670	617	569	620	704
Service Time	4.009	3.504	2.797	4.168	3.074	3.558	4.03	3.525	2.818
HCM Lane V/C Ratio	0.07	0.225	0.023	0.092	0.04	0.246	0.023	0.19	0.089
HCM Control Delay	9.5	10.2	7.9	9.8	8.3	10.5	9.2	9.9	8.3
HCM Lane LOS	A	B	A	A	A	B	A	A	A
HCM 95th-tile Q	0.2	0.9	0.1	0.3	0.1	1	0.1	0.7	0.3

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	237	19	27	124	36	6	31	34	22	18	8
Future Vol, veh/h	28	237	19	27	124	36	6	31	34	22	18	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	31	263	21	30	138	40	7	34	38	24	20	9
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	10.8	9.3	8.6	8.8
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	8%	10%	18%	0%	46%
Vol Thru, %	44%	83%	82%	0%	38%
Vol Right, %	48%	7%	0%	100%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	71	284	151	36	48
LT Vol	6	28	27	0	22
Through Vol	31	237	124	0	18
RT Vol	34	19	0	36	8
Lane Flow Rate	79	316	168	40	53
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.109	0.404	0.244	0.049	0.078
Departure Headway (Hd)	4.956	4.611	5.233	4.438	5.255
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	719	779	685	804	678
Service Time	3.011	2.651	2.978	2.183	3.315
HCM Lane V/C Ratio	0.11	0.406	0.245	0.05	0.078
HCM Control Delay	8.6	10.8	9.7	7.4	8.8
HCM Lane LOS	A	B	A	A	A
HCM 95th-tile Q	0.4	2	1	0.2	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	301	51	130	181	75	67	83	151	88	111	26
Future Volume (veh/h)	32	301	51	130	181	75	67	83	151	88	111	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.68	1.00		0.98	1.00		0.78	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1863	1845	1845	1845
Adj Flow Rate, veh/h	39	363	61	157	218	90	81	100	182	106	134	31
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	69	399	67	160	405	167	105	519	345	135	547	439
Arrive On Green	0.04	0.28	0.28	0.09	0.33	0.33	0.06	0.28	0.28	0.08	0.30	0.30
Sat Flow, veh/h	1774	1442	242	1757	1232	509	1774	1863	1237	1757	1845	1481
Grp Volume(v), veh/h	39	0	424	157	0	308	81	100	182	106	134	31
Grp Sat Flow(s),veh/h/ln	1774	0	1685	1757	0	1741	1774	1863	1237	1757	1845	1481
Q Serve(g_s), s	1.4	0.0	15.8	5.8	0.0	9.4	2.9	2.7	8.1	3.9	3.6	1.0
Cycle Q Clear(g_c), s	1.4	0.0	15.8	5.8	0.0	9.4	2.9	2.7	8.1	3.9	3.6	1.0
Prop In Lane	1.00		0.14	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	69	0	466	160	0	572	105	519	345	135	547	439
V/C Ratio(X)	0.57	0.00	0.91	0.98	0.00	0.54	0.77	0.19	0.53	0.79	0.25	0.07
Avail Cap(c_a), veh/h	137	0	467	160	0	572	137	519	345	135	547	439
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	0.0	22.7	29.5	0.0	17.8	30.1	17.9	19.8	29.5	17.3	16.4
Incr Delay (d2), s/veh	7.1	0.0	21.7	66.3	0.0	1.0	17.9	0.8	5.7	25.6	1.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	10.1	5.7	0.0	4.6	2.0	1.5	3.3	2.8	2.0	0.4
LnGrp Delay(d),s/veh	37.8	0.0	44.4	95.8	0.0	18.8	48.1	18.7	25.5	55.1	18.4	16.7
LnGrp LOS	D		D	F		B	D	B	C	E	B	B
Approach Vol, veh/h		463			465			363			271	
Approach Delay, s/veh		43.8			44.8			28.7			32.6	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	22.6	10.4	22.5	8.3	23.7	7.0	25.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.1	5.9	18.0	5.0	18.1	5.0	18.9
Max Q Clear Time (g_c+I1), s	5.9	10.1	7.8	17.8	4.9	5.6	3.4	11.4
Green Ext Time (p_c), s	0.0	0.8	0.0	0.1	0.0	0.6	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	38.6
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	13	0	5	0	33	6	2	74	0
Future Vol, veh/h	0	0	0	13	0	5	0	33	6	2	74	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	14	0	6	0	37	7	2	82	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	130	130	82	127	127	41	82	0	0	44	0	0
Stage 1	86	86	-	41	41	-	-	-	-	-	-	-
Stage 2	44	44	-	86	86	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	843	761	978	846	764	1030	1515	-	-	1564	-	-
Stage 1	922	824	-	974	861	-	-	-	-	-	-	-
Stage 2	970	858	-	922	824	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	838	760	978	845	763	1030	1515	-	-	1564	-	-
Mov Cap-2 Maneuver	838	760	-	845	763	-	-	-	-	-	-	-
Stage 1	922	823	-	974	861	-	-	-	-	-	-	-
Stage 2	965	858	-	921	823	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.1	0	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1515	-	-	-	889	1564	-	-
HCM Lane V/C Ratio	-	-	-	-	0.022	0.001	-	-
HCM Control Delay (s)	0	-	-	0	9.1	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	16	73	30	9	28
Future Vol, veh/h	24	16	73	30	9	28
Conflicting Peds, #/hr	0	14	14	0	0	30
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	18	81	33	10	31

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	59	0	245	80
Stage 1	-	-	-	-	50	-
Stage 2	-	-	-	-	195	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1545	-	743	980
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	838	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1524	-	694	939
Mov Cap-2 Maneuver	-	-	-	-	694	-
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	838	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	865	-	-	1524	-
HCM Lane V/C Ratio	0.048	-	-	0.053	-
HCM Control Delay (s)	9.4	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	9	50	39	8	24	35	101	56	51	144	63
Future Vol, veh/h	31	9	50	39	8	24	35	101	56	51	144	63
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	10	56	43	9	27	39	112	62	57	160	70
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	9.1	9.9	9.3	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	78%	0%	55%	100%	0%	0%
Vol Thru, %	0%	100%	0%	22%	0%	11%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	34%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	101	56	40	50	71	51	144	63
LT Vol	35	0	0	31	0	39	51	0	0
Through Vol	0	101	0	9	0	8	0	144	0
RT Vol	0	0	56	0	50	24	0	0	63
Lane Flow Rate	39	112	62	44	56	79	57	160	70
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.068	0.18	0.088	0.08	0.084	0.136	0.097	0.251	0.096
Departure Headway (Hd)	6.293	5.789	5.084	6.504	5.416	6.184	6.15	5.646	4.941
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	572	622	707	552	662	581	585	638	729
Service Time	4.005	3.501	2.795	4.233	3.145	3.913	3.859	3.355	2.649
HCM Lane V/C Ratio	0.068	0.18	0.088	0.08	0.085	0.136	0.097	0.251	0.096
HCM Control Delay	9.5	9.8	8.3	9.8	8.6	9.9	9.5	10.2	8.2
HCM Lane LOS	A	A	A	A	A	A	A	B	A
HCM 95th-tile Q	0.2	0.7	0.3	0.3	0.3	0.5	0.3	1	0.3

Intersection	
Intersection Delay, s/veh	23.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	292	24	66	375	25	23	6	42	57	58	27
Future Vol, veh/h	9	292	24	66	375	25	23	6	42	57	58	27
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	344	28	78	441	29	27	7	49	67	68	32
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	17.4	33.4	11	12.7
HCM LOS	C	D	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	32%	3%	15%	0%	40%
Vol Thru, %	8%	90%	85%	0%	41%
Vol Right, %	59%	7%	0%	100%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	71	325	441	25	142
LT Vol	23	9	66	0	57
Through Vol	6	292	375	0	58
RT Vol	42	24	0	25	27
Lane Flow Rate	84	382	519	29	167
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.157	0.608	0.859	0.042	0.312
Departure Headway (Hd)	6.761	5.726	5.961	5.175	6.726
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	533	623	602	685	538
Service Time	4.771	3.821	3.743	2.957	4.726
HCM Lane V/C Ratio	0.158	0.613	0.862	0.042	0.31
HCM Control Delay	11	17.4	34.8	8.2	12.7
HCM Lane LOS	B	C	D	A	B
HCM 95th-tile Q	0.6	4.1	9.6	0.1	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	258	63	254	387	89	56	95	239	107	144	77
Future Volume (veh/h)	45	258	63	254	387	89	56	95	239	107	144	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	48	274	67	270	412	95	60	101	254	114	153	82
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	329	80	276	498	115	89	511	422	132	556	458
Arrive On Green	0.04	0.23	0.23	0.16	0.34	0.34	0.05	0.27	0.27	0.07	0.30	0.30
Sat Flow, veh/h	1774	1437	351	1774	1463	337	1774	1863	1537	1774	1863	1536
Grp Volume(v), veh/h	48	0	341	270	0	507	60	101	254	114	153	82
Grp Sat Flow(s),veh/h/ln	1774	0	1789	1774	0	1801	1774	1863	1537	1774	1863	1536
Q Serve(g_s), s	1.8	0.0	12.2	10.2	0.0	17.4	2.2	2.8	9.7	4.3	4.2	2.7
Cycle Q Clear(g_c), s	1.8	0.0	12.2	10.2	0.0	17.4	2.2	2.8	9.7	4.3	4.2	2.7
Prop In Lane	1.00		0.20	1.00		0.19	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	409	276	0	613	89	511	422	132	556	458
V/C Ratio(X)	0.62	0.00	0.83	0.98	0.00	0.83	0.68	0.20	0.60	0.87	0.28	0.18
Avail Cap(c_a), veh/h	134	0	478	276	0	625	132	511	422	132	556	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	0.0	24.8	28.3	0.0	20.4	31.5	18.8	21.3	30.9	18.1	17.5
Incr Delay (d2), s/veh	7.6	0.0	10.7	47.6	0.0	8.9	8.6	0.9	6.2	41.5	1.2	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	7.3	8.6	0.0	10.1	1.3	1.6	4.8	3.6	2.4	1.2
LnGrp Delay(d),s/veh	39.3	0.0	35.5	76.0	0.0	29.3	40.1	19.6	27.5	72.4	19.3	18.4
LnGrp LOS	D		D	E		C	D	B	C	E	B	B
Approach Vol, veh/h		389			777			415			349	
Approach Delay, s/veh		35.9			45.5			27.4			36.4	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	23.0	15.0	19.9	7.9	24.6	7.5	27.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	10.5	18.0	5.0	18.5	5.1	23.4
Max Q Clear Time (g_c+I1), s	6.3	11.7	12.2	14.2	4.2	6.2	3.8	19.4
Green Ext Time (p_c), s	0.0	0.8	0.0	0.7	0.0	0.8	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	38.0
HCM 2010 LOS	D

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	6	31	31	18	72
Future Vol, veh/h	20	6	31	31	18	72
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	7	34	34	20	80
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.2	7.6	7.1
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	20%	0%	50%
Vol Thru, %	0%	77%	50%
Vol Right, %	80%	23%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	90	26	62
LT Vol	18	0	31
Through Vol	0	20	31
RT Vol	72	6	0
Lane Flow Rate	100	29	69
Geometry Grp	1	1	1
Degree of Util (X)	0.102	0.032	0.081
Departure Headway (Hd)	3.662	4.024	4.232
Convergence, Y/N	Yes	Yes	Yes
Cap	971	886	845
Service Time	1.712	2.067	2.264
HCM Lane V/C Ratio	0.103	0.033	0.082
HCM Control Delay	7.1	7.2	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.3	0.1	0.3

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	16	73	30	9	28
Future Vol, veh/h	24	16	73	30	9	28
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	18	81	33	10	31
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.1	7.8	7.1
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	24%	0%	71%
Vol Thru, %	0%	60%	29%
Vol Right, %	76%	40%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	37	40	103
LT Vol	9	0	73
Through Vol	0	24	30
RT Vol	28	16	0
Lane Flow Rate	41	44	114
Geometry Grp	1	1	1
Degree of Util (X)	0.043	0.048	0.133
Departure Headway (Hd)	3.802	3.853	4.183
Convergence, Y/N	Yes	Yes	Yes
Cap	929	926	858
Service Time	1.877	1.892	2.202
HCM Lane V/C Ratio	0.044	0.048	0.133
HCM Control Delay	7.1	7.1	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.2	0.5

Appendix F

Level of Service

Calculations

Background Plus Project

Conditions

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	13	0	2	0	33	10	4	21	0
Future Vol, veh/h	0	0	0	13	0	2	0	33	10	4	21	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	14	0	2	0	37	11	4	23	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	75	79	23	74	74	43	23	0	0	48	0	0
Stage 1	31	31	-	43	43	-	-	-	-	-	-	-
Stage 2	44	48	-	31	31	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	915	811	1054	916	816	1027	1592	-	-	1559	-	-
Stage 1	986	869	-	971	859	-	-	-	-	-	-	-
Stage 2	970	855	-	986	869	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	911	809	1054	914	814	1027	1592	-	-	1559	-	-
Mov Cap-2 Maneuver	911	809	-	914	814	-	-	-	-	-	-	-
Stage 1	986	866	-	971	859	-	-	-	-	-	-	-
Stage 2	968	855	-	983	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9	0	1.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1592	-	-	-	928	1559	-	-
HCM Lane V/C Ratio	-	-	-	-	0.018	0.003	-	-
HCM Control Delay (s)	0	-	-	0	9	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	9	49	31	18	78
Future Vol, veh/h	20	9	49	31	18	78
Conflicting Peds, #/hr	0	20	20	0	0	58
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	10	54	34	20	87

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	52	0	189	105
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	142	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1554	-	800	949
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1524	-	757	880
Mov Cap-2 Maneuver	-	-	-	-	757	-
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	885	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	854	-	-	1524	-
HCM Lane V/C Ratio	0.125	-	-	0.036	-
HCM Control Delay (s)	9.8	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	10	26	67	19	52	52	126	14	12	106	68
Future Vol, veh/h	40	10	26	67	19	52	52	126	14	12	106	68
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	3	3	3
Mvmt Flow	44	11	29	74	21	58	58	140	16	13	118	76
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	9.5	10.7	10	9.4
HCM LOS	A	B	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	80%	0%	49%	100%	0%	0%
Vol Thru, %	0%	100%	0%	20%	0%	14%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	38%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	52	126	14	50	26	138	12	106	68
LT Vol	52	0	0	40	0	67	12	0	0
Through Vol	0	126	0	10	0	19	0	106	0
RT Vol	0	0	14	0	26	52	0	0	68
Lane Flow Rate	58	140	16	56	29	153	13	118	76
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.102	0.227	0.022	0.101	0.044	0.253	0.024	0.193	0.109
Departure Headway (Hd)	6.352	5.847	5.14	6.546	5.444	5.941	6.392	5.886	5.179
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	565	615	697	548	658	606	561	611	693
Service Time	4.08	3.575	2.868	4.278	3.175	3.669	4.117	3.612	2.904
HCM Lane V/C Ratio	0.103	0.228	0.023	0.102	0.044	0.252	0.023	0.193	0.11
HCM Control Delay	9.8	10.3	8	10	8.4	10.7	9.3	10	8.5
HCM Lane LOS	A	B	A	A	A	B	A	A	A
HCM 95th-tile Q	0.3	0.9	0.1	0.3	0.1	1	0.1	0.7	0.4

