METRO CENTER HOTEL PROJECT

Draft Environmental Impact Report

State Clearinghouse No. 2019049065

Prepared for:

City of Foster City

March 2020

URBAN PLANNING PARTNERS INC.

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State Clearinghouse No. 2019049065

Prepared for the City of Foster City

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March 2020

URBAN PLANNING PARTNERS INC.

NOTICE OF AVAILABILITY
CITY OF FOSTER CITY
NEW HOTEL IN METRO CENTER GENERAL DEVELOPMENT PLAN AREA
DRAFT ENVIRONMENTAL IMPACT REPORT AND
PUBLIC HEARING – APRIL 16, 2020

State Clearinghouse # 2019049065

NOTICE IS HEREBY GIVEN that the City of Foster City, as Lead Agency, has completed a Draft Environmental Impact Report (DEIR) for the New Hotel in the Metro Center General Development Plan (GDP) Area.

PUBLIC HEARING: The Planning Commission is scheduled to receive public comments on the DEIR on **April 16, 2020, at 7:00 p.m**. at Foster City Council Chambers, located at 620 Foster City Boulevard.

PUBLIC REVIEW TIMELINE: The public review period for the DEIR begins **March 13, 2020 and ends April 27, 2020**. The City must receive all written comments regarding the adequacy of the DEIR within this time period. Written comments may be submitted in person, by mail, by e-mail, or by fax. The mailing address is 610 Foster City Boulevard, Foster City, CA 94404, the email address is tmaier@fostercity.org, the telephone number is (650)286-3237, and the fax number is (650) 286-3589. Direct all comments to the attention of Timothy Maier, Associate Planner.

DOCUMENT AVAILABILITY: Copies of the DEIR are available for review Monday through Friday, between the hours of 8:00 a.m. and 5:00 p.m., at the City of Foster City City Hall, Community Development Department, 610 Foster City Boulevard, Foster City, CA, 94404, except on specified holidays. The DEIR is also available at the Foster City Public Library, at 1000 East Hillsdale Boulevard, and online, at https://www.fostercity.org/commdev/project/new-hotel-development-proposal.

PROJECT LOCATION: The project location will be the lot at the southwest corner of the Metro Center Boulevard and Shell Boulevard intersection. The project site does not yet have an address and has the San Mateo County Assessor's Parcel Number 094 522-350.

PROJECT DESCRIPTION: The project would include development of a new, seven-story hotel (approximately 89 feet tall) with a ground floor parking garage and additional parking provided at the subject site in a surface lot to the southeast (rear) of the proposed hotel building. The hotel would approximately 156 guest rooms on the upper floors; a limited-service restaurant; a rooftop deck; and other employee and visitor amenities totaling approximately 83,190 square feet. The parking garage and surface parking lot would accommodate 141 parking stalls, with vehicular access from Shell Boulevard and Metro Center Boulevard.

SIGNIFICANT ANTICIPATED ENVIRONMENTAL EFFECTS: The DEIR provides an evaluation of the potential environmental impacts of the proposed project and recommends mitigation measures to reduce impacts to a less-than-significant level. With the implementation of the proposed mitigation measures, no significant impacts would result with implementation of the proposed project. The project site is not listed on any of the lists of hazardous materials sites enumerated under Section 65962.5 of the Government Code.

QUESTIONS: If you have any questions about this project, please contact Timothy Maier, Associate Planner at tmaier@fostercity.org or via telephone at (650) 286-3237.

New Hotel in Metro Center GDP Plan Area Project EIR - Notice of Availability

Figure 1
Project Vicinity and Location

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I. INTRODUCTION

A. PURPOSE OF THE EIR

In compliance with the California Environmental Quality Act[1] (CEQA), CEQA Guidelines,[2] and the City of Foster City's Environmental Review Guidelines, this Draft Environmental Impact Report (EIR) describes the environmental impacts of the new hotel proposed in the Metro Center General Development Plan (GDP) area (the project) at the southwest corner of Metro Center Boulevard and Shell Boulevard. CEQA provides the following definition for a project:

> "'Project' means an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and which is any of the following:
>
> A. An activity directly undertaken by any public agency.
>
> B. An activity undertaken by a person which is supported, in whole or in part through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.
>
> C. An activity that involves the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies."

After meeting these criteria, it must be determined whether the project will have a significant impact on the environment. If the project is deemed to have a potential impact on the environment, an EIR must be prepared (see CEQA Guidelines Section 15378).

The intent of this EIR is to: (1) inform City staff, the Planning Commission, City Council and other responsible and interested agencies and the general public of the project and its potential adverse environmental impacts; (2) recommend Standard Conditions of Approval (SCOAs) and mitigation measures to lessen or avoid significant adverse impacts; and (3) consider a reasonable range of feasible alternatives to the project. The information contained in the EIR will be reviewed and considered by public agencies before project-related decisions are made.

---

[1] California Public Resources Code, Sections 21000-21178.

[2] CEQA Guidelines are codified at Title 14 of the California Code of Regulations at Section 15000 et seq.).

The City of Foster City is the lead agency for environmental review of the project. This EIR is available for public review for the period identified in the Notice of Availability attached to the front of this document. During this time, written comments on this EIR may be submitted to the City of Foster City, Community Development Department at the address indicated on the Notice

of Availability. Responses to all comments received on this EIR during the specified review period will be included in the Response to Comments Document/Final EIR.