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	237	19	27	124	58	6	42	34	22	18	8
Future Vol, veh/h	30	237	19	27	124	58	6	42	34	22	18	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	33	263	21	30	138	64	7	47	38	24	20	9
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	11	9.2	8.9	8.9
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	7%	10%	18%	0%	46%
Vol Thru, %	51%	83%	82%	0%	38%
Vol Right, %	41%	7%	0%	100%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	286	151	58	48
LT Vol	6	30	27	0	22
Through Vol	42	237	124	0	18
RT Vol	34	19	0	58	8
Lane Flow Rate	91	318	168	64	53
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.128	0.412	0.246	0.08	0.079
Departure Headway (Hd)	5.046	4.671	5.277	4.482	5.329
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	706	769	678	795	668
Service Time	3.107	2.717	3.028	2.232	3.399
HCM Lane V/C Ratio	0.129	0.414	0.248	0.081	0.079
HCM Control Delay	8.9	11	9.8	7.6	8.9
HCM Lane LOS	A	B	A	A	A
HCM 95th-tile Q	0.4	2	1	0.3	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	305	53	130	196	79	74	85	151	89	113	26
Future Volume (veh/h)	32	305	53	130	196	79	74	85	151	89	113	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.68	1.00		0.98	1.00		0.78	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1863	1845	1845	1845
Adj Flow Rate, veh/h	39	367	64	157	236	95	89	102	182	107	136	31
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	69	396	69	159	409	164	114	519	344	135	537	431
Arrive On Green	0.04	0.28	0.28	0.09	0.33	0.33	0.06	0.28	0.28	0.08	0.29	0.29
Sat Flow, veh/h	1774	1430	249	1757	1243	500	1774	1863	1236	1757	1845	1479
Grp Volume(v), veh/h	39	0	431	157	0	331	89	102	182	107	136	31
Grp Sat Flow(s),veh/h/ln	1774	0	1680	1757	0	1743	1774	1863	1236	1757	1845	1479
Q Serve(g_s), s	1.4	0.0	16.2	5.8	0.0	10.2	3.2	2.7	8.1	3.9	3.7	1.0
Cycle Q Clear(g_c), s	1.4	0.0	16.2	5.8	0.0	10.2	3.2	2.7	8.1	3.9	3.7	1.0
Prop In Lane	1.00		0.15	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	69	0	465	159	0	573	114	519	344	135	537	431
V/C Ratio(X)	0.57	0.00	0.93	0.98	0.00	0.58	0.78	0.20	0.53	0.79	0.25	0.07
Avail Cap(c_a), veh/h	136	0	465	159	0	573	136	519	344	135	537	431
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	0.0	22.9	29.5	0.0	18.1	30.0	17.9	19.8	29.5	17.6	16.7
Incr Delay (d2), s/veh	7.1	0.0	24.7	66.5	0.0	1.4	21.3	0.8	5.7	26.6	1.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	10.6	5.7	0.0	5.1	2.3	1.5	3.3	2.9	2.0	0.4
LnGrp Delay(d),s/veh	37.8	0.0	47.6	96.0	0.0	19.5	51.2	18.7	25.5	56.1	18.8	17.0
LnGrp LOS	D		D	F		B	D	B	C	E	B	B
Approach Vol, veh/h		470			488			373			274	
Approach Delay, s/veh		46.8			44.1			29.8			33.1	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	22.6	10.4	22.5	8.7	23.4	7.0	25.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.1	5.9	18.0	5.0	18.1	5.0	18.9
Max Q Clear Time (g_c+I1), s	5.9	10.1	7.8	18.2	5.2	5.7	3.4	12.2
Green Ext Time (p_c), s	0.0	0.8	0.0	0.0	0.0	0.6	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	39.7
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	0	0	92	38	15
Future Vol, veh/h	4	0	0	92	38	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	0	0	100	41	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	149	49	57	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	100	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	843	1020	1547	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	924	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	843	1020	1547	-	-	-
Mov Cap-2 Maneuver	843	-	-	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	924	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1547	-	843	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	0	-	9.3	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	10	35	90	33	5
Future Vol, veh/h	2	10	35	90	33	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	11	38	98	36	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	213	39	41	0	-	0
Stage 1	39	-	-	-	-	-
Stage 2	174	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	775	1033	1568	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	856	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	755	1033	1568	-	-	-
Mov Cap-2 Maneuver	755	-	-	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	856	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	2.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1568	-	973	-	-
HCM Lane V/C Ratio	0.024	-	0.013	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	15	0	6	0	33	7	2	74	0
Future Vol, veh/h	0	0	0	15	0	6	0	33	7	2	74	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	17	0	7	0	37	8	2	82	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	131	131	82	127	127	41	82	0	0	45	0	0
Stage 1	86	86	-	41	41	-	-	-	-	-	-	-
Stage 2	45	45	-	86	86	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	841	760	978	846	764	1030	1515	-	-	1563	-	-
Stage 1	922	824	-	974	861	-	-	-	-	-	-	-
Stage 2	969	857	-	922	824	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	835	759	978	845	763	1030	1515	-	-	1563	-	-
Mov Cap-2 Maneuver	835	759	-	845	763	-	-	-	-	-	-	-
Stage 1	922	823	-	974	861	-	-	-	-	-	-	-
Stage 2	963	857	-	921	823	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.1	0	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1515	-	-	-	891	1563	-	-
HCM Lane V/C Ratio	-	-	-	-	0.026	0.001	-	-
HCM Control Delay (s)	0	-	-	0	9.1	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	17	81	30	11	45
Future Vol, veh/h	24	17	81	30	11	45
Conflicting Peds, #/hr	0	14	14	0	0	30
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	19	90	33	12	50

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	60	0	264	81
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	213	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1544	-	725	979
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1523	-	673	938
Mov Cap-2 Maneuver	-	-	-	-	673	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	823	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.5	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	871	-	-	1523	-
HCM Lane V/C Ratio	0.071	-	-	0.059	-
HCM Control Delay (s)	9.5	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	42	10	55	39	9	24	37	101	56	51	144	68
Future Vol, veh/h	42	10	55	39	9	24	37	101	56	51	144	68
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	11	61	43	10	27	41	112	62	57	160	76
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	9.4	10	9.4	9.7
HCM LOS	A	A	A	A

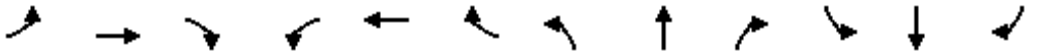
Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	81%	0%	54%	100%	0%	0%
Vol Thru, %	0%	100%	0%	19%	0%	13%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	33%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	101	56	52	55	72	51	144	68
LT Vol	37	0	0	42	0	39	51	0	0
Through Vol	0	101	0	10	0	9	0	144	0
RT Vol	0	0	56	0	55	24	0	0	68
Lane Flow Rate	41	112	62	58	61	80	57	160	76
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.073	0.183	0.089	0.105	0.093	0.139	0.098	0.254	0.105
Departure Headway (Hd)	6.373	5.869	5.162	6.562	5.457	6.269	6.224	5.719	5.013
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	563	613	695	547	658	573	577	629	716
Service Time	4.098	3.594	2.887	4.289	3.184	3.998	3.946	3.442	2.736
HCM Lane V/C Ratio	0.073	0.183	0.089	0.106	0.093	0.14	0.099	0.254	0.106
HCM Control Delay	9.6	9.9	8.4	10.1	8.7	10	9.6	10.4	8.3
HCM Lane LOS	A	A	A	B	A	A	A	B	A
HCM 95th-tile Q	0.2	0.7	0.3	0.3	0.3	0.5	0.3	1	0.4

Intersection	
Intersection Delay, s/veh	24.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	292	24	66	375	34	23	15	42	57	58	27
Future Vol, veh/h	10	292	24	66	375	34	23	15	42	57	58	27
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	344	28	78	441	40	27	18	49	67	68	32
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	18.3	34.2	11.4	12.9
HCM LOS	C	D	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	29%	3%	15%	0%	40%
Vol Thru, %	19%	90%	85%	0%	41%
Vol Right, %	53%	7%	0%	100%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	326	441	34	142
LT Vol	23	10	66	0	57
Through Vol	15	292	375	0	58
RT Vol	42	24	0	34	27
Lane Flow Rate	94	384	519	40	167
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.179	0.628	0.867	0.058	0.315
Departure Headway (Hd)	6.835	5.892	6.118	5.331	6.793
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	526	617	597	676	531
Service Time	4.865	3.892	3.818	3.031	4.818
HCM Lane V/C Ratio	0.179	0.622	0.869	0.059	0.315
HCM Control Delay	11.4	18.3	36.2	8.4	12.9
HCM Lane LOS	B	C	E	A	B
HCM 95th-tile Q	0.6	4.4	9.8	0.2	1.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	273	70	254	394	91	59	96	239	111	146	77
Future Volume (veh/h)	45	273	70	254	394	91	59	96	239	111	146	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	48	290	74	270	419	97	63	102	254	118	155	82
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	338	86	273	508	118	91	505	417	130	547	450
Arrive On Green	0.04	0.24	0.24	0.15	0.35	0.35	0.05	0.27	0.27	0.07	0.29	0.29
Sat Flow, veh/h	1774	1423	363	1774	1462	339	1774	1863	1537	1774	1863	1535
Grp Volume(v), veh/h	48	0	364	270	0	516	63	102	254	118	155	82
Grp Sat Flow(s),veh/h/ln	1774	0	1787	1774	0	1801	1774	1863	1537	1774	1863	1535
Q Serve(g_s), s	1.8	0.0	13.3	10.4	0.0	17.9	2.4	2.9	9.8	4.5	4.4	2.7
Cycle Q Clear(g_c), s	1.8	0.0	13.3	10.4	0.0	17.9	2.4	2.9	9.8	4.5	4.4	2.7
Prop In Lane	1.00		0.20	1.00		0.19	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	424	273	0	626	91	505	417	130	547	450
V/C Ratio(X)	0.62	0.00	0.86	0.99	0.00	0.82	0.70	0.20	0.61	0.91	0.28	0.18
Avail Cap(c_a), veh/h	133	0	472	273	0	626	130	505	417	130	547	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	24.9	28.8	0.0	20.3	31.8	19.2	21.7	31.4	18.6	18.0
Incr Delay (d2), s/veh	7.8	0.0	13.5	51.2	0.0	8.8	9.2	0.9	6.5	51.7	1.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	8.2	8.9	0.0	10.3	1.4	1.6	4.9	4.1	2.4	1.3
LnGrp Delay(d),s/veh	39.8	0.0	38.4	79.9	0.0	29.1	41.0	20.1	28.2	83.1	19.9	18.9
LnGrp LOS	D		D	E		C	D	C	C	F	B	B
Approach Vol, veh/h		412			786			419			355	
Approach Delay, s/veh		38.6			46.6			28.1			40.6	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	23.0	15.0	20.7	8.0	24.5	7.5	28.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	10.5	18.0	5.0	18.5	5.1	23.4
Max Q Clear Time (g_c+I1), s	6.5	11.8	12.4	15.3	4.4	6.4	3.8	19.9
Green Ext Time (p_c), s	0.0	0.8	0.0	0.6	0.0	0.8	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	39.9
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	0	0	40	78	6
Future Vol, veh/h	12	0	0	40	78	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	0	0	43	85	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	132	89	92	0	-	0
Stage 1	89	-	-	-	-	-
Stage 2	43	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	862	969	1503	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	979	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	862	969	1503	-	-	-
Mov Cap-2 Maneuver	862	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	979	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1503	-	862	-	-
HCM Lane V/C Ratio	-	-	0.015	-	-
HCM Control Delay (s)	0	-	9.2	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	35	15	35	75	3
Future Vol, veh/h	5	35	15	35	75	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	38	16	38	82	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	154	84	85	0	-	0
Stage 1	84	-	-	-	-	-
Stage 2	70	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	838	975	1512	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	829	975	1512	-	-	-
Mov Cap-2 Maneuver	829	-	-	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	2.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1512	-	954	-	-
HCM Lane V/C Ratio	0.011	-	0.046	-	-
HCM Control Delay (s)	7.4	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	9	49	31	18	78
Future Vol, veh/h	20	9	49	31	18	78
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	10	54	34	20	87
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.2	7.8	7.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	19%	0%	61%
Vol Thru, %	0%	69%	39%
Vol Right, %	81%	31%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	96	29	80
LT Vol	18	0	49
Through Vol	0	20	31
RT Vol	78	9	0
Lane Flow Rate	107	32	89
Geometry Grp	1	1	1
Degree of Util (X)	0.109	0.036	0.105
Departure Headway (Hd)	3.693	4.004	4.27
Convergence, Y/N	Yes	Yes	Yes
Cap	960	888	838
Service Time	1.756	2.055	2.303
HCM Lane V/C Ratio	0.111	0.036	0.106
HCM Control Delay	7.2	7.2	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.1	0.4

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	17	81	30	11	45
Future Vol, veh/h	24	17	81	30	11	45
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	19	90	33	12	50
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.1	8	7.1
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	20%	0%	73%
Vol Thru, %	0%	59%	27%
Vol Right, %	80%	41%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	56	41	111
LT Vol	11	0	81
Through Vol	0	24	30
RT Vol	45	17	0
Lane Flow Rate	62	46	123
Geometry Grp	1	1	1
Degree of Util (X)	0.065	0.049	0.145
Departure Headway (Hd)	3.78	3.887	4.223
Convergence, Y/N	Yes	Yes	Yes
Cap	933	915	849
Service Time	1.864	1.938	2.251
HCM Lane V/C Ratio	0.066	0.05	0.145
HCM Control Delay	7.1	7.1	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.2	0.5

Appendix G

Level of Service

Calculations

General Plan Without Project

Conditions

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	8	0	45	10	18	0	151	38	6	64	0
Future Vol, veh/h	0	8	0	45	10	18	0	151	38	6	64	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	9	0	50	11	20	0	168	42	7	71	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	290	295	71	279	274	189	71	0	0	210	0	0
Stage 1	85	85	-	189	189	-	-	-	-	-	-	-
Stage 2	205	210	-	90	85	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	662	616	991	673	633	853	1529	-	-	1361	-	-
Stage 1	923	824	-	813	744	-	-	-	-	-	-	-
Stage 2	797	728	-	917	824	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	636	613	991	663	630	853	1529	-	-	1361	-	-
Mov Cap-2 Maneuver	636	613	-	663	630	-	-	-	-	-	-	-
Stage 1	923	820	-	813	744	-	-	-	-	-	-	-
Stage 2	767	728	-	903	820	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	10.9	0	0.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1529	-	-	613	696	1361	-	-
HCM Lane V/C Ratio	-	-	-	0.015	0.117	0.005	-	-
HCM Control Delay (s)	0	-	-	11	10.9	7.7	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	192	9	36	101	14	74
Future Vol, veh/h	192	9	36	101	14	74
Conflicting Peds, #/hr	0	20	20	0	0	58
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	213	10	40	112	16	82

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	243	0	430	296
Stage 1	-	-	-	-	238	-
Stage 2	-	-	-	-	192	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1323	-	582	743
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	841	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1298	-	552	689
Mov Cap-2 Maneuver	-	-	-	-	552	-
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	841	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	663	-	-	1298	-
HCM Lane V/C Ratio	0.147	-	-	0.031	-
HCM Control Delay (s)	11.4	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	42.5
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	124	4	85	99	27	78	41	441	21	25	244	79
Future Vol, veh/h	124	4	85	99	27	78	41	441	21	25	244	79
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
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	3	3	3
Mvmt Flow	135	4	92	108	29	85	45	479	23	27	265	86
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	15.8	21.3	77.6	20.4
HCM LOS	C	C	F	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	97%	0%	49%	100%	0%	0%
Vol Thru, %	0%	100%	0%	3%	0%	13%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	38%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	41	441	21	128	85	204	25	244	79
LT Vol	41	0	0	124	0	99	25	0	0
Through Vol	0	441	0	4	0	27	0	244	0
RT Vol	0	0	21	0	85	78	0	0	79
Lane Flow Rate	45	479	23	139	92	222	27	265	86
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.105	1.058	0.046	0.358	0.207	0.533	0.066	0.612	0.181
Departure Headway (Hd)	8.464	7.947	7.224	9.553	8.334	8.875	9.119	8.599	7.871
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	423	455	495	378	433	408	395	422	459
Service Time	6.222	5.705	4.982	7.253	6.034	6.575	6.819	6.299	5.571
HCM Lane V/C Ratio	0.106	1.053	0.046	0.368	0.212	0.544	0.068	0.628	0.187
HCM Control Delay	12.2	86.9	10.3	17.5	13.2	21.3	12.5	23.9	12.3
HCM Lane LOS	B	F	B	C	B	C	B	C	B
HCM 95th-tile Q	0.3	15.1	0.1	1.6	0.8	3	0.2	4	0.7

Intersection	
Intersection Delay, s/veh	19.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	442	30	40	169	87	9	84	51	33	27	12
Future Vol, veh/h	45	442	30	40	169	87	9	84	51	33	27	12
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
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	49	480	33	43	184	95	10	91	55	36	29	13
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	28	11.5	11.5	10.8
HCM LOS	D	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	6%	9%	19%	0%	46%
Vol Thru, %	58%	85%	81%	0%	38%
Vol Right, %	35%	6%	0%	100%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	144	517	209	87	72
LT Vol	9	45	40	0	33
Through Vol	84	442	169	0	27
RT Vol	51	30	0	87	12
Lane Flow Rate	157	562	227	95	78
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.268	0.822	0.383	0.138	0.143
Departure Headway (Hd)	6.168	5.265	6.076	5.268	6.575
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	579	686	591	678	542
Service Time	4.234	3.307	3.829	3.021	4.653
HCM Lane V/C Ratio	0.271	0.819	0.384	0.14	0.144
HCM Control Delay	11.5	28	12.6	8.9	10.8
HCM Lane LOS	B	D	B	A	B
HCM 95th-tile Q	1.1	8.8	1.8	0.5	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	417	80	156	317	306	111	245	181	202	152	39
Future Volume (veh/h)	45	417	80	156	317	306	111	245	181	202	152	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.68	1.00		0.98	1.00		0.78	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1863	1845	1845	1845
Adj Flow Rate, veh/h	52	485	93	181	369	356	129	285	210	235	177	45
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	83	387	74	159	274	264	136	519	344	135	514	411
Arrive On Green	0.05	0.28	0.28	0.09	0.32	0.32	0.08	0.28	0.28	0.08	0.28	0.28
Sat Flow, veh/h	1774	1398	268	1757	853	823	1774	1863	1236	1757	1845	1475
Grp Volume(v), veh/h	52	0	578	181	0	725	129	285	210	235	177	45
Grp Sat Flow(s),veh/h/ln	1774	0	1666	1757	0	1676	1774	1863	1236	1757	1845	1475
Q Serve(g_s), s	1.9	0.0	18.0	5.9	0.0	20.9	4.7	8.5	9.6	5.0	5.0	1.5
Cycle Q Clear(g_c), s	1.9	0.0	18.0	5.9	0.0	20.9	4.7	8.5	9.6	5.0	5.0	1.5
Prop In Lane	1.00		0.16	1.00		0.49	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	0	461	159	0	538	136	519	344	135	514	411
V/C Ratio(X)	0.63	0.00	1.25	1.14	0.00	1.35	0.95	0.55	0.61	1.74	0.34	0.11
Avail Cap(c_a), veh/h	136	0	461	159	0	538	136	519	344	135	514	411
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	23.5	29.5	0.0	22.1	29.9	20.0	20.4	30.0	18.7	17.5
Incr Delay (d2), s/veh	7.5	0.0	130.6	112.2	0.0	168.7	60.4	4.1	7.8	361.4	1.8	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	1.1	0.0	24.9	7.8	0.0	34.8	4.6	5.0	4.0	16.0	2.8	0.7
LnGrp Delay(d),s/veh	37.9	0.0	154.1	141.7	0.0	190.7	90.2	24.1	28.2	391.4	20.5	18.0
LnGrp LOS	D		F	F		F	F	C	C	F	C	B
Approach Vol, veh/h		630			906			624			457	
Approach Delay, s/veh		144.5			180.9			39.2			211.0	
Approach LOS		F			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	22.6	10.4	22.5	9.5	22.6	7.5	25.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.1	5.9	18.0	5.0	18.1	5.0	18.9
Max Q Clear Time (g_c+I1), s	7.0	11.6	7.9	20.0	6.7	7.0	3.9	22.9
Green Ext Time (p_c), s	0.0	1.5	0.0	0.0	0.0	0.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	143.6
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	11	0	51	11	18	0	158	50	27	250	0
Future Vol, veh/h	0	11	0	51	11	18	0	158	50	27	250	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	0	57	12	20	0	176	56	30	278	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	558	570	278	548	542	204	278	0	0	232	0	0
Stage 1	338	338	-	204	204	-	-	-	-	-	-	-
Stage 2	220	232	-	344	338	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	440	431	761	447	447	837	1285	-	-	1336	-	-
Stage 1	676	641	-	798	733	-	-	-	-	-	-	-
Stage 2	782	713	-	671	641	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	412	419	761	428	435	837	1285	-	-	1336	-	-
Mov Cap-2 Maneuver	412	419	-	428	435	-	-	-	-	-	-	-
Stage 1	676	624	-	798	733	-	-	-	-	-	-	-
Stage 2	751	713	-	640	624	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.9	14.2	0	0.8
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1285	-	-	419	482	1336	-	-
HCM Lane V/C Ratio	-	-	-	0.029	0.184	0.022	-	-
HCM Control Delay (s)	0	-	-	13.9	14.2	7.8	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.7	0.1	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	211	24	70	229	45	33
Future Vol, veh/h	211	24	70	229	45	33
Conflicting Peds, #/hr	0	14	14	0	0	30
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	234	27	78	254	50	37

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	275	0	672	292
Stage 1	-	-	-	-	262	-
Stage 2	-	-	-	-	410	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1288	-	421	747
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	670	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1271	-	386	716
Mov Cap-2 Maneuver	-	-	-	-	386	-
Stage 1	-	-	-	-	717	-
Stage 2	-	-	-	-	670	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	479	-	-	1271	-
HCM Lane V/C Ratio	0.181	-	-	0.061	-
HCM Control Delay (s)	14.2	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	182.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	9	96	60	14	36	77	386	84	87	734	177
Future Vol, veh/h	137	9	96	60	14	36	77	386	84	87	734	177
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	149	10	104	65	15	39	84	420	91	95	798	192
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	20	19.6	57.1	309
HCM LOS	C	C	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	94%	0%	55%	100%	0%	0%
Vol Thru, %	0%	100%	0%	6%	0%	13%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	33%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	77	386	84	146	96	110	87	734	177
LT Vol	77	0	0	137	0	60	87	0	0
Through Vol	0	386	0	9	0	14	0	734	0
RT Vol	0	0	84	0	96	36	0	0	177
Lane Flow Rate	84	420	91	159	104	120	95	798	192
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.208	0.986	0.197	0.438	0.255	0.333	0.234	1.858	0.409
Departure Headway (Hd)	10.181	9.66	8.931	11.294	10.077	11.345	8.902	8.385	7.661
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	355	378	404	321	359	319	403	439	469
Service Time	7.881	7.36	6.631	8.994	7.777	9.045	6.666	6.148	5.424
HCM Lane V/C Ratio	0.237	1.111	0.225	0.495	0.29	0.376	0.236	1.818	0.409
HCM Control Delay	15.5	74.8	13.8	22.5	16.2	19.6	14.4	414.7	15.7
HCM Lane LOS	C	F	B	C	C	C	B	F	C
HCM 95th-tile Q	0.8	11.4	0.7	2.1	1	1.4	0.9	51.5	2

Intersection	
Intersection Delay, s/veh	224.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	458	36	99	719	51	35	30	63	85	87	40
Future Vol, veh/h	15	458	36	99	719	51	35	30	63	85	87	40
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	520	41	113	817	58	40	34	72	97	99	45
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	93.7	381.5	17.8	22.3
HCM LOS	F	F	C	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	27%	3%	12%	0%	40%
Vol Thru, %	23%	90%	88%	0%	41%
Vol Right, %	49%	7%	0%	100%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	128	509	818	51	212
LT Vol	35	15	99	0	85
Through Vol	30	458	719	0	87
RT Vol	63	36	0	51	40
Lane Flow Rate	145	578	930	58	241
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.327	1.08	1.842	0.103	0.522
Departure Headway (Hd)	9.98	7.957	7.44	6.658	9.44
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	362	463	502	541	385
Service Time	7.98	5.957	5.14	4.358	7.44
HCM Lane V/C Ratio	0.401	1.248	1.853	0.107	0.626
HCM Control Delay	17.8	93.7	404.7	10.1	22.3
HCM Lane LOS	C	F	F	B	C
HCM 95th-tile Q	1.4	16	56.8	0.3	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	418	105	305	637	234	89	266	287	396	430	124
Future Volume (veh/h)	46	418	105	305	637	234	89	266	287	396	430	124
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	48	435	109	318	664	244	93	277	299	412	448	129
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	368	92	266	472	174	119	492	406	127	500	411
Arrive On Green	0.04	0.26	0.26	0.15	0.36	0.36	0.07	0.26	0.26	0.07	0.27	0.27
Sat Flow, veh/h	1774	1430	358	1774	1298	477	1774	1863	1535	1774	1863	1530
Grp Volume(v), veh/h	48	0	544	318	0	908	93	277	299	412	448	129
Grp Sat Flow(s),veh/h/ln	1774	0	1789	1774	0	1775	1774	1863	1535	1774	1863	1530
Q Serve(g_s), s	1.9	0.0	18.0	10.5	0.0	25.5	3.6	9.0	12.5	5.0	16.2	4.7
Cycle Q Clear(g_c), s	1.9	0.0	18.0	10.5	0.0	25.5	3.6	9.0	12.5	5.0	16.2	4.7
Prop In Lane	1.00		0.20	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	460	266	0	646	119	492	406	127	500	411
V/C Ratio(X)	0.62	0.00	1.18	1.20	0.00	1.41	0.78	0.56	0.74	3.25	0.90	0.31
Avail Cap(c_a), veh/h	129	0	460	266	0	646	127	492	406	127	500	411
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	0.0	26.0	29.8	0.0	22.3	32.1	22.3	23.5	32.5	24.6	20.4
Incr Delay (d2), s/veh	8.0	0.0	102.6	118.5	0.0	191.8	25.2	4.6	11.3	1033.2	21.2	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	21.9	13.9	0.0	46.8	2.6	5.2	6.6	38.8	11.3	2.2
LnGrp Delay(d),s/veh	40.9	0.0	128.6	148.2	0.0	214.1	57.3	26.9	34.9	1065.7	45.8	22.4
LnGrp LOS	D		F	F		F	E	C	C	F	D	C
Approach Vol, veh/h		592			1226			669			989	
Approach Delay, s/veh		121.5			197.0			34.7			467.6	
Approach LOS		F			F			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	23.0	15.0	22.5	9.2	23.3	7.5	30.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	10.5	18.0	5.0	18.5	5.1	23.4
Max Q Clear Time (g_c+I1), s	7.0	14.5	12.5	20.0	5.6	18.2	3.9	27.5
Green Ext Time (p_c), s	0.0	1.1	0.0	0.0	0.0	0.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	229.9
HCM 2010 LOS	F