B. PROPOSED PROJECT

The project is located on an approximately 1.36-acre site at the intersection of Metro Center Boulevard and Shell Boulevard in central Foster City as shown in Figure I-1. It is bound by Metro Center Boulevard to the northwest, Shell Boulevard to the northeast, a driveway and the Cityhomes East multi-family residential (townhomes) complex[3] (located at 7 through 149 East Court Lane) to the southeast, and the existing nine-story Visa office building (located at 900 Metro Center Boulevard) [4] and associated two-level parking structure to the southwest. The project site is privately owned by the project applicant, MPQ Foster City Metro Center LLC.

The project would include development of a new, seven-story hotel (approximately 89 feet tall) with ground floor parking garage and additional parking provided in a surface lot to the rear of the project site. The hotel would feature up to 156 guest rooms on the upper floors; a limited-service restaurant; a rooftop deck; and other employee and visitor amenities totaling approximately 83,190 square feet. The parking garage and surface parking lot would accommodate 141 parking stalls, with vehicular access from Shell Boulevard and Metro Center Boulevard.

C. NOTICE OF PREPARATION/EIR SCOPE

The City circulated a Notice of Preparation (NOP) that briefly described the project and the environmental topics that would be evaluated in this EIR. The NOP was initially published and submitted to the State Clearinghouse on April 10, 2019.

The 30-day public comment period for the scope of this EIR lasted from April 10, 2019 to May 10, 2019. The public was advised of the NOP and the April 18, 2019 public scoping session in the following ways: published notices in the Foster City Islander; posted on the Foster City website; televised on Foster City TV Channel 27; posted in public noticing locations; posted on-site; mailed

[3] The Cityhomes East townhomes that are immediately adjacent to the project site are at 7-21 East Court Lane.

[4] The Visa office building and associated parking structure. 900 Metro Center Boulevard.

Parks & Open Space

Foster City city limit

Water bodies

Figure I-1

Project Vicinity and Regional Location Map

New Hotel in Metro Center GDP Area Project EIR notices to property owners who own property within a 1,000-foot radius; and mailed notices to the project applicants, owners, and persons who expressed interest in receiving project updates. It was also distributed to affected State of California agencies.

One public scoping session was held for the project in conjunction with the Planning Commission meeting on April 18, 2019. Although comments received by the City on the NOP at the public scoping meeting would have been considered during preparation of this EIR, no comments were received during the public scoping session. One written public comment was received from Hudson Metro Center, LLC in response to the NOP. Hudson Metro Center, LLC, the current property manager for the project site, requested future updates on the status of the project.

NOP comments were received from the State Clearinghouse, California Department of Transportation (Caltrans), the San Mateo Local Agency Formation Commission (LAFCo), the Native American Heritage Commission (NAHC), and the City/County Association of Governments of San Mateo County (C/CAG).

The State Clearinghouse and Planning Unit provided a courtesy notice of the NOP reminding responsible agencies of the 30-day scoping period.

Comments from Caltrans stated that the potential effects of sea level rise on transportation facilities in the project area should be addressed through geotechnical and hydrological studies conducted in coordination with Caltrans. Given the project's intensification of use and the number of vehicle parking spaces proposed, Caltrans stated that the project should incorporate a robust Transportation Demand Management (TDM) Program, and recommended measures for promoting smart mobility and reducing regional vehicle miles traveled (VMT). Caltrans also noted that the City of Foster City, as the lead agency, is responsible for enforcing project mitigations and improvements to the State Transportation Network.

The LAFCo indicated that it did not have any comments regarding the scope of the EIR.

The NAHC commented that this EIR may be subject to Assembly Bill 52 and/or Senate Bill 18, both of which require tribal consultation. The NAHC also provided a brief summary of both bills and recommendations for conducting cultural resources assessments. The NAHC recommended consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area around the project site. Assembly Bill 52 is discussed in further detail in *Chapter IV, Planning Policy.*

Comments from the C/CAG identified requirements for the completion of a Traffic Impact Analysis (TIA) in compliance with the San Mateo County Congestion Management Plan (CMP). The C/CAG also provided example mitigation strategies found in the San Mateo County CMP Land Use Guidelines.

The NOP is included in Appendix A of this EIR, as are written comments received by the City on the NOP.

The following environmental topics are addressed in this EIR:

A. Land Use
B. Aesthetics and Shade and Shadow
C. Transportation
D. Air Quality
E. Greenhouse Gas Emissions
F. Geology and Soils
G. Hazards and Hazardous Materials
H. Hydrology and Water Quality
I. Noise and Vibration
J. Public Services, Utilities, and Recreation

A brief analysis of each environmental topic for which effects from the project were found to be either not significant or less than significant through the scoping process and preliminary review are discussed in *Chapter VII, CEQA Required Assessment Conclusions,* in Section D, Effects Found Not to be Significant. These topics include agriculture and forestry resources, biological resources, cultural resources, energy, mineral resources, population and housing, tribal cultural resources, and wildfire.

Chapter IV, Planning Policy, provides a discussion of the project's relationship with applicable planning-related policies. This discussion is provided in a standalone chapter of this EIR, because a policy conflict is not in and of itself considered a significant environmental impact under CEQA, except in the case of policies adopted for the purpose of avoiding or reducing an environmental effect.

D. REPORT ORGANIZATION

This EIR is organized into the following chapters:

- *Chapter I – Introduction*: Discusses the overall EIR purpose; provides a summary of the proposed project; describes the EIR scope; and summarizes the organization of the EIR.
- *Chapter II – Summary:* Provides a summary of the impacts that would result from implementation of the proposed project and describes SCOAs and mitigation measures recommended to avoid or reduce significant impacts; areas of known controversy; and a description of the project alternatives.