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	192	9	36	101	14	74
Future Vol, veh/h	192	9	36	101	14	74
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	213	10	40	112	16	82
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.9	8.5	7.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	16%	0%	26%
Vol Thru, %	0%	96%	74%
Vol Right, %	84%	4%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	88	201	137
LT Vol	14	0	36
Through Vol	0	192	101
RT Vol	74	9	0
Lane Flow Rate	98	223	152
Geometry Grp	1	1	1
Degree of Util (X)	0.117	0.267	0.188
Departure Headway (Hd)	4.291	4.304	4.435
Convergence, Y/N	Yes	Yes	Yes
Cap	836	840	811
Service Time	2.312	2.304	2.453
HCM Lane V/C Ratio	0.117	0.265	0.187
HCM Control Delay	7.9	8.9	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	1.1	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	4	85	99	27	78	41	441	21	25	244	79
Future Volume (veh/h)	124	4	85	99	27	78	41	441	21	25	244	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	135	4	92	108	29	85	45	479	23	27	265	86
Adj No. of Lanes	0	1	1	0	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	3	3	3
Cap, veh/h	508	12	395	260	80	120	88	649	551	58	617	524
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.35	0.35	0.03	0.33	0.33
Sat Flow, veh/h	1264	49	1583	459	320	483	1757	1845	1568	1757	1845	1568
Grp Volume(v), veh/h	139	0	92	222	0	0	45	479	23	27	265	86
Grp Sat Flow(s),veh/h/ln	1313	0	1583	1261	0	0	1757	1845	1568	1757	1845	1568
Q Serve(g_s), s	0.0	0.0	1.7	3.2	0.0	0.0	0.9	8.4	0.4	0.6	4.1	1.4
Cycle Q Clear(g_c), s	3.2	0.0	1.7	6.4	0.0	0.0	0.9	8.4	0.4	0.6	4.1	1.4
Prop In Lane	0.97		1.00	0.49		0.38	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	520	0	395	460	0	0	88	649	551	58	617	524
V/C Ratio(X)	0.27	0.00	0.23	0.48	0.00	0.00	0.51	0.74	0.04	0.47	0.43	0.16
Avail Cap(c_a), veh/h	827	0	773	807	0	0	276	1176	1000	238	1136	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	11.0	12.9	0.0	0.0	17.1	10.5	7.9	17.5	9.5	8.6
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.8	0.0	0.0	4.5	1.7	0.0	5.8	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.8	2.1	0.0	0.0	0.5	4.4	0.2	0.4	2.1	0.6
LnGrp Delay(d),s/veh	11.9	0.0	11.3	13.7	0.0	0.0	21.6	12.1	7.9	23.3	10.0	8.8
LnGrp LOS	B		B	B			C	B	A	C	B	A
Approach Vol, veh/h		231			222			547			378	
Approach Delay, s/veh		11.6			13.7			12.7			10.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	17.5		13.7	6.3	16.8		13.7
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	5.8	22.7		18.0
Max Q Clear Time (g_c+I1), s	2.6	10.4		5.2	2.9	6.1		8.4
Green Ext Time (p_c), s	0.0	2.6		0.9	0.0	1.6		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	12.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	442	30	40	169	87	9	84	51	33	27	12
Future Volume (veh/h)	45	442	30	40	169	87	9	84	51	33	27	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	49	480	33	43	184	95	10	91	55	36	29	13
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	96	649	45	87	430	222	125	173	100	244	138	45
Arrive On Green	0.05	0.38	0.38	0.05	0.37	0.37	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1757	1707	117	1757	1148	593	60	1062	611	525	846	274
Grp Volume(v), veh/h	49	0	513	43	0	279	156	0	0	78	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1824	1757	0	1740	1733	0	0	1646	0	0
Q Serve(g_s), s	0.9	0.0	8.0	0.8	0.0	4.0	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	0.0	8.0	0.8	0.0	4.0	2.7	0.0	0.0	1.2	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.34	0.06		0.35	0.46		0.17
Lane Grp Cap(c), veh/h	96	0	693	87	0	652	398	0	0	427	0	0
V/C Ratio(X)	0.51	0.00	0.74	0.50	0.00	0.43	0.39	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	323	0	1184	270	0	1077	1149	0	0	1073	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.2	0.0	8.9	15.3	0.0	7.7	12.7	0.0	0.0	12.1	0.0	0.0
Incr Delay (d2), s/veh	4.1	0.0	1.6	4.3	0.0	0.4	0.6	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	4.3	0.5	0.0	1.9	1.4	0.0	0.0	0.7	0.0	0.0
LnGrp Delay(d),s/veh	19.3	0.0	10.4	19.7	0.0	8.2	13.4	0.0	0.0	12.3	0.0	0.0
LnGrp LOS	B		B	B		A	B			B		
Approach Vol, veh/h		562			322			156			78	
Approach Delay, s/veh		11.2			9.7			13.4			12.3	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		9.9	6.1	17.1		9.9	6.3	16.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		19.9	5.1	21.5		19.9	6.1	20.5
Max Q Clear Time (g_c+I1), s		4.7	2.8	10.0		3.2	2.9	6.0
Green Ext Time (p_c), s		0.7	0.0	2.6		0.3	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	417	80	156	317	306	111	245	181	202	152	39
Future Volume (veh/h)	45	417	80	156	317	306	111	245	181	202	152	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.66	1.00		0.98	1.00		0.76	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1845	1863	1863	1863	1845	1845	1845
Adj Flow Rate, veh/h	52	485	93	181	369	356	129	285	210	235	177	45
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	2	1	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	82	712	133	221	629	523	163	477	309	296	463	378
Arrive On Green	0.05	0.26	0.26	0.13	0.34	0.34	0.09	0.26	0.26	0.09	0.25	0.25
Sat Flow, veh/h	1774	2723	510	1757	1845	1533	1774	1863	1206	3408	1845	1506
Grp Volume(v), veh/h	52	311	267	181	369	356	129	285	210	235	177	45
Grp Sat Flow(s),veh/h/ln	1774	1770	1463	1757	1845	1533	1774	1863	1206	1704	1845	1506
Q Serve(g_s), s	1.9	10.5	11.0	6.7	11.0	13.3	4.8	9.0	10.5	4.5	5.3	1.5
Cycle Q Clear(g_c), s	1.9	10.5	11.0	6.7	11.0	13.3	4.8	9.0	10.5	4.5	5.3	1.5
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	82	463	383	221	629	523	163	477	309	296	463	378
V/C Ratio(X)	0.63	0.67	0.70	0.82	0.59	0.68	0.79	0.60	0.68	0.79	0.38	0.12
Avail Cap(c_a), veh/h	133	477	395	224	629	523	173	550	356	296	525	429
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	22.1	22.3	28.4	18.1	18.9	29.7	21.8	22.4	29.9	20.7	19.3
Incr Delay (d2), s/veh	7.8	3.5	5.1	20.6	1.4	3.6	20.7	1.4	4.3	13.8	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	5.6	5.0	4.5	5.8	6.1	3.3	4.8	3.8	2.7	2.8	0.7
LnGrp Delay(d),s/veh	39.0	25.6	27.4	49.0	19.5	22.4	50.3	23.2	26.7	43.6	21.2	19.4
LnGrp LOS	D	C	C	D	B	C	D	C	C	D	C	B
Approach Vol, veh/h		630			906			624			457	
Approach Delay, s/veh		27.5			26.6			30.0			32.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	21.6	12.9	22.0	10.6	21.3	7.6	27.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.8	19.7	8.5	18.0	6.5	19.0	5.0	21.5
Max Q Clear Time (g_c+I1), s	6.5	12.5	8.7	13.0	6.8	7.3	3.9	15.3
Green Ext Time (p_c), s	0.0	1.6	0.0	1.7	0.0	0.8	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	28.6
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	211	24	70	229	45	33
Future Vol, veh/h	211	24	70	229	45	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	234	27	78	254	50	37
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.6	10.7	8.9
HCM LOS	A	B	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	58%	0%	23%
Vol Thru, %	0%	90%	77%
Vol Right, %	42%	10%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	78	235	299
LT Vol	45	0	70
Through Vol	0	211	229
RT Vol	33	24	0
Lane Flow Rate	87	261	332
Geometry Grp	1	1	1
Degree of Util (X)	0.123	0.323	0.414
Departure Headway (Hd)	5.096	4.452	4.481
Convergence, Y/N	Yes	Yes	Yes
Cap	701	807	804
Service Time	3.142	2.481	2.51
HCM Lane V/C Ratio	0.124	0.323	0.413
HCM Control Delay	8.9	9.6	10.7
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.4	1.4	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	9	96	60	14	36	77	386	84	87	734	177
Future Volume (veh/h)	137	9	96	60	14	36	77	386	84	87	734	177
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	149	10	104	65	15	39	84	420	91	95	798	192
Adj No. of Lanes	0	1	1	0	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	20	326	159	48	55	112	924	785	123	935	795
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.06	0.50	0.50	0.07	0.50	0.50
Sat Flow, veh/h	1126	96	1583	316	234	268	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	159	0	104	119	0	0	84	420	91	95	798	192
Grp Sat Flow(s),veh/h/ln	1223	0	1583	818	0	0	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	0.0	3.3	2.7	0.0	0.0	2.7	8.7	1.8	3.1	22.0	4.1
Cycle Q Clear(g_c), s	7.2	0.0	3.3	9.9	0.0	0.0	2.7	8.7	1.8	3.1	22.0	4.1
Prop In Lane	0.94		1.00	0.55		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	0	326	263	0	0	112	924	785	123	935	795
V/C Ratio(X)	0.43	0.00	0.32	0.45	0.00	0.00	0.75	0.45	0.12	0.77	0.85	0.24
Avail Cap(c_a), veh/h	506	0	483	404	0	0	165	1070	910	289	1200	1020
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	19.9	22.8	0.0	0.0	27.2	9.7	8.0	27.0	12.8	8.3
Incr Delay (d2), s/veh	0.8	0.0	0.6	1.2	0.0	0.0	9.9	0.4	0.1	9.8	5.0	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	2.4	0.0	1.5	1.9	0.0	0.0	1.6	4.5	0.8	1.9	12.4	1.8
LnGrp Delay(d),s/veh	22.2	0.0	20.5	24.0	0.0	0.0	37.1	10.0	8.0	36.8	17.8	8.5
LnGrp LOS	C		C	C			D	B	A	D	B	A
Approach Vol, veh/h		263			119			595			1085	
Approach Delay, s/veh		21.5			24.0			13.5			17.8	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.6	33.8		16.6	8.2	34.1		16.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.6	33.9		18.0	5.5	38.0		18.0
Max Q Clear Time (g_c+I1), s	5.1	10.7		9.2	4.7	24.0		11.9
Green Ext Time (p_c), s	0.1	3.0		0.8	0.0	5.6		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	17.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	458	36	99	719	51	35	30	63	85	87	40
Future Volume (veh/h)	15	458	36	99	719	51	35	30	63	85	87	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	17	520	41	112	817	58	40	34	72	97	99	45
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	840	66	146	952	68	138	103	156	195	145	57
Arrive On Green	0.02	0.49	0.49	0.08	0.55	0.55	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1774	1705	134	1774	1719	122	307	554	838	564	776	308
Grp Volume(v), veh/h	17	0	561	112	0	875	146	0	0	241	0	0
Grp Sat Flow(s),veh/h/ln	1774	0	1839	1774	0	1841	1699	0	0	1648	0	0
Q Serve(g_s), s	0.5	0.0	12.6	3.5	0.0	22.8	0.0	0.0	0.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	12.6	3.5	0.0	22.8	4.2	0.0	0.0	7.6	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.07	0.27		0.49	0.40		0.19
Lane Grp Cap(c), veh/h	37	0	906	146	0	1020	398	0	0	397	0	0
V/C Ratio(X)	0.46	0.00	0.62	0.77	0.00	0.86	0.37	0.00	0.00	0.61	0.00	0.00
Avail Cap(c_a), veh/h	160	0	1180	354	0	1384	623	0	0	623	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.4	0.0	10.5	25.4	0.0	10.7	20.4	0.0	0.0	21.7	0.0	0.0
Incr Delay (d2), s/veh	8.8	0.0	0.7	8.2	0.0	4.2	0.6	0.0	0.0	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	6.4	2.0	0.0	12.6	2.1	0.0	0.0	3.7	0.0	0.0
LnGrp Delay(d),s/veh	36.2	0.0	11.2	33.6	0.0	15.0	21.0	0.0	0.0	23.2	0.0	0.0
LnGrp LOS	D		B	C		B	C			C		
Approach Vol, veh/h		578			987			146			241	
Approach Delay, s/veh		11.9			17.1			21.0			23.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		15.1	9.1	32.4		15.1	5.7	35.8
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		18.9	11.3	36.3		18.9	5.1	42.5
Max Q Clear Time (g_c+I1), s		6.2	5.5	14.6		9.6	2.5	24.8
Green Ext Time (p_c), s		0.6	0.1	3.8		0.9	0.0	6.5

Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	418	105	305	637	234	89	266	287	396	430	124
Future Volume (veh/h)	46	418	105	305	637	234	89	266	287	396	430	124
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	48	435	109	318	664	244	93	277	299	412	448	129
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	2	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	624	155	359	718	607	119	411	336	487	550	459
Arrive On Green	0.04	0.22	0.22	0.20	0.39	0.39	0.07	0.22	0.22	0.14	0.30	0.30
Sat Flow, veh/h	1774	2793	693	1774	1863	1575	1774	1863	1526	3442	1863	1554
Grp Volume(v), veh/h	48	274	270	318	664	244	93	277	299	412	448	129
Grp Sat Flow(s),veh/h/ln	1774	1770	1716	1774	1863	1575	1774	1863	1526	1721	1863	1554
Q Serve(g_s), s	2.3	12.1	12.3	14.8	28.8	9.5	4.4	11.5	16.1	9.9	18.9	5.4
Cycle Q Clear(g_c), s	2.3	12.1	12.3	14.8	28.8	9.5	4.4	11.5	16.1	9.9	18.9	5.4
Prop In Lane	1.00		0.40	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	71	395	383	359	718	607	119	411	336	487	550	459
V/C Ratio(X)	0.68	0.69	0.70	0.89	0.92	0.40	0.78	0.67	0.89	0.85	0.81	0.28
Avail Cap(c_a), veh/h	105	395	383	431	758	641	136	440	360	508	571	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	30.2	30.3	32.9	24.9	18.9	38.9	30.2	32.0	35.5	27.7	23.0
Incr Delay (d2), s/veh	10.7	5.1	5.7	17.3	16.6	0.4	22.6	3.7	21.9	12.1	8.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	6.4	6.5	9.0	18.1	4.2	2.9	6.3	8.8	5.5	11.0	2.4
LnGrp Delay(d),s/veh	50.9	35.4	36.1	50.2	41.4	19.4	61.5	34.0	53.9	47.6	36.3	23.3
LnGrp LOS	D	D	D	D	D	B	E	C	D	D	D	C
Approach Vol, veh/h		592			1226			669			989	
Approach Delay, s/veh		37.0			39.3			46.7			39.3	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	23.2	21.6	23.4	10.2	29.5	7.9	37.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	20.0	20.6	18.9	6.5	26.0	5.0	34.5
Max Q Clear Time (g_c+I1), s	11.9	18.1	16.8	14.3	6.4	20.9	4.3	30.8
Green Ext Time (p_c), s	0.1	0.6	0.4	1.4	0.0	1.5	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

Appendix H

Level of Service

Calculations

General Plan Plus Project

Conditions

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	8	0	45	10	18	0	151	40	7	64	0
Future Vol, veh/h	0	8	0	45	10	18	0	151	40	7	64	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	9	0	50	11	20	0	168	44	8	71	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	293	299	71	282	277	190	71	0	0	212	0	0
Stage 1	87	87	-	190	190	-	-	-	-	-	-	-
Stage 2	206	212	-	92	87	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	659	613	991	670	631	852	1529	-	-	1358	-	-
Stage 1	921	823	-	812	743	-	-	-	-	-	-	-
Stage 2	796	727	-	915	823	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	632	609	991	659	627	852	1529	-	-	1358	-	-
Mov Cap-2 Maneuver	632	609	-	659	627	-	-	-	-	-	-	-
Stage 1	921	818	-	812	743	-	-	-	-	-	-	-
Stage 2	766	727	-	900	818	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	10.9	0	0.8
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1529	-	-	609	693	1358	-	-
HCM Lane V/C Ratio	-	-	-	0.015	0.117	0.006	-	-
HCM Control Delay (s)	0	-	-	11	10.9	7.7	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	192	12	54	101	14	80
Future Vol, veh/h	192	12	54	101	14	80
Conflicting Peds, #/hr	0	20	20	0	0	58
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	213	13	60	112	16	89

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	246	0	472	298
Stage 1	-	-	-	-	240	-
Stage 2	-	-	-	-	232	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1320	-	551	741
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	807	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1295	-	514	687
Mov Cap-2 Maneuver	-	-	-	-	514	-
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	807	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	654	-	-	1295	-
HCM Lane V/C Ratio	0.16	-	-	0.046	-
HCM Control Delay (s)	11.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	43.5
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	128	4	87	99	28	78	47	441	21	25	244	90
Future Vol, veh/h	128	4	87	99	28	78	47	441	21	25	244	90
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
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	3	3	3
Mvmt Flow	139	4	95	108	30	85	51	479	23	27	265	98
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	16.1	21.8	80.3	20.6
HCM LOS	C	C	F	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	97%	0%	48%	100%	0%	0%
Vol Thru, %	0%	100%	0%	3%	0%	14%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	38%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	441	21	132	87	205	25	244	90
LT Vol	47	0	0	128	0	99	25	0	0
Through Vol	0	441	0	4	0	28	0	244	0
RT Vol	0	0	21	0	87	78	0	0	90
Lane Flow Rate	51	479	23	143	95	223	27	265	98
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.121	1.07	0.046	0.372	0.214	0.541	0.067	0.617	0.208
Departure Headway (Hd)	8.556	8.039	7.315	9.646	8.426	8.981	9.206	8.686	7.957
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	418	451	489	376	428	403	392	419	454
Service Time	6.315	5.798	5.073	7.346	6.126	6.681	6.906	6.386	5.657
HCM Lane V/C Ratio	0.122	1.062	0.047	0.38	0.222	0.553	0.069	0.632	0.216
HCM Control Delay	12.5	90.9	10.4	17.9	13.4	21.8	12.6	24.4	12.7
HCM Lane LOS	B	F	B	C	B	C	B	C	B
HCM 95th-tile Q	0.4	15.4	0.1	1.7	0.8	3.1	0.2	4	0.8

Intersection	
Intersection Delay, s/veh	21
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	442	30	40	169	109	9	95	51	39	30	13
Future Vol, veh/h	47	442	30	40	169	109	9	95	51	39	30	13
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
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	51	480	33	43	184	118	10	103	55	42	33	14
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	30.9	11.7	12	11.2
HCM LOS	D	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	6%	9%	19%	0%	48%
Vol Thru, %	61%	85%	81%	0%	37%
Vol Right, %	33%	6%	0%	100%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	155	519	209	109	82
LT Vol	9	47	40	0	39
Through Vol	95	442	169	0	30
RT Vol	51	30	0	109	13
Lane Flow Rate	168	564	227	118	89
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.295	0.845	0.392	0.178	0.166
Departure Headway (Hd)	6.299	5.395	6.206	5.396	6.714
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	566	671	577	661	530
Service Time	4.382	3.449	3.973	3.163	4.809
HCM Lane V/C Ratio	0.297	0.841	0.393	0.179	0.168
HCM Control Delay	12	30.9	13	9.3	11.2
HCM Lane LOS	B	D	B	A	B
HCM 95th-tile Q	1.2	9.4	1.9	0.6	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	421	82	156	332	310	118	247	181	203	152	39
Future Volume (veh/h)	45	421	82	156	332	310	118	247	181	203	152	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.68	1.00		0.98	1.00		0.78	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1863	1845	1845	1845
Adj Flow Rate, veh/h	52	490	95	181	386	360	137	287	210	236	177	45
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	83	386	75	159	279	260	136	519	344	135	514	411
Arrive On Green	0.05	0.28	0.28	0.09	0.32	0.32	0.08	0.28	0.28	0.08	0.28	0.28
Sat Flow, veh/h	1774	1394	270	1757	869	810	1774	1863	1236	1757	1845	1475
Grp Volume(v), veh/h	52	0	585	181	0	746	137	287	210	236	177	45
Grp Sat Flow(s),veh/h/ln	1774	0	1664	1757	0	1679	1774	1863	1236	1757	1845	1475
Q Serve(g_s), s	1.9	0.0	18.0	5.9	0.0	20.9	5.0	8.5	9.6	5.0	5.0	1.5
Cycle Q Clear(g_c), s	1.9	0.0	18.0	5.9	0.0	20.9	5.0	8.5	9.6	5.0	5.0	1.5
Prop In Lane	1.00		0.16	1.00		0.48	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	0	461	159	0	539	136	519	344	135	514	411
V/C Ratio(X)	0.63	0.00	1.27	1.14	0.00	1.38	1.00	0.55	0.61	1.75	0.34	0.11
Avail Cap(c_a), veh/h	136	0	461	159	0	539	136	519	344	135	514	411
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	23.5	29.5	0.0	22.1	30.0	20.0	20.4	30.0	18.7	17.5
Incr Delay (d2), s/veh	7.5	0.0	137.4	112.2	0.0	184.5	78.1	4.2	7.8	364.6	1.8	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	1.1	0.0	25.8	7.8	0.0	37.2	5.4	5.0	4.0	16.1	2.8	0.7
LnGrp Delay(d),s/veh	37.9	0.0	160.9	141.7	0.0	206.6	108.1	24.2	28.2	394.6	20.5	18.0
LnGrp LOS	D		F	F		F	F	C	C	F	C	B
Approach Vol, veh/h		637			927			634			458	
Approach Delay, s/veh		150.8			193.9			43.7			213.0	
Approach LOS		F			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	22.6	10.4	22.5	9.5	22.6	7.5	25.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.1	5.9	18.0	5.0	18.1	5.0	18.9
Max Q Clear Time (g_c+I1), s	7.0	11.6	7.9	20.0	7.0	7.0	3.9	22.9
Green Ext Time (p_c), s	0.0	1.5	0.0	0.0	0.0	0.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	151.0
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	0	0	90	51	15
Future Vol, veh/h	4	0	0	90	51	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	0	0	98	55	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	161	63	71	0	-	0
Stage 1	63	-	-	-	-	-
Stage 2	98	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	830	1002	1529	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	926	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	830	1002	1529	-	-	-
Mov Cap-2 Maneuver	830	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	926	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1529	-	830	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	0	-	9.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	10	35	88	46	5
Future Vol, veh/h	2	10	35	88	46	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	11	38	96	50	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	225	53	55	0	-	0
Stage 1	53	-	-	-	-	-
Stage 2	172	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	763	1014	1550	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	858	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	743	1014	1550	-	-	-
Mov Cap-2 Maneuver	743	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	858	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	2.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1550	-	956	-	-
HCM Lane V/C Ratio	0.025	-	0.014	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	11	0	53	11	19	0	158	51	27	250	0
Future Vol, veh/h	0	11	0	53	11	19	0	158	51	27	250	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	0	59	12	21	0	176	57	30	278	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	559	571	278	549	543	205	278	0	0	233	0	0
Stage 1	338	338	-	205	205	-	-	-	-	-	-	-
Stage 2	221	233	-	344	338	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	440	431	761	446	447	836	1285	-	-	1335	-	-
Stage 1	676	641	-	797	732	-	-	-	-	-	-	-
Stage 2	781	712	-	671	641	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	411	419	761	427	435	836	1285	-	-	1335	-	-
Mov Cap-2 Maneuver	411	419	-	427	435	-	-	-	-	-	-	-
Stage 1	676	624	-	797	732	-	-	-	-	-	-	-
Stage 2	749	712	-	640	624	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.9	14.2	0	0.8
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1285	-	-	419	482	1335	-	-
HCM Lane V/C Ratio	-	-	-	0.029	0.191	0.022	-	-
HCM Control Delay (s)	0	-	-	13.9	14.2	7.8	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.7	0.1	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	211	25	84	229	48	50
Future Vol, veh/h	211	25	84	229	48	50
Conflicting Peds, #/hr	0	14	14	0	0	30
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	234	28	93	254	53	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	276	0	702	292
Stage 1	-	-	-	-	262	-
Stage 2	-	-	-	-	440	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1287	-	404	747
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1270	-	365	716
Mov Cap-2 Maneuver	-	-	-	-	365	-
Stage 1	-	-	-	-	706	-
Stage 2	-	-	-	-	649	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	487	-	-	1270	-
HCM Lane V/C Ratio	0.224	-	-	0.073	-
HCM Control Delay (s)	14.5	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	186.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	148	10	101	60	15	36	79	386	84	87	734	182
Future Vol, veh/h	148	10	101	60	15	36	79	386	84	87	734	182
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	161	11	110	65	16	39	86	420	91	95	798	198
Number of Lanes	0	1	1	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	2
HCM Control Delay	20.9	19.9	60.1	317.4
HCM LOS	C	C	F	F

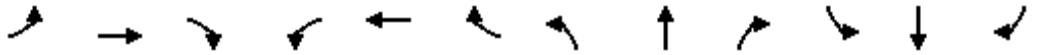
Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	94%	0%	54%	100%	0%	0%
Vol Thru, %	0%	100%	0%	6%	0%	14%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	32%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	386	84	158	101	111	87	734	182
LT Vol	79	0	0	148	0	60	87	0	0
Through Vol	0	386	0	10	0	15	0	734	0
RT Vol	0	0	84	0	101	36	0	0	182
Lane Flow Rate	86	420	91	172	110	121	95	798	198
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.217	1	0.2	0.477	0.27	0.345	0.237	1.888	0.428
Departure Headway (Hd)	10.356	9.834	9.104	11.177	10.016	11.344	9.035	8.517	7.791
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	349	373	397	325	361	320	404	439	467
Service Time	8.056	7.534	6.804	8.877	7.716	9.044	6.653	6.151	5.448
HCM Lane V/C Ratio	0.246	1.126	0.229	0.529	0.305	0.378	0.235	1.818	0.424
HCM Control Delay	15.9	79.1	14.1	23.7	16.4	19.9	14.4	428	16.1
HCM Lane LOS	C	F	B	C	C	C	B	F	C
HCM 95th-tile Q	0.8	11.7	0.7	2.5	1.1	1.5	0.9	53	2.1

Intersection	
Intersection Delay, s/veh	241
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	458	36	99	719	60	35	35	63	107	98	42
Future Vol, veh/h	16	458	36	99	719	60	35	35	63	107	98	42
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	520	41	113	817	68	40	40	72	122	111	48
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	116.3	407.2	19.1	27
HCM LOS	F	F	C	D

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	26%	3%	12%	0%	43%
Vol Thru, %	26%	90%	88%	0%	40%
Vol Right, %	47%	7%	0%	100%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	510	818	60	247
LT Vol	35	16	99	0	107
Through Vol	35	458	719	0	98
RT Vol	63	36	0	60	42
Lane Flow Rate	151	580	930	68	281
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.35	1.142	1.911	0.126	0.614
Departure Headway (Hd)	10.563	8.379	7.815	7.03	9.715
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	343	440	474	513	376
Service Time	8.563	6.379	5.515	4.73	7.715
HCM Lane V/C Ratio	0.44	1.318	1.962	0.133	0.747
HCM Control Delay	19.1	116.3	436.3	10.7	27
HCM Lane LOS	C	F	F	B	D
HCM 95th-tile Q	1.5	17.9	58.1	0.4	3.9