- *Chapter III – Project Description:* Provides a description of the project objectives, project site, site development history, the proposed development, and required approval process.
- *Chapter IV – Planning Policy:* Lists relevant planning policies and describes the project's relationship to each policy.
- *Chapter V – Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures:* Describes the following for each environmental topic: existing conditions (setting), significance criteria, potential environmental impacts and their level of significance, SCOAs relied upon to ensure significant impacts would not occur, and mitigation measures recommended to lessen or avoid identified significant impacts. Cumulative impacts are also discussed in each technical topic section. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and significant and unavoidable impact (SU). The significance level is identified for each impact before and after implementation of the recommended SCOA(s) or mitigation measure(s).
- *Chapter VI – Alternatives Analysis:* Provides an evaluation of two alternatives to the proposed project. The alternatives include the No Project/No Build Alternative and the Reduced Density Alternative.
- *Chapter VII – CEQA Required Assessment Conclusions:* Provides the required analysis of effects found not to be significant; growth-inducing impacts; unavoidable significant effects; and significant irreversible changes.
- *Chapter VIII – Report Preparation:* Identifies preparers of the EIR, references used, and the persons and organizations contacted.
- *Appendices:* Includes the NOP and written comments submitted on the NOP, Transportation Analysis, Air Quality and Greenhouse Gas Emissions modeling data, Traffic Noise Model Outputs, and the Water Supply Assessment.

All supporting technical documents and reference documents are available for public review at the City of Foster City Community Development Department's office. Resources are additionally available at the following weblink: https://www.fostercity.org/commdev/project/new-hotel-development-proposal.

II. SUMMARY

A. OVERVIEW OF PROPOSED PROJECT

This Environmental Impact Report (EIR) has been prepared to evaluate the potential environmental effects of the proposed new hotel in the Metro Center General Development Plan area (the project). The project site is located at the intersection of Metro Center Boulevard and Shell Boulevard in central Foster City. The project site is approximately 1.36 acres of undeveloped land owned by the project applicant, MPQ Foster City Metro Center LLC.

The project would create a new hotel with casual dining facilities and guest amenities. The project would include one seven-story building ranging in height from approximately 80 to 89 feet (including the roof parapet). Key elements of the project include:

- One building of approximately 83,190 square feet containing:
  - Up to 156 guest rooms.
  - A casual dining facility up to 1,500 square feet.
  - A rooftop deck of approximately 1,200 square feet.
  - Three meeting rooms totaling 1,689 square feet.
  - A 775-square-foot fitness center.
- Surface parking at the rear of the site and mechanical parking lifts located below the building podium accommodating 141 parking stalls.

The project site is bounded by Metro Center Boulevard to the northwest, Shell Boulevard to the northeast, a driveway and the Cityhomes East townhomes complex to the southeast, and the existing nine-story Visa office building and two-level parking structure to the southwest.

B. SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

This summary provides an overview of the analysis contained in *Chapters V* through *VII* of this EIR. CEQA requires a summary to include discussion of: (1) potential areas of controversy; (2) significant impacts and proposed mitigation measures Standard Conditions of Approval (SCOAs) are also included in this summary); (3) cumulative impacts; (4) significant irreversible and unavoidable impacts; and (5) alternatives to the proposed project. Each of these topics is summarized below.

1. Potential Areas of Controversy

No areas of substantial controversy regarding the project were raised in written or verbal comments received in response to the Notice of Preparation (NOP) dated April 10, 2019. NOP comments were received from the State Clearinghouse, the California Department of Transportation (Caltrans), the San Mateo Local Agency Formation Commission (LAFCo), the Native American Heritage Commission (NAHC), and the City/County Association of Governments of San Mateo County (C/CAG).

The State Clearinghouse and Planning Unit provided a courtesy notice of the NOP reminding responsible agencies of the 30-day scoping period.

Comments from Caltrans encouraged the City to coordinate preparation of geotechnical and hydrological studies with Caltrans and recommended that the project incorporate a Transportation Demand Management (TDM) Program. Caltrans also stated all project mitigations are the City's responsibility as the lead agency.

The LAFCo indicated that it did not have any comments regarding the scope of the EIR.

The NAHC commented that this EIR may be subject to Assembly Bill 52 and/or Senate Bill 18, both of which require tribal consultation. The NAHC also provided a brief summary of both bills and recommendations for conducting cultural resources assessments. The NAHC recommended consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area around the project site.

Comments from the C/CAG stated that the City should prepare a Traffic Impact Analysis (TIA). The C/CAG listed suggestions for assessing whether the proposed project complies with the San Mateo County Congestion Management Program.

No members of the public provided any written or verbal comments at the scoping meeting held at the Planning Commission hearing on April 18, 2019.

These issues were taken into consideration in the scope of this project and are addressed in *Chapter V*, *Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures.*

2. Significant Impacts, Cumulative Impacts, SCOAs, and Mitigation Measures

Under CEQA, a significant impact on the environment is defined as "…a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."[1]

As discussed in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures*, and shown in Table II-1 below, all of the impacts identified would be mitigated to a less-than-significant level with implementation of the identified SCOAs and/or the recommended mitigation measures.