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	433	112	305	644	236	92	267	287	400	432	124
Future Volume (veh/h)	46	433	112	305	644	236	92	267	287	400	432	124
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	48	451	117	318	671	246	96	278	299	417	450	129
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	365	95	266	473	173	123	492	406	127	497	408
Arrive On Green	0.04	0.26	0.26	0.15	0.36	0.36	0.07	0.26	0.26	0.07	0.27	0.27
Sat Flow, veh/h	1774	1419	368	1774	1299	476	1774	1863	1535	1774	1863	1530
Grp Volume(v), veh/h	48	0	568	318	0	917	96	278	299	417	450	129
Grp Sat Flow(s),veh/h/ln	1774	0	1787	1774	0	1776	1774	1863	1535	1774	1863	1530
Q Serve(g_s), s	1.9	0.0	18.0	10.5	0.0	25.5	3.7	9.0	12.5	5.0	16.4	4.7
Cycle Q Clear(g_c), s	1.9	0.0	18.0	10.5	0.0	25.5	3.7	9.0	12.5	5.0	16.4	4.7
Prop In Lane	1.00		0.21	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	459	266	0	646	123	492	406	127	497	408
V/C Ratio(X)	0.62	0.00	1.24	1.20	0.00	1.42	0.78	0.56	0.74	3.29	0.91	0.32
Avail Cap(c_a), veh/h	129	0	459	266	0	646	127	492	406	127	497	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	0.0	26.0	29.8	0.0	22.3	32.1	22.3	23.5	32.5	24.8	20.6
Incr Delay (d2), s/veh	8.0	0.0	124.0	118.5	0.0	197.8	25.9	4.6	11.3	1050.9	22.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	24.6	13.9	0.0	47.9	2.7	5.3	6.6	39.4	11.5	2.2
LnGrp Delay(d),s/veh	40.9	0.0	150.0	148.2	0.0	220.1	57.9	26.9	34.9	1083.4	47.6	22.6
LnGrp LOS	D		F	F		F	E	C	C	F	D	C
Approach Vol, veh/h		616			1235			673			996	
Approach Delay, s/veh		141.5			201.6			34.9			478.0	
Approach LOS		F			F			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	23.0	15.0	22.5	9.3	23.2	7.5	30.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	10.5	18.0	5.0	18.5	5.1	23.4
Max Q Clear Time (g_c+I1), s	7.0	14.5	12.5	20.0	5.7	18.4	3.9	27.5
Green Ext Time (p_c), s	0.0	1.1	0.0	0.0	0.0	0.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	237.4
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	0	0	38	103	6
Future Vol, veh/h	12	0	0	38	103	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	0	0	41	112	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	157	116	119	0	-	0
Stage 1	116	-	-	-	-	-
Stage 2	41	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	834	936	1469	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	834	936	1469	-	-	-
Mov Cap-2 Maneuver	834	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	981	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	834	-	-
HCM Lane V/C Ratio	-	-	0.016	-	-
HCM Control Delay (s)	0	-	9.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	35	15	33	100	3
Future Vol, veh/h	5	35	15	33	100	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	38	16	36	109	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	179	111	112	0	-	0
Stage 1	111	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	811	942	1478	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	802	942	1478	-	-	-
Mov Cap-2 Maneuver	802	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	2.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1478	-	922	-	-
HCM Lane V/C Ratio	0.011	-	0.047	-	-
HCM Control Delay (s)	7.5	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	192	12	54	101	14	80
Future Vol, veh/h	192	12	54	101	14	80
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	213	13	60	112	16	89
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.9	8.7	8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	15%	0%	35%
Vol Thru, %	0%	94%	65%
Vol Right, %	85%	6%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	94	204	155
LT Vol	14	0	54
Through Vol	0	192	101
RT Vol	80	12	0
Lane Flow Rate	104	227	172
Geometry Grp	1	1	1
Degree of Util (X)	0.126	0.272	0.214
Departure Headway (Hd)	4.338	4.32	4.475
Convergence, Y/N	Yes	Yes	Yes
Cap	827	834	804
Service Time	2.359	2.337	2.494
HCM Lane V/C Ratio	0.126	0.272	0.214
HCM Control Delay	8	8.9	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	1.1	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	4	87	99	28	78	47	441	21	25	244	90
Future Volume (veh/h)	128	4	87	99	28	78	47	441	21	25	244	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	139	4	95	108	30	85	51	479	23	27	265	98
Adj No. of Lanes	0	1	1	0	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	3	3	3
Cap, veh/h	507	12	399	257	82	120	97	647	550	58	606	515
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.06	0.35	0.35	0.03	0.33	0.33
Sat Flow, veh/h	1252	48	1583	448	324	476	1757	1845	1568	1757	1845	1568
Grp Volume(v), veh/h	143	0	95	223	0	0	51	479	23	27	265	98
Grp Sat Flow(s),veh/h/ln	1300	0	1583	1249	0	0	1757	1845	1568	1757	1845	1568
Q Serve(g_s), s	0.0	0.0	1.8	3.2	0.0	0.0	1.0	8.4	0.4	0.6	4.2	1.7
Cycle Q Clear(g_c), s	3.4	0.0	1.8	6.6	0.0	0.0	1.0	8.4	0.4	0.6	4.2	1.7
Prop In Lane	0.97		1.00	0.48		0.38	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	519	0	399	459	0	0	97	647	550	58	606	515
V/C Ratio(X)	0.28	0.00	0.24	0.49	0.00	0.00	0.53	0.74	0.04	0.47	0.44	0.19
Avail Cap(c_a), veh/h	819	0	768	798	0	0	284	1169	994	237	1119	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	11.0	12.9	0.0	0.0	17.1	10.5	7.9	17.6	9.8	8.9
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.8	0.0	0.0	4.4	1.7	0.0	5.8	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.8	2.2	0.0	0.0	0.6	4.6	0.2	0.4	2.1	0.7
LnGrp Delay(d),s/veh	11.9	0.0	11.3	13.7	0.0	0.0	21.4	12.2	8.0	23.5	10.3	9.1
LnGrp LOS	B		B	B			C	B	A	C	B	A
Approach Vol, veh/h		238			223			553			390	
Approach Delay, s/veh		11.7			13.7			12.9			10.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	17.5		13.9	6.5	16.7		13.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	6.0	22.5		18.0
Max Q Clear Time (g_c+I1), s	2.6	10.4		5.4	3.0	6.2		8.6
Green Ext Time (p_c), s	0.0	2.6		0.9	0.0	1.7		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	12.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	442	30	40	169	109	9	95	51	39	30	13
Future Volume (veh/h)	47	442	30	40	169	109	9	95	51	39	30	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	51	480	33	43	184	118	10	103	55	42	33	14
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	99	646	44	86	391	251	123	190	97	251	143	44
Arrive On Green	0.06	0.38	0.38	0.05	0.37	0.37	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1757	1707	117	1757	1051	674	54	1117	570	546	840	259
Grp Volume(v), veh/h	51	0	513	43	0	302	168	0	0	89	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1824	1757	0	1726	1742	0	0	1645	0	0
Q Serve(g_s), s	0.9	0.0	8.2	0.8	0.0	4.5	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	0.0	8.2	0.8	0.0	4.5	2.9	0.0	0.0	1.4	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.39	0.06		0.33	0.47		0.16
Lane Grp Cap(c), veh/h	99	0	691	86	0	641	409	0	0	437	0	0
V/C Ratio(X)	0.51	0.00	0.74	0.50	0.00	0.47	0.41	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	319	0	1169	267	0	1055	1140	0	0	1056	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.4	0.0	9.0	15.5	0.0	8.0	12.8	0.0	0.0	12.2	0.0	0.0
Incr Delay (d2), s/veh	4.1	0.0	1.6	4.4	0.0	0.5	0.7	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	4.3	0.5	0.0	2.2	1.5	0.0	0.0	0.7	0.0	0.0
LnGrp Delay(d),s/veh	19.5	0.0	10.6	19.9	0.0	8.6	13.4	0.0	0.0	12.4	0.0	0.0
LnGrp LOS	B		B	B		A	B			B		
Approach Vol, veh/h		564			345			168			89	
Approach Delay, s/veh		11.4			10.0			13.4			12.4	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.2	6.2	17.2		10.2	6.4	17.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		19.9	5.1	21.5		19.9	6.1	20.5
Max Q Clear Time (g_c+I1), s		4.9	2.8	10.2		3.4	2.9	6.5
Green Ext Time (p_c), s		0.7	0.0	2.6		0.4	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	421	82	156	332	310	118	247	181	203	152	39
Future Volume (veh/h)	45	421	82	156	332	310	118	247	181	203	152	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.65	1.00		0.98	1.00		0.78	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1845	1863	1863	1863	1845	1845	1845
Adj Flow Rate, veh/h	52	490	95	181	386	360	137	287	210	236	177	45
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	2	1	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	3	3	3
Cap, veh/h	81	683	129	215	608	505	166	525	349	289	504	413
Arrive On Green	0.05	0.25	0.25	0.12	0.33	0.33	0.09	0.28	0.28	0.08	0.27	0.27
Sat Flow, veh/h	1774	2703	512	1757	1845	1532	1774	1863	1240	3408	1845	1511
Grp Volume(v), veh/h	52	317	268	181	386	360	137	287	210	236	177	45
Grp Sat Flow(s),veh/h/ln	1774	1770	1445	1757	1845	1532	1774	1863	1240	1704	1845	1511
Q Serve(g_s), s	2.0	11.3	11.9	7.0	12.4	14.3	5.3	9.1	10.2	4.7	5.4	1.6
Cycle Q Clear(g_c), s	2.0	11.3	11.9	7.0	12.4	14.3	5.3	9.1	10.2	4.7	5.4	1.6
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	81	447	365	215	608	505	166	525	349	289	504	413
V/C Ratio(X)	0.64	0.71	0.73	0.84	0.64	0.71	0.83	0.55	0.60	0.82	0.35	0.11
Avail Cap(c_a), veh/h	127	458	374	215	608	505	166	525	349	289	504	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	23.7	23.9	29.9	19.8	20.5	31.0	21.2	21.6	31.3	20.3	19.0
Incr Delay (d2), s/veh	8.3	4.9	7.2	25.2	2.2	4.7	27.8	4.1	7.5	16.5	1.9	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	1.2	6.1	5.4	4.9	6.6	6.7	3.9	5.2	4.2	2.9	3.0	0.7
LnGrp Delay(d),s/veh	40.9	28.5	31.0	55.1	22.0	25.2	58.8	25.3	29.1	47.8	22.3	19.5
LnGrp LOS	D	C	C	E	C	C	E	C	C	D	C	B
Approach Vol, veh/h		637			927			634			458	
Approach Delay, s/veh		30.6			29.7			33.8			35.2	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	24.1	13.0	22.1	11.0	23.5	7.7	27.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.9	19.6	8.5	18.0	6.5	19.0	5.0	21.5
Max Q Clear Time (g_c+I1), s	6.7	12.2	9.0	13.9	7.3	7.4	4.0	16.3
Green Ext Time (p_c), s	0.0	1.6	0.0	1.4	0.0	0.8	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	31.8
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	211	25	84	229	48	50
Future Vol, veh/h	211	25	84	229	48	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	234	28	93	254	53	56
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.8	11.1	9.1
HCM LOS	A	B	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	49%	0%	27%
Vol Thru, %	0%	89%	73%
Vol Right, %	51%	11%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	98	236	313
LT Vol	48	0	84
Through Vol	0	211	229
RT Vol	50	25	0
Lane Flow Rate	109	262	348
Geometry Grp	1	1	1
Degree of Util (X)	0.154	0.33	0.44
Departure Headway (Hd)	5.076	4.53	4.553
Convergence, Y/N	Yes	Yes	Yes
Cap	703	792	789
Service Time	3.128	2.569	2.588
HCM Lane V/C Ratio	0.155	0.331	0.441
HCM Control Delay	9.1	9.8	11.1
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.5	1.4	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	10	101	60	15	36	79	386	84	87	734	182
Future Volume (veh/h)	148	10	101	60	15	36	79	386	84	87	734	182
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	161	11	110	65	16	39	86	420	91	95	798	198
Adj No. of Lanes	0	1	1	0	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	354	21	349	154	48	54	111	913	776	123	925	787
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.06	0.49	0.49	0.07	0.50	0.50
Sat Flow, veh/h	1088	93	1583	290	219	245	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	172	0	110	120	0	0	86	420	91	95	798	198
Grp Sat Flow(s),veh/h/ln	1181	0	1583	754	0	0	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	0.0	3.6	2.9	0.0	0.0	2.9	9.1	1.9	3.2	23.2	4.4
Cycle Q Clear(g_c), s	8.4	0.0	3.6	11.3	0.0	0.0	2.9	9.1	1.9	3.2	23.2	4.4
Prop In Lane	0.94		1.00	0.54		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	0	349	257	0	0	111	913	776	123	925	787
V/C Ratio(X)	0.46	0.00	0.31	0.47	0.00	0.00	0.77	0.46	0.12	0.77	0.86	0.25
Avail Cap(c_a), veh/h	473	0	464	360	0	0	159	1029	874	277	1153	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	20.0	23.5	0.0	0.0	28.3	10.3	8.5	28.1	13.6	8.9
Incr Delay (d2), s/veh	0.9	0.0	0.5	1.3	0.0	0.0	13.7	0.4	0.1	9.8	5.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	1.6	2.1	0.0	0.0	1.9	4.8	0.8	1.9	13.2	2.0
LnGrp Delay(d),s/veh	22.8	0.0	20.5	24.8	0.0	0.0	42.0	10.7	8.5	37.9	19.4	9.1
LnGrp LOS	C		C	C			D	B	A	D	B	A
Approach Vol, veh/h		282			120			597			1091	
Approach Delay, s/veh		21.9			24.8			14.9			19.1	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.8	34.6		18.0	8.3	35.0		18.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.6	33.9		18.0	5.5	38.0		18.0
Max Q Clear Time (g_c+I1), s	5.2	11.1		10.4	4.9	25.2		13.3
Green Ext Time (p_c), s	0.1	3.0		0.8	0.0	5.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	458	36	99	719	60	35	35	63	107	98	42
Future Volume (veh/h)	16	458	36	99	719	60	35	35	63	107	98	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	18	520	41	112	817	68	40	40	72	122	111	48
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	841	66	146	940	78	131	127	168	214	153	59
Arrive On Green	0.02	0.49	0.49	0.08	0.55	0.55	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1774	1705	134	1774	1697	141	280	599	791	627	720	277
Grp Volume(v), veh/h	18	0	561	112	0	885	152	0	0	281	0	0
Grp Sat Flow(s),veh/h/ln	1774	0	1839	1774	0	1838	1670	0	0	1624	0	0
Q Serve(g_s), s	0.6	0.0	14.1	3.9	0.0	26.3	0.0	0.0	0.0	5.4	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	14.1	3.9	0.0	26.3	4.9	0.0	0.0	10.2	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.08	0.26		0.47	0.43		0.17
Lane Grp Cap(c), veh/h	38	0	907	146	0	1018	426	0	0	426	0	0
V/C Ratio(X)	0.47	0.00	0.62	0.77	0.00	0.87	0.36	0.00	0.00	0.66	0.00	0.00
Avail Cap(c_a), veh/h	142	0	1157	352	0	1373	676	0	0	674	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	30.7	0.0	11.7	28.6	0.0	12.2	21.6	0.0	0.0	23.5	0.0	0.0
Incr Delay (d2), s/veh	8.9	0.0	0.7	8.2	0.0	4.8	0.5	0.0	0.0	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	7.3	2.3	0.0	14.4	2.3	0.0	0.0	4.9	0.0	0.0
LnGrp Delay(d),s/veh	39.6	0.0	12.4	36.8	0.0	17.0	22.1	0.0	0.0	25.3	0.0	0.0
LnGrp LOS	D		B	D		B	C			C		
Approach Vol, veh/h		579			997			152			281	
Approach Delay, s/veh		13.3			19.2			22.1			25.3	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		18.0	9.7	35.8		18.0	5.9	39.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		23.9	12.6	40.0		23.9	5.1	47.5
Max Q Clear Time (g_c+I1), s		6.9	5.9	16.1		12.2	2.6	28.3
Green Ext Time (p_c), s		0.7	0.1	3.9		1.3	0.0	6.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	433	112	305	644	236	92	267	287	400	432	124
Future Volume (veh/h)	46	433	112	305	644	236	92	267	287	400	432	124
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	48	451	117	318	671	246	96	278	299	417	450	129
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	2	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	561	144	349	674	570	134	415	340	650	626	524
Arrive On Green	0.04	0.20	0.20	0.20	0.36	0.36	0.08	0.22	0.22	0.19	0.34	0.34
Sat Flow, veh/h	1774	2768	711	1774	1863	1575	1774	1863	1526	3442	1863	1558
Grp Volume(v), veh/h	48	287	281	318	671	246	96	278	299	417	450	129
Grp Sat Flow(s),veh/h/ln	1774	1770	1709	1774	1863	1575	1774	1863	1526	1721	1863	1558
Q Serve(g_s), s	2.6	14.7	15.0	16.7	34.3	11.3	5.0	13.0	18.0	10.7	20.2	5.7
Cycle Q Clear(g_c), s	2.6	14.7	15.0	16.7	34.3	11.3	5.0	13.0	18.0	10.7	20.2	5.7
Prop In Lane	1.00		0.42	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	67	359	347	349	674	570	134	415	340	650	626	524
V/C Ratio(X)	0.72	0.80	0.81	0.91	1.00	0.43	0.72	0.67	0.88	0.64	0.72	0.25
Avail Cap(c_a), veh/h	93	381	368	354	674	570	335	479	392	650	626	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	36.1	36.3	37.5	30.3	23.0	43.1	33.8	35.8	35.7	27.7	22.9
Incr Delay (d2), s/veh	14.7	10.9	12.3	26.7	33.4	0.5	7.0	3.0	18.1	4.8	7.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.3	8.2	10.8	23.8	5.0	2.7	7.0	9.3	5.5	11.6	2.6
LnGrp Delay(d),s/veh	60.1	47.1	48.5	64.2	63.8	23.5	50.1	36.8	53.9	40.5	34.7	24.0
LnGrp LOS	E	D	D	E	E	C	D	D	D	D	C	C
Approach Vol, veh/h		616			1235			673			996	
Approach Delay, s/veh		48.7			55.9			46.3			35.7	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.5	25.7	23.3	23.8	11.7	36.5	8.1	39.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	24.5	19.0	20.5	18.0	24.5	5.0	34.5
Max Q Clear Time (g_c+I1), s	12.7	20.0	18.7	17.0	7.0	22.2	4.6	36.3
Green Ext Time (p_c), s	0.8	1.2	0.0	1.2	0.1	0.8	0.0	0.0

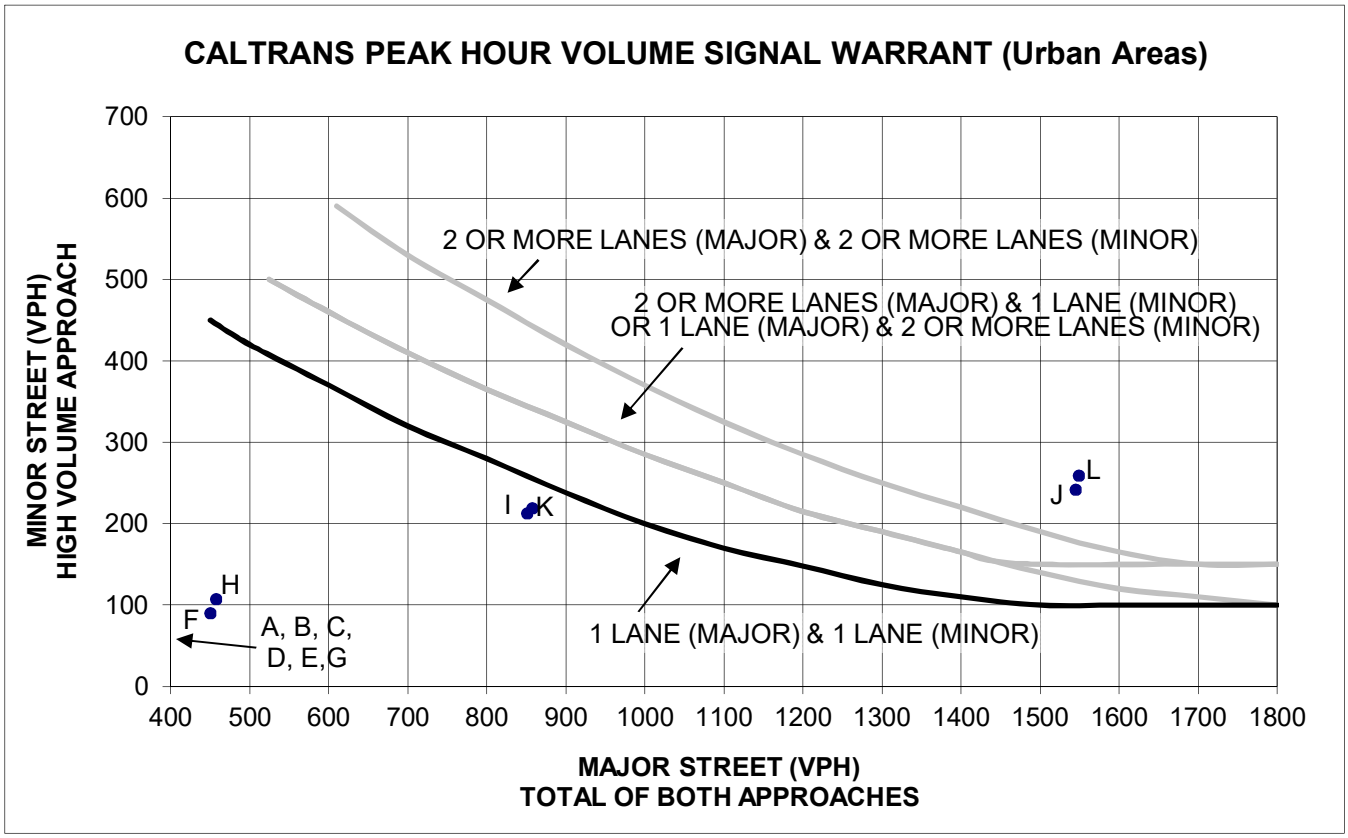
Intersection Summary	
HCM 2010 Ctrl Delay	47.1
HCM 2010 LOS	D