The potentially significant impacts that could be mitigated to a less-than-significant level with implementation of City SCOAs and/or recommended mitigation measures are identified for the following topics and evaluated in full detail in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures*, of this EIR:

- Air Quality
- Hydrology and Water Quality
- Noise and Vibration

Impacts are anticipated to be less than significant for all other environmental topics.

Cumulative impacts are discussed at the end of each topic section in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures*. The project would not contribute to or be affected by any significant cumulative impacts.

3. Alternatives to the Proposed Project

Chapter VI, Alternatives Analysis, analyzes two alternatives to the proposed project to meet the CEQA requirements for analysis of a reasonable range of project alternatives. The two project alternatives analyzed in *Chapter VI* are as follows:

- The **No Project/No Build Alternative**, which assumes the project would not be developed. The existing site would remain vacant and undeveloped with no new development on the project site.

[1] California Code of Regulations, Title 14, Section 15382; Public Resources Code 21068.

- The **Reduced Density Alternative**, which assumes a smaller, five-story hotel with 96 rooms. The garage below the building podium with 81 mechanical lift parking spaces would remain; however, the rear surface lot with 60 spaces would be eliminated and replaced with open space.

C. SUMMARY TABLE

Information in Table II-1, Summary of Impacts, Standard Conditions of Approval, and Mitigation Measures, has been organized to correspond with environmental issues discussed in *Chapter V*. The table is arranged in four columns, as follows: (1) impacts; (2) level of significance prior to mitigation; (3) required SCOA and/or recommended mitigation measure; and (4) level of significance after mitigation. A series of SCOAs and/or mitigation measures is noted where more than one mitigation measure is required to achieve a less-than-significant impact, and alternative mitigation measures are identified when available. For a complete description of potential impacts and recommended SCOAs and/or mitigation measures, please refer to the specific discussions in *Chapter V.*

The following abbreviations are used for individual topics:

LAND: Land Use
AES: Aesthetics and Shade and Shadow
TRANS: Transportation
AIR: Air Quality
GHG: Greenhouse Gas Emissions
GEO: Geology and Soils
HAZ: Hazards and Hazardous Materials
HYD: Hydrology and Water Quality
NOI: Noise and Vibration
SVCS: Public Services, Utilities, and Recreation

The following notations are provided after each identified significant impact and mitigation measure. These notations indicate the significance of the impact with and without mitigation:

SU = Significant and Unavoidable
S = Significant
LTS = Less than Significant

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
A. LAND USE			
Implementation of the project would not result in any significant land use impacts.			
B. AESTHETICS AND SHADE AND SHADOW			
No significant impacts to aesthetics and shade and shadow would occur with implementation of the City SCOA listed in this table.	LTS	**SCOA 8.2:** An exterior lighting plan including fixture and standard design, coverage and intensity, to be reviewed and approved by the Community Development Department and the Police Department. In its review of the lighting plan, the City shall ensure that any outdoor night lighting proposed for the project is downward-facing, and shielded so as to minimize nighttime glare and lessen impacts to neighboring properties. The City shall also ensure that all development plans for the proposed project conform to the performance standards provided under Section 17.68.080 of the Foster City Municipal Code.	LTS
C. TRANSPORTATION			
Implementation of the project would not result in any significant transportation impacts.			
D. AIR QUALITY			
Impact AIR-1: Construction and operation of the proposed project could expose sensitive receptors to substantial concentrations of TACs and $PM_{2.5}$.	S	Mitigation Measure AIR-1: During project construction, the contractor shall use off-road diesel equipment with Tier 2 or higher engines equipped with Level III diesel particulate filters certified by the California Air Resources Board. Contract specifications shall include this requirement prior to the start of construction.	LTS
No significant impacts to emissions of criteria air pollutants would occur with implementation of the City SCOAs listed in this table.	LTS	**SCOA-9.12:** The following controls shall be implemented at all construction sites within the project to control dust production and fugitive dust. ▪ Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing sensitive land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers to control dust; ▪ Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard;	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		▪ Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites; ▪ Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; ▪ Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets; ▪ Blowing dust shall be reduced by timing construction activities so that paving and building construction begin as soon as possible after completion of grading, and by landscaping disturbed soils as soon as possible; ▪ Water trucks shall be present and in use at the construction site; ▪ All portions of the site subject to blowing dust shall be watered as often as deemed necessary by the City in order to insure proper control of blowing dust for the duration of the project; ▪ Watering on public streets shall not occur; ▪ All vehicle speeds on unpaved roads shall be limited to 15 mph; ▪ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used; ▪ Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations (CCR). Clear signage shall be provided for construction workers at all access points; ▪ All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator; ▪ Streets will be cleaned by street sweepers or by hand as often as deemed necessary by the City Engineer; ▪ Watering associated with on-site construction activity shall take	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		place between the hours of 8 a.m. and 7 p.m. and shall include at least one late-afternoon watering to minimize the effects of blowing dust; ▪ All public streets and medians soiled or littered due to this construction activity shall be cleaned and swept on a daily basis during the workweek to the satisfaction of the City; and ▪ Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.	
E. GREENHOUSE GAS EMISSIONS			
Implementation of the project would not result in any significant impacts to greenhouse gas emissions.			
F. GEOLOGY AND SOILS			
No significant impacts to geology and soils would occur with implementation of the City SCOA listed in this table.	LTS	**SCOA 2.2.** Three (3) sets of a site specific, design level, fault zone geotechnical report satisfactory to the Chief Building Official, including one electronic or pdf version, shall be submitted for review and approval to the Building Division and contain design recommendations for grading, footings, retaining walls, and provisions for anticipated differential settlement for each construction site within the project area . Specifically: ▪ Each investigation shall include an analysis of expected ground motions at the site identified faults. The analysis shall be in accordance with applicable City ordinances and policies, and consistent with the most recent version of the California Building Code, which requires structural design that can accommodate ground accelerations expected from identified faults. The analysis presented in the geotechnical investigation report shall provide recommendations to minimize seismic damage to structures from total and differential settlements and to protect steel and concrete (and any other material that may be placed in the subsurface) from long-term deterioration caused by contact with corrosive on-site	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		soils. All design measures, recommendations, design criteria, and specifications set forth in the final geotechnical investigation report shall be implemented. ▪ The investigations shall determine final design parameters for the walls, foundations, foundation slabs, surrounding related improvements, and infrastructure (utilities, roadways, parking lots and sidewalks). ▪ The investigations shall be reviewed and approved by a registered geotechnical engineer. All recommendations by the project engineer, geotechnical engineer, shall be included in the final design, as approved by the City of Foster City. ▪ The geotechnical report shall include a map prepared by a land surveyor or civil engineer that shows all field work and location of the “No Build” zone. The map shall include a statement that the locations and limitations of the geologic features are accurate representations of said features as they exist on the ground, were placed on this map by the surveyor, the civil engineer or under their supervision, and are accurate to the best of their knowledge. ▪ The geotechnical report for the project shall include evaluation of fixtures, furnishings, and fasteners with the intent of minimizing collateral injuries to building occupants from falling fixtures or furnishings during the course of a violent seismic event. Recommendations that are applicable to foundation design, earthwork, and site preparation that were prepared prior to or during the projects design phase, shall be incorporated in the project. ▪ Final seismic considerations for the site shall be submitted to and approved by the Building Division prior to commencement of the project. ▪ If deemed necessary by the Chief Building Official, a peer review may be required for the geotechnical report. Personnel reviewing the geologic report shall approve the report, reject it, or withhold approval pending the submission by the applicant or subdivider of further geologic and engineering studies to more adequately define	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		active fault traces. ▪ A licensed geotechnical engineer or their representatives shall be retained to provide geotechnical observation and testing during all earthwork and foundation construction activities. The geotechnical engineer shall be allowed to evaluate any conditions differing from those encountered during the geotechnical investigation and shall provide supplemental recommendations, as necessary. At the end of construction, the geotechnical engineer shall provide a letter regarding contractor compliance with project plans and specifications and with the recommendations of the final geotechnical investigation report and any supplemental recommendations issued during construction. The letter shall be submitted for review to the Building Division. ▪ The final geotechnical investigation report shall provide recommendations to minimize the potential damage to structures from total and differential settlement and to protect steel and concrete (and any other material that may be placed in the subsurface) from long-term deterioration caused by contact with corrosive on-site soils. All design measures, recommendations, design criteria, and specifications set forth in the final geotechnical investigation report shall be implemented.	
G. HAZARDS AND HAZARDOUS MATERIALS			
No significant impacts to hazards and hazardous materials would occur with implementation of the City SCOAs listed in this table.	LTS	**SCOA 1.22.** The applicant shall prepare a project-specific Construction Risk Management Plan (CRMP) to protect construction workers, the general public, and the environment from subsurface hazardous materials previously identified and to address the possibility of encountering unknown contamination or hazards in the subsurface. The CRMP shall: 1. Provide procedures for evaluating, handling, storing, testing and disposing of soil and groundwater during project excavation and dewatering activities, respectively; 2. Require the preparation of a project specific Health and Safety Plan that identifies hazardous materials present, describes	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		required health and safety provisions and training for all workers potentially exposed to hazardous materials in accordance with state and federal worker safety regulations, and designates the personnel responsible for Health and Safety Plan implementation; 3. Require the preparation of a contingency plan that shall be applied should previously unknown hazardous materials be encountered during construction activities. The contingency plan shall be developed by the contractor(s), with the approval of the City and/or appropriate regulatory agency, prior to demolition or issuance of the first building permit. The contingency plan shall include provisions that require collection of soil and/or groundwater samples in the newly discovered affected area by a qualified environmental professional prior to further work, as appropriate. The samples shall be submitted for laboratory analysis by a state-certified laboratory under chain-of-custody procedures. The analytical methods shall be selected by the environmental professional. The analytical results of the sampling shall be reviewed by the qualified environmental professional and submitted to the appropriate regulatory agency, if appropriate. The environmental professional shall provide recommendations, as applicable, regarding soil/waste management, worker health and safety training, and regulatory agency notifications, in accordance with local, state, and federal requirements. Work shall not resume in the area(s) affected until these recommendations have been implemented under the oversight of the City of regulatory agency, as appropriate; and 4. Designate personnel responsible for implementation of the CRMP. The CRMP shall be submitted to the Fire Department for review and approval prior to construction activities. **SCOA 1.23.** The contractor(s) shall designate storage areas suitable for material delivery, storage, and waste collection. These locations must be as far away from catch basins, gutters, drainage courses, and water bodies as possible. All hazardous materials and wastes used or	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		generated during project site development activities shall be labeled and stored in accordance with applicable local, state, and federal regulations. In addition, an accurate up-to-date inventory, including Material Safety Data Sheets, shall be maintained on-site to assist emergency response personnel in the event of a hazardous materials incident. All maintenance and fueling of vehicles and equipment shall be performed in a designated, bermed area, or over a drip pan that will not allow run-off of spills. Vehicles and equipment shall be regularly checked and have leaks repaired promptly at an off-site location. Secondary containment shall be used to catch leaks or spills any time that vehicle or equipment fluids are dispensed, changed, or poured. **SCOA 1.24.** Emergency Preparedness and Response Procedures shall be developed by the contractor(s) for emergency notification in the event of an accidental spill or other hazardous materials emergency during project site preparation and development activities. These Procedures shall include evacuation procedures, spill containment procedures, required personal protective equipment, as appropriate, in responding to the emergency. The contractor(s) shall submit these procedures to the City prior to demolition or development activities. **SCOA 9.22.** If the presence of hazardous materials is found on site, site remediation may be required by the applicable state or local regulatory agencies. Specific remedies would depend on the extent and magnitude of contamination and requirements of the regulatory agency(ies). Under the direction of the regulatory agency(ies) and the City, a Site Remediation Plan shall be prepared, as required, by the applicant. The Plan shall: 1) specify measures to be taken to protect workers and the public from exposure to the potential hazards and, 2) certify that the proposed remediation would protect the public health in accordance with local, state, and federal requirements, considering the land use proposed. Excavation and earthworking activities	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		associated with the proposed project shall not proceed until the Site Remediation Plan has been reviewed and approved by the regulatory oversight agency and is on file with the City. **SCOA 9.23.** Engineering fill brought on-site shall be demonstrated, by analytical testing, not to pose an unacceptable risk to human health or the environment. Threshold criteria for acceptance of engineered fill shall be selected based on screening levels and protocols developed by regulatory agencies for protection of human health and leaching to groundwater (e.g., Water Board ESLs). The engineered fill shall be characterized by representative sampling in accordance with U.S. EPA's SW-846 Test Methods, by a qualified environmental professional and demonstrated to meet the threshold criteria above. The results of the sampling and waste characterization shall be submitted by the contractor(s) to the City and SMCEHD prior to construction. **SCOA 9.24.** The contractor shall prepare a Waste Disposal and Hazardous Materials Transportation Plan prior to construction activities where hazardous materials or materials requiring off-site disposal would be generated. The Plan shall include a description of analytical methods for characterizing wastes, handling methods required to minimize the potential for exposure, and shall establish procedures for the safe storage of contaminated materials, stockpiling of soils, and storage of dewatered groundwater. The required disposal method for contaminated materials (including any lead-based paint, asbestos, or other hazardous building materials requiring disposal, see SCOA 9.25, below), the approved disposal site, and specific routes used for transport of wastes to and from the project site shall be indicated. The Plan shall be prepared prior to demolition or development activities and submitted to the City. The Waste Disposal and Hazardous Materials Transportation Plan may be prepared as an addendum to the Waste Management Plan required by Chapter 15.44 (Ordinance 523) of the Foster City Municipal Code.	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		SCOA 9.25. Hazardous materials and wastes generated during demolition activities, such as fluorescent light tubes, mercury switches, lead based paint, asbestos containing materials, and PCB wastes, and subsurface hazardous building materials generated during grading and trenching activities, such as asbestos-cement piping, shall be managed and disposed of in accordance with the applicable universal waste and hazardous waste regulations. Federal and state construction worker health and safety regulations shall apply to the removal of hazardous building materials and demolition activities, and any required worker health and safety procedures shall be incorporated into the contractor's specifications for the project. The disposition of hazardous building material wastes shall also be considered in the preparation of the Waste Management Plan required pursuant to the City's Ordinance 523. Documentation of the surveys and abatement activities shall be provided to the City prior to the demolition of structures located at the project site.	