Appendix I

Warrant

Worksheets

Intersection #3
El Camino Real / Cherry Avenue



Scenario	ECR	Cherry	Warrant
	North/South	East/West	Met?
A. Existing AM	301	109	No
B. Existing PM	379	71	No
C. Ex+Pro AM	318	110	No
D. Ex+Pro PM	386	88	No
E. Bkgnd AM	351	137	No
F. Bkgnd PM	450	90	No
G. Bk+Pro AM	378	138	No
H. Bk+Pro PM	457	107	No
I. GPBO AM	851	213	No
J. GPBO PM	1545	242	Yes
K. GP+P AM	857	219	No
L. GP+P PM	1549	259	Yes

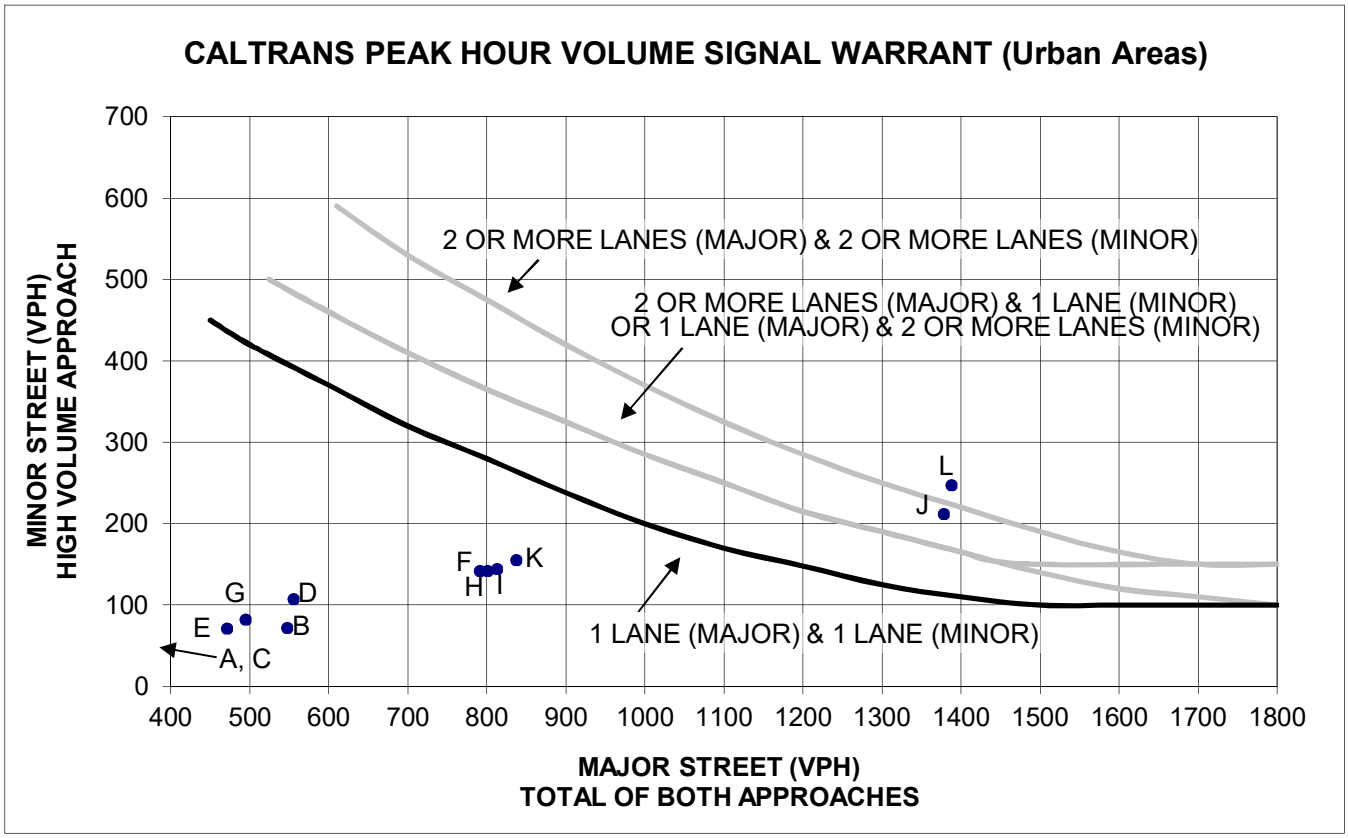
Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

Keith Higgins
Traffic Engineer

Intersection #4
Tenth Street / Walnut Avenue



Scenario	Walnut East/West	Tenth North/South	Warrant Met?
A. Existing AM	280	60	No
B. Existing PM	547	72	No
C. Ex+Pro AM	304	71	No
D. Ex+Pro PM	555	107	No
E. Bkgnd AM	471	71	No
F. Bkgnd PM	791	142	No
G. Bk+Pro AM	495	82	No
H. Bk+Pro PM	801	142	No
I. GPBO AM	813	144	No
J. GPBO PM	1378	212	Yes
K. GP+P AM	837	155	No
L. GP+P PM	1388	247	Yes

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

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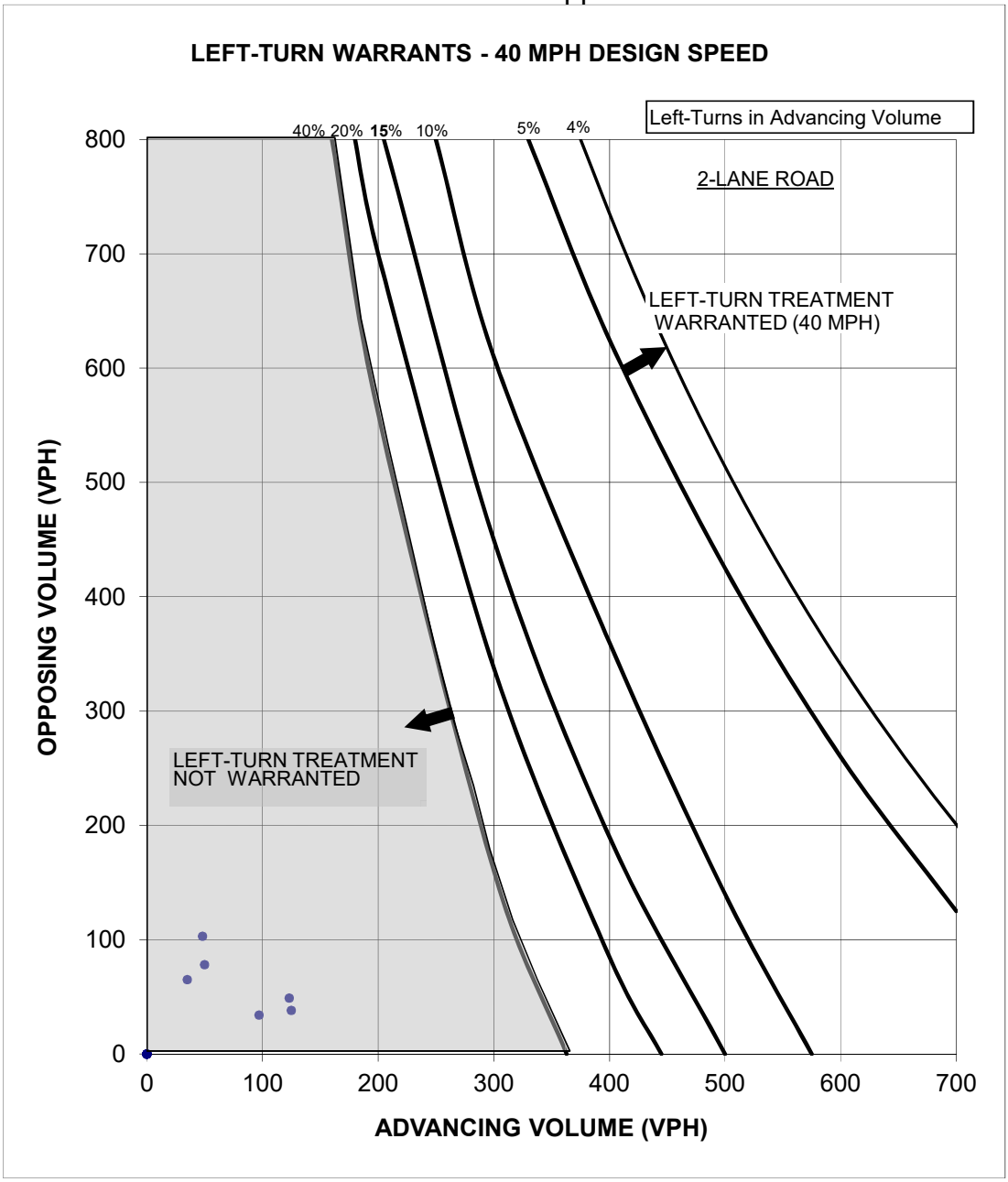
Traffic Engineer

Intersection #7
Tenth Street / Project Driveway (South)
Northbound Approach



Scenario	Advancing	Opposing	% Left-Turn	Warrant Met?
A. Ex+Pro AM	97	34	36%	No
B. Ex+Pro PM	35	65	43%	No
C. Bk+Pro AM	125	38	28%	No
D. Bk+Pro PM	50	78	30%	No
E. GP+Pro AM	123	49	28%	No
F. GP+Pro PM	48	103	31%	No

Source: Transportation Research Board, "Intersection Channelization Guide", NCHRP Report 279, November, 1985

Keith Higgins
Traffic Engineer

Appendix J

Parking Occupancy

Survey Data

Time	Subarea No.	Total Supply	Demand by Subarea	% Occupied	Demand South Side of Cherry (Areas 1-5)	ADA Supply	ADA Occ	Other/ Illegal
7:00 AM	1	22	12	55%				
7:00 AM	2	22		0%				
7:00 AM	3	22	2	9%				
7:00 AM	4	22	6	27%				
7:00 AM	5	50	7	14%	27			
7:00 AM	6	21	17	81%				
7:00 AM	7	104	2	2%		6		
7:00 AM	8	76	19	25%				
7:00 AM	9	17	16	94%				
	Total	**356**	**81**	**23%**				
7:30 AM	1	22	17	77%				
7:30 AM	2	22		0%				
7:30 AM	3	22	4	18%				
7:30 AM	4	22	9	41%				
7:30 AM	5	50	18	36%	48			
7:30 AM	6	21	18	86%				
7:30 AM	7	104	6	6%		6		
7:30 AM	8	76	36	47%				
7:30 AM	9	17	14	82%				
	Total	**356**	**122**	**34%**				
8:00 AM	1	22	20	91%				
8:00 AM	2	22		0%				
8:00 AM	3	22	4	18%				
8:00 AM	4	22	11	50%				
8:00 AM	5	50	22	44%	57			
8:00 AM	6	21	18	86%				
8:00 AM	7	104	7	7%		6		
8:00 AM	8	76	44	58%				
8:00 AM	9	17	17	100%				
	Total	**356**	**143**	**40%**				
8:30 AM	1	22	21	95%				
8:30 AM	2	22		0%				
8:30 AM	3	22	4	18%				
8:30 AM	4	22	9	41%				
8:30 AM	5	50	29	58%	63			
8:30 AM	6	21	18	86%				
8:30 AM	7	104	10	10%		6		
8:30 AM	8	76	69	91%				
8:30 AM	9	17	19	112%				
	Total	**356**	**179**	**50%**				

Time	Subarea No.	Total Supply	Demand by Subarea	% Occupied	Demand South Side of Cherry (Areas 1-5)	ADA Supply	ADA Occ	Other/ Illegal
9:00 AM	1	22	22	100%				
9:00 AM	2	22		0%				
9:00 AM	3	22	4	18%				
9:00 AM	4	22	9	41%				
9:00 AM	5	50	32	64%	67			
9:00 AM	6	21	18	86%				
9:00 AM	7	104	10	10%		6		
9:00 AM	8	76	77	101%				
9:00 AM	9	17	19	112%				
	Total	**356**	**191**	**54%**				
9:30 AM	1	22	22	100%				
9:30 AM	2	22		0%				
9:30 AM	3	22	6	27%				
9:30 AM	4	22	9	41%				
9:30 AM	5	50	33	66%	70			
9:30 AM	6	21	18	86%				
9:30 AM	7	104	10	10%		6		
9:30 AM	8	76	75	99%				
9:30 AM	9	17	19	112%				
PEAK DEMAND	**Total**	**356**	**192**	**54%**				
10:00 AM	1	22	21	95%				
10:00 AM	2	22		0%				
10:00 AM	3	22	6	27%				
10:00 AM	4	22	9	41%				
10:00 AM	5	50	32	64%	68			
10:00 AM	6	21	18	86%				
10:00 AM	7	104	10	10%		6		
10:00 AM	8	76	74	97%				1
10:00 AM	9	17	19	112%				
	Total	**356**	**189**	**53%**				
10:30 AM	1	22	21	95%				
10:30 AM	2	22		0%				
10:30 AM	3	22	3	14%				
10:30 AM	4	22	9	41%				
10:30 AM	5	50	33	66%	66			
10:30 AM	6	21	15	71%				
10:30 AM	7	104	10	10%		6		
10:30 AM	8	76	76	100%				1
10:30 AM	9	17	18	106%				
	Total	**356**	**185**	**52%**				

Time	Subarea No.	Total Supply	Demand by Subarea	% Occupied	Demand South Side of Cherry (Areas 1-5)	ADA Supply	ADA Occ	Other/ Illegal
11:00 AM	1	22	20	91%				
11:00 AM	2	22		0%				
11:00 AM	3	22	4	18%				
11:00 AM	4	22	8	36%				
11:00 AM	5	50	34	68%	66			
11:00 AM	6	21	16	76%				
11:00 AM	7	104	9	9%		6		
11:00 AM	8	76	74	97%				
11:00 AM	9	17	19	112%				
	Total	**356**	**184**	**52%**				
11:30 AM	1	22	22	100%				
11:30 AM	2	22		0%				
11:30 AM	3	22	3	14%				
11:30 AM	4	22	8	36%				
11:30 AM	5	50	36	72%	69			
11:30 AM	6	21	16	76%				
11:30 AM	7	104	10	10%		6		
11:30 AM	8	76	74	97%				1
11:30 AM	9	17	19	112%				
	Total	**356**	**188**	**53%**				
12:00 PM	1	22	20	91%				
12:00 PM	2	22		0%				
12:00 PM	3	22	2	9%				
12:00 PM	4	22	7	32%				
12:00 PM	5	50	34	68%	63			
12:00 PM	6	21	16	76%				
12:00 PM	7	104	12	12%		6		
12:00 PM	8	76	73	96%				1
12:00 PM	9	17	19	112%				
	Total	**356**	**183**	**51%**				
12:30 PM	1	22	20	91%				
12:30 PM	2	22		0%				
12:30 PM	3	22	2	9%				
12:30 PM	4	22	9	41%				
12:30 PM	5	50	34	68%	65			
12:30 PM	6	21	16	76%				
12:30 PM	7	104	10	10%		6		
12:30 PM	8	76	73	96%				1
12:30 PM	9	17	19	112%				
	Total	**356**	**183**	**51%**				