H. HYDROLOGY AND WATER QUALITY			
Impact HYD-1: The project could be susceptible to inundation during a 100-year (or greater) storm due to the current levee deficiencies and could impede or redirect flood flows.	S	Mitigation Measure HYD-1: If the project would be constructed prior to substantial completion of the Foster City Levee Protection Improvements Project, the applicant shall submit plans and hydrological calculations to demonstrate that the new structures would not interfere with the flow of water or increase existing flooding conditions during a 100-year (or greater) flood event. The plans and hydrological calculations shall be submitted for City review and approval prior to the issuance of a grading permit.	LTS
No significant impacts to water quality; groundwater supplies; erosion and siltation; flooding and local stormwater system drainage capacity; or release of pollutants during project inundation would occur with implementation of the City SCOAs listed in this table.	LTS	**SCOA 1.13.** Prior to issuance of a building permit, the plans shall demonstrate compliance with the San Mateo Countywide Water Pollution Prevention Program, (see www.flowstobay.org) including, but not limited to, submittal of checklists related to impervious surface and stormwater: ▪ 1.13.1. C.3 and C.6 Data Collection Form ▪ 1.13.2. Project Applicant Checklist for NPDES Permit Requirements ▪ 1.13.3. Stormwater Control Plan. A Stormwater Control Plan (SWCP)	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		shall be required and approved by the City prior to issuance of the first building permit. Any improvements identified in the SWCP shall be constructed prior to first occupancy to the satisfaction of the Public Works Director/City Engineer. **SCOA 1.21.** All stormwater improvements shall be constructed to the satisfaction of the Engineering Division. **SCOA 1.23.** The contractor(s) shall designate storage areas suitable for material delivery, storage, and waste collection. These locations must be as far away from catch basins, gutters, drainage courses, and water bodies as possible. All hazardous materials and wastes used or generated during project site development activities shall be labeled and stored in accordance with applicable local, state, and federal regulations. In addition, an accurate up-to-date inventory, including Material Safety Data Sheets, shall be maintained on-site to assist emergency response personnel in the event of a hazardous materials incident. All maintenance and fueling of vehicles and equipment shall be performed in a designated, bermed area, or over a drip pan that will not allow run-off of spills. Vehicles and equipment shall be regularly checked and have leaks repaired promptly at an off-site location. Secondary containment shall be used to catch leaks or spills any time that vehicle or equipment fluids are dispensed, changed, or poured. **SCOA 2.4.** Prior to issuance of a building permit, the Construction Best Management Practices (BMPs) from the San Mateo Countywide Stormwater Pollution Prevention Program shall be included as notes on the building permit drawings. **SCOA 2.6.** Prior to issuance of a building permit, any development involving one or more acres of total land area must obtain a General Permit from the State Water Resources Control Board. This permit	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		requires the owner/developer to do the following: a) Submit a Notice of Intent (NOI) to the State Water Resources Control Board prior to commencement of construction activity; b) Copies of the NOI and the SWPPP must be submitted to the Engineering Division along with proof of compliance. **SCOA 2.7.** The applicant shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential adverse impacts to surface water quality during the construction period. The SWPPP shall be prepared by a Qualified SWPPP Practitioner (QSP). The SWPPP shall include the minimum BMPs required for the identified Risk level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association Stormwater Best Management Handbook-Construction. The SWPPP shall be designed to address the following objectives: 1) All pollutants and their sources, including sources of sediment associated with construction activity are controlled; 2) Where not otherwise required to be under a Regional Water Board permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; 3) Site Best Management Practices (BMPs) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology and Best Conventional Technology (BAT/BCT) standard; and 4) Stabilization BMPs installed to reduce or eliminate pollutants after construction are completed. 5) Best Management Practices (BMPs) shall be designed to mitigate construction-related pollutants and at a minimum, include the following: a. Practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP shall	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		specify properly-designed centralized storage areas that keep these materials out of the rain. b. Reduce erosion of exposed soil which may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season because disturbed soil can be exposed to rainfall and storm runoff. c. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control (i.e. keeping sediment on the site). End-of-pipe sediment control measures (e.g. basins and traps) shall be used only as secondary measures. Ingress and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions. 6) The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and shall include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board requirements, monitoring shall be required during the construction period for pollutants that may be present in the runoff that are “not visually detectable in runoff.” To educate on-site personnel and maintain awareness of the importance of stormwater quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP. A QSD shall be responsible for implementing BMPs at the site. The QSD shall also be responsible for performing all required monitoring,	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		and BMP inspection, maintenance and repair activities. The developer shall retain an independent monitor to conduct weekly inspections and provide written monthly reports to the City of Foster City Public Works Department to ensure compliance with the SWPPP. Water Board personnel, who may make unannounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly prepared and implemented. **SCOA 2.8.** The applicant shall fully comply with the C.3 provisions of the Municipal Regional Stormwater NPDES Permit (MRP). Responsibilities include, but are not limited to, designing Best Management Practices (BMPs) into the project features and operation to reduce potential impacts to surface water quality associated with operation of the project. These features shall be included in the design-level drainage plan and final development drawings. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development. All Stormwater control measures outlined in the current San Mateo Countywide Water Pollution Prevention Program's C.3 Stormwater Technical Guidance manual shall be incorporated into the project design. Low Impact Development features, including rainwater harvesting and reuse, and passive, low-maintenance BMPs (e.g., grassy swales, porous pavements) are required under the MRP. Higher-maintenance MBP's may only be used if the development of at-grade treatment systems is not possible, or would not adequately treat runoff. Funding for long-term maintenance for all BMPs must be specified (as the City will not assume maintenance responsibilities for these features).The applicant shall establish a self-perpetuating drainage system maintenance program for the life of the project that includes annual inspections of any stormwater detention devices and drainage inlets. Any accumulation of sediment or other debris would need to be promptly removed. In addition, an annual report	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		documenting the inspection and any remedial action conducted shall be submitted to the Public Works Development for review and approval. The City of Foster City Public Works Department shall ensure that the SWPPP and drainage plan are prepared and are adequate prior to approval of the first building permit for the site. **SCOA 4.1.