Time	Subarea No.	Total Supply	Demand by Subarea	% Occupied	Demand South Side of Cherry (Areas 1-5)	ADA Supply	ADA Occ	Other/ Illegal
1:00 PM	1	22	20	91%				
1:00 PM	2	22		0%				
1:00 PM	3	22	3	14%				
1:00 PM	4	22	9	41%				
1:00 PM	5	50	33	66%	65			
1:00 PM	6	21	16	76%				
1:00 PM	7	104	10	10%		6		
1:00 PM	8	76	73	96%				1
1:00 PM	9	17	19	112%				
	Total	**356**	**183**	**51%**				
1:30 PM	1	22	20	91%				
1:30 PM	2	22		0%				
1:30 PM	3	22	2	9%				
1:30 PM	4	22	10	45%				
1:30 PM	5	50	36	72%	68			
1:30 PM	6	21	18	86%				
1:30 PM	7	104	9	9%		6		
1:30 PM	8	76	71	93%				
1:30 PM	9	17	19	112%				
	Total	**356**	**185**	**52%**				
2:00 PM	1	22	19	86%				
2:00 PM	2	22		0%				
2:00 PM	3	22	2	9%				
2:00 PM	4	22	9	41%				
2:00 PM	5	50	37	74%	67			
2:00 PM	6	21	17	81%				
2:00 PM	7	104	10	10%		6		
2:00 PM	8	76	74	97%				
2:00 PM	9	17	19	112%				
	Total	**356**	**187**	**53%**				
2:30 PM	1	22	14	64%				
2:30 PM	2	22		0%				
2:30 PM	3	22	2	9%				
2:30 PM	4	22	8	36%				
2:30 PM	5	50	35	70%	59			
2:30 PM	6	21	15	71%				
2:30 PM	7	104	10	10%		6		
2:30 PM	8	76	71	93%				
2:30 PM	9	17	18	106%				
	Total	**356**	**173**	**49%**				

Time	Subarea No.	Total Supply	Demand by Subarea	% Occupied	Demand South Side of Cherry (Areas 1-5)	ADA Supply	ADA Occ	Other/ Illegal
3:00 PM	1	22	8	36%				
3:00 PM	2	22		0%				
3:00 PM	3	22	2	9%				
3:00 PM	4	22	6	27%				
3:00 PM	5	50	31	62%	47			
3:00 PM	6	21	8	38%				
3:00 PM	7	104	9	9%		6		
3:00 PM	8	76	63	83%				
3:00 PM	9	17	8	47%				
	Total	**356**	**135**	**38%**				
3:30 PM	1	22	8	36%				
3:30 PM	2	22		0%				
3:30 PM	3	22	2	9%				
3:30 PM	4	22	6	27%				
3:30 PM	5	50	31	62%	47			
3:30 PM	6	21	7	33%				
3:30 PM	7	104	10	10%		6		
3:30 PM	8	76	58	76%				
3:30 PM	9	17	11	65%				
	Total	**356**	**133**	**37%**				
4:00 PM	1	22	7	32%				
4:00 PM	2	22		0%				
4:00 PM	3	22	2	9%				
4:00 PM	4	22	5	23%				
4:00 PM	5	50	28	56%	42			
4:00 PM	6	21	8	38%				
4:00 PM	7	104	8	8%		6		
4:00 PM	8	76	55	72%				
4:00 PM	9	17	9	53%				
	Total	**356**	**122**	**34%**				
4:30 PM	1	22	5	23%				
4:30 PM	2	22		0%				
4:30 PM	3	22	2	9%				
4:30 PM	4	22	3	14%				
4:30 PM	5	50	26	52%	36			
4:30 PM	6	21	8	38%				
4:30 PM	7	104	4	4%		6		
4:30 PM	8	76	47	62%				
4:30 PM	9	17	10	59%				
	Total	**356**	**105**	**29%**				

Time	Subarea No.	Total Supply	Demand by Subarea	% Occupied	Demand South Side of Cherry (Areas 1-5)	ADA Supply	ADA Occ	Other/ Illegal
5:00 PM	1	22	5	23%				
5:00 PM	2	22		0%				
5:00 PM	3	22		0%				
5:00 PM	4	22	2	9%				
5:00 PM	5	50	13	26%	20			
5:00 PM	6	21	8	38%				
5:00 PM	7	104	1	1%		6		
5:00 PM	8	76	22	29%				
5:00 PM	9	17	9	53%				
	Total	**356**	**60**	**17%**				
5:30 PM	1	22	2	9%				
5:30 PM	2	22		0%				
5:30 PM	3	22		0%				
5:30 PM	4	22	1	5%				
5:30 PM	5	50	4	8%	7			
5:30 PM	6	21	6	29%				
5:30 PM	7	104	1	1%		6		
5:30 PM	8	76	8	11%				
5:30 PM	9	17	6	35%				
	Total	**356**	**28**	**8%**				
6:00 PM	1	22	2	9%				
6:00 PM	2	22		0%				
6:00 PM	3	22		0%				
6:00 PM	4	22	1	5%				
6:00 PM	5	50	4	8%	7			
6:00 PM	6	21	7	33%				
6:00 PM	7	104	1	1%		6		
6:00 PM	8	76	6	8%				
6:00 PM	9	17	6	35%				
	Total	**356**	**27**	**8%**				
6:30 PM	1	22		0%				
6:30 PM	2	22		0%				
6:30 PM	3	22	2	9%				
6:30 PM	4	22		0%				
6:30 PM	5	50	2	4%	4			
6:30 PM	6	21	9	43%				
6:30 PM	7	104		0%		6		
6:30 PM	8	76	3	4%				
6:30 PM	9	17	8	47%				
	Total	**356**	**24**	**7%**				

APPENDIX E

EMFAC RESULTS

calendar_y	season_mc	sub_area	vehicle_cla	fuel	process	pollutant	emission
2022	Annual	Monterey (	LDA	Dsl	RUNEX	Fuel	0.0012589
2022	Annual	Monterey (	LDT1	Gas	STREX	Fuel	0.00031978
2022	Annual	Monterey (	LDT1	Gas	RUNEX	Fuel	0.00853624
2022	Annual	Monterey (	LDA	Gas	STREX	Fuel	0.0047199
2022	Annual	Monterey (	LDT2	Gas	RUNEX	Fuel	0.07234919
2022	Annual	Monterey (	LDT2	Gas	STREX	Fuel	0.00267609
2022	Annual	Monterey (	MDV	Gas	RUNEX	Fuel	0.06240777
2022	Annual	Monterey (	MDV	Gas	STREX	Fuel	0.00271773
2022	Annual	Monterey (	LHD1	Gas	RUNEX	Fuel	0.0082221
2022	Annual	Monterey (	LHD1	Gas	IDLEX	Fuel	4.07E-05
2022	Annual	Monterey (	LHD1	Gas	STREX	Fuel	0.00032707
2022	Annual	Monterey (	LHD2	Gas	RUNEX	Fuel	0.00138138
2022	Annual	Monterey (	LHD2	Gas	IDLEX	Fuel	5.78E-06
2022	Annual	Monterey (	LHD2	Gas	STREX	Fuel	4.59E-05
2022	Annual	Monterey (	T6TS	Gas	RUNEX	Fuel	0.00266512
2022	Annual	Monterey (	T6TS	Gas	IDLEX	Fuel	1.47E-05
2022	Annual	Monterey (	T6TS	Gas	STREX	Fuel	7.75E-05
2022	Annual	Monterey (	T7IS	Gas	RUNEX	Fuel	0.00047862
2022	Annual	Monterey (	T7IS	Gas	STREX	Fuel	6.26E-06
2022	Annual	Monterey (	LDT1	Dsl	RUNEX	Fuel	1.25E-05
2022	Annual	Monterey (	LDT2	Dsl	RUNEX	Fuel	0.00011081
2022	Annual	Monterey (	MDV	Dsl	RUNEX	Fuel	0.00078416
2022	Annual	Monterey (	LHD1	Dsl	RUNEX	Fuel	0.00482113
2022	Annual	Monterey (	LHD1	Dsl	IDLEX	Fuel	3.58E-05
2022	Annual	Monterey (	LHD2	Dsl	RUNEX	Fuel	0.00184948
2022	Annual	Monterey (	LHD2	Dsl	IDLEX	Fuel	1.72E-05
2022	Annual	Monterey (	LDA	Gas	RUNEX	Fuel	0.13222277
2022	Annual	Monterey (	UBUS	Gas	RUNEX	Fuel	0.00208019
2022	Annual	Monterey (	UBUS	Gas	STREX	Fuel	7.59E-06
2022	Annual	Monterey (	SBUS	Gas	RUNEX	Fuel	0.00017281
2022	Annual	Monterey (	SBUS	Gas	IDLEX	Fuel	8.15E-06
2022	Annual	Monterey (	SBUS	Gas	STREX	Fuel	2.02E-06
2022	Annual	Monterey (	OBUS	Gas	RUNEX	Fuel	0.0014933
2022	Annual	Monterey (	OBUS	Gas	IDLEX	Fuel	5.39E-06
2022	Annual	Monterey (	OBUS	Gas	STREX	Fuel	2.67E-05
2022	Annual	Monterey (	MCY	Gas	RUNEX	Fuel	0.00157936
2022	Annual	Monterey (	MCY	Gas	STREX	Fuel	8.39E-05
2022	Annual	Monterey (	MH	Gas	RUNEX	Fuel	0.00071882
2022	Annual	Monterey (	MH	Gas	STREX	Fuel	6.14E-07
2022	Annual	Monterey (	MH	Dsl	RUNEX	Fuel	0.00014676
2022	Annual	Monterey (	UBUS	Dsl	RUNEX	Fuel	0.00231539
2022	Annual	Monterey (	T6 Ag	Dsl	RUNEX	Fuel	0.00045459
2022	Annual	Monterey (	T6 Ag	Dsl	IDLEX	Fuel	1.46E-05
2022	Annual	Monterey (	T6 Public	Dsl	RUNEX	Fuel	0.0002028
2022	Annual	Monterey (	T6 Public	Dsl	IDLEX	Fuel	7.50E-06
2022	Annual	Monterey (	T6 CAIRP S	Dsl	RUNEX	Fuel	0.00019019

2022	Annual	Monterey (	T6 CAIRP S	Dsl	IDLEX	Fuel	1.57E-06
2022	Annual	Monterey (	T6 CAIRP H	Dsl	RUNEX	Fuel	6.13E-05
2022	Annual	Monterey (	T6 CAIRP H	Dsl	IDLEX	Fuel	6.35E-07
2022	Annual	Monterey (	T6 Instate (	Dsl	RUNEX	Fuel	0.00112281
2022	Annual	Monterey (	T6 Instate (	Dsl	IDLEX	Fuel	1.04E-05
2022	Annual	Monterey (	T6 Instate (	Dsl	RUNEX	Fuel	0.00024877
2022	Annual	Monterey (	T6 Instate (	Dsl	IDLEX	Fuel	1.88E-06
2022	Annual	Monterey (	T6 Instate S	Dsl	RUNEX	Fuel	0.00907413
2022	Annual	Monterey (	T6 Instate S	Dsl	IDLEX	Fuel	8.48E-05
2022	Annual	Monterey (	T6 Instate I	Dsl	RUNEX	Fuel	0.00363427
2022	Annual	Monterey (	T6 Instate I	Dsl	IDLEX	Fuel	4.49E-05
2022	Annual	Monterey (	T6 OOS Sm	Dsl	RUNEX	Fuel	0.00010897
2022	Annual	Monterey (	T6 OOS Sm	Dsl	IDLEX	Fuel	9.00E-07
2022	Annual	Monterey (	T6 OOS He	Dsl	RUNEX	Fuel	3.51E-05
2022	Annual	Monterey (	T6 OOS He	Dsl	IDLEX	Fuel	3.69E-07
2022	Annual	Monterey (	T6 Utility	Dsl	RUNEX	Fuel	0.00010286
2022	Annual	Monterey (	T6 Utility	Dsl	IDLEX	Fuel	2.90E-06
2022	Annual	Monterey (	T7 Ag	Dsl	RUNEX	Fuel	0.00027378
2022	Annual	Monterey (	T7 Ag	Dsl	IDLEX	Fuel	3.07E-05
2022	Annual	Monterey (	T7 Public	Dsl	RUNEX	Fuel	0.00043237
2022	Annual	Monterey (	T7 Public	Dsl	IDLEX	Fuel	8.79E-05
2022	Annual	Monterey (	PTO	Dsl	RUNEX	Fuel	0.00095293
2022	Annual	Monterey (	T7 CAIRP	Dsl	RUNEX	Fuel	0.00721849
2022	Annual	Monterey (	T7 CAIRP	Dsl	IDLEX	Fuel	0.00056467
2022	Annual	Monterey (	T7 CAIRP C	Dsl	RUNEX	Fuel	0.00022595
2022	Annual	Monterey (	T7 CAIRP C	Dsl	IDLEX	Fuel	1.59E-05
2022	Annual	Monterey (	T7 Utility	Dsl	RUNEX	Fuel	4.12E-05
2022	Annual	Monterey (	T7 Utility	Dsl	IDLEX	Fuel	8.23E-06
2022	Annual	Monterey (	T7 NNOOS	Dsl	RUNEX	Fuel	0.00848193
2022	Annual	Monterey (	T7 NNOOS	Dsl	IDLEX	Fuel	0.00070398
2022	Annual	Monterey (	T7 NOOS	Dsl	RUNEX	Fuel	0.00285163
2022	Annual	Monterey (	T7 NOOS	Dsl	IDLEX	Fuel	0.00028034
2022	Annual	Monterey (	T7 Other P	Dsl	RUNEX	Fuel	2.23E-11
2022	Annual	Monterey (	T7 Other P	Dsl	IDLEX	Fuel	3.36E-13
2022	Annual	Monterey (	T7 POAK	Dsl	RUNEX	Fuel	0.00042614
2022	Annual	Monterey (	T7 POAK	Dsl	IDLEX	Fuel	1.27E-05
2022	Annual	Monterey (	T7 POLA	Dsl	RUNEX	Fuel	1.97E-11
2022	Annual	Monterey (	T7 POLA	Dsl	IDLEX	Fuel	6.70E-13
2022	Annual	Monterey (	T7 Single	Dsl	RUNEX	Fuel	0.00378572
2022	Annual	Monterey (	T7 Single	Dsl	IDLEX	Fuel	9.96E-05
2022	Annual	Monterey (	T7 Single C	Dsl	RUNEX	Fuel	0.00060082
2022	Annual	Monterey (	T7 Single C	Dsl	IDLEX	Fuel	1.85E-05
2022	Annual	Monterey (	T7 Tractor	Dsl	RUNEX	Fuel	0.0051299
2022	Annual	Monterey (	T7 Tractor	Dsl	IDLEX	Fuel	0.00011902
2022	Annual	Monterey (	T7 Tractor	Dsl	RUNEX	Fuel	0.00045023
2022	Annual	Monterey (	T7 Tractor	Dsl	IDLEX	Fuel	1.50E-05
2022	Annual	Monterey (	SBUS	Dsl	RUNEX	Fuel	0.00092392

2022	Annual	Monterey (	SBUS	Dsl	IDLEX	Fuel	7.06E-05
2022	Annual	Monterey (	Motor Coa	Dsl	RUNEX	Fuel	0.00185898
2022	Annual	Monterey (	Motor Coa	Dsl	IDLEX	Fuel	8.69E-05
2022	Annual	Monterey (	All Other B	Dsl	RUNEX	Fuel	0.00130874
2022	Annual	Monterey (	All Other B	Dsl	IDLEX	Fuel	1.42E-05
2022	Annual	Monterey (	T7 SWCV	Dsl	IDLEX	Fuel	8.70E-05
2022	Annual	Monterey (	T7 SWCV	Dsl	RUNEX	Fuel	0.00218686

Thousands of gallons of fuel/day		0.37151663
Gallons of fuel/year =	(1000*365*0.37)	135,050