** Site and civil drawings with all supporting data, including hydraulic calculations for sewer, water and stormwater. The plans shall be prepared by a registered civil engineer and be approved by the City Engineer. **SCOA 5.11.** Prior to issuance of a building permit, the improvement plans shall include the design for a stormwater collection system generally as required and approved by the City. **SCOA 5.12.** Storm Water System: ▪ 5.12.1. Prior to issuance of a building permit, the system shall be designed to be capable of handling a 25-year storm with the hydraulic grade line at least one foot below every grate, to the satisfaction of the Engineering Division. Drainage facilities shall be designed in accordance with accepted engineering principles and shall conform to the Foster City Drainage Design Criteria/Standards available on the City's website: https://www.fostercity.org/publicworks/page/city-standard-design-criteria ▪ 5.12.2. Calculations and plans showing hydraulic gradelines shall be submitted as part of the improvement plans package. ▪ 5.12.3. Items of construction shall include at least the following: o surface and subsurface storm drain facilities; o manholes with manhole frames and covers; o catch basins and laterals;	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		o construct all catch basins as silt detention basins; o And together with appurtenances, to any or all of the above. **SCOA 5.14.** Prior to issuance of a building permit, a complete storm drainage study of the proposed development must be submitted showing the amount of runoff, and existing and proposed drainage structure capacities. This study shall be subject to review and approval by the Engineering Division. All needed improvements shall be installed by the applicants at applicants' sole cost. No overloading of the existing system will be permitted. A hydrology/hydraulic analysis shall be completed on the existing storm drain system to verify it is adequately sized to handle the run-off from the project. Storm drainage study/Hydraulic Analysis shall conform to the City's Drainage Design Criteria/Standards available on the City's website: https://www.fostercity.org/publicworks/page/city-standard-design-criteria. **SCOA 5.15.** Prior to issuance of a building permit, should the City determine that the City's storm drain system or storm drain pumping capacity requires expansion or modification as a result of the applicants' development, the applicants shall pay for all necessary improvement costs. The timing and amount of payment shall be as determined by the City. **SCOA 8.13.** The Developer shall submit a letter signed and stamped by the licensed landscape architect verifying that the plants that have been selected for the bioretention area/swale are drought tolerant, inundation tolerant, and require minimal maintenance consistent with the C.3/C.6 Checklist, as provided in Appendix A of the San Mateo County Wide Water Pollution Prevention Program's C.3 Stormwater Technical Guidance Handbook at www.flowstobay.org. **SCOA 10.13.** Prior to final building inspection, the property owner shall submit a Maintenance Agreement for Stormwater Treatment	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		Measures and Hydromodification Management Controls, including a Maintenance Plan pertinent to the type(s) of measures included in the project, pursuant to the San Mateo Countywide Water Pollution Prevention Program (www.flowstobay.org). Following review and approval by City staff, the property owner shall have the Maintenance Agreement recorded prior to building occupancy approval. The Maintenance Agreement shall be made a part of any CC&Rs recorded for the property and shall include the following statements: ▪ The property owner shall be responsible for conducting all servicing and maintenance as described and required by the approved Maintenance Plan(s). Maintenance of all site design and treatment control measures shall be the owner's responsibility. ▪ Site access shall be granted to representatives of the City, the San Mateo County Mosquito and Vector Control District, and the Water Board, at any time, for the sole purpose of performing operation and maintenance inspections of the installed stormwater treatment systems.	
I. NOISE AND VIBRATION			
<u>Impact NOISE-1</u>: The operation of the construction equipment on the project site could result in temporary noise in excess of standards established in the Foster City Municipal Code.	S	<u>Mitigation Measure NOISE-1:</u> The project applicant shall comply with the following restrictions to reduce potential noise impacts. The contractor shall maintain the following distances from the project site boundary (i.e., noise-generating equipment shall not be operated within these "buffer areas") during different phases of construction: 5 feet for architectural coating; 13 feet for site preparation, building construction, and paving; 29 feet for grading. Should construction activities be required within these buffer areas, consistent with Municipal Code Section 17.68.030(F) – Exemptions, the project applicant shall obtain prior authorization from the director of planning and development services. The project applicant shall also comply with any special mitigation measures as determined by the Community Development Director (referred to as director of planning and development services in the ordinance), which could include but are not limited to the control measures in applicable SCOAs to reduce	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		temporary construction noise impacts. The applicable SCOAs are SCOA 2.9, SCOA 9.1, SCOA 9.2, SCOA 9.10, and SCOA 9.11. Other special mitigation measures could include, but are not limited to the following: ▪ Electrical Power. Electrical power, rather than diesel equipment, shall be used to run compressors and similar power tools and to power temporary structures, such as construction trailers or caretaker facilities. ▪ Workers' Radios. All noise from workers' radios shall be controlled to a point that they are not audible at sensitive receptors near construction activity. ▪ Smart Back-up Alarms. Mobile construction equipment shall have smart back-up alarms that automatically adjust the sound level of the alarm in response to ambient noise levels. ▪ Sound Barrier. Construct or use temporary noise barriers, as needed, to shield noise from the noise-generating construction phases from adjacent residential units to the south of the project site to the extent feasible. To be most effective, the barriers shall block line of sight between noise-generating construction equipment and adjacent residential windows and shall be placed as close as possible to the noise source or the sensitive receptors. Examples of barriers include portable acoustically lined enclosure/housing for specific equipment (e.g., jackhammer and pneumatic-air tools, which generate the loudest noise), temporary noise barriers (e.g., solid plywood fences or portable panel systems, minimum 8 feet in height), and/or acoustical blankets, as feasible. ▪ Noise Monitoring. Monitor the effectiveness of noise attenuation measures by taking noise measurements at the project site boundary during grading and foundation work (which are typically the noisiest phases of construction).	
Impact NOISE-2: Construction of the project could cause vibration damage to the office building to the west of the project site and the residential buildings to the south of the project	S	Mitigation Measure NOISE-2: The project applicant shall comply with the following restrictions to reduce potential vibration impacts to adjacent buildings. The contractor shall maintain the following distances from adjacent buildings during use of the stipulated	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
site.		equipment: 110 feet for an impact pile driver; 20 feet for any piece of nonimpact equipment (e.g., a vibratory roller, a large bulldozer, or a loaded truck. Should site conditions require the use of this construction equipment within that area, a structural engineer or other appropriate professional shall be retained to prepare a vibration impact assessment (assessment) for the adjacent buildings. The assessment shall be conducted in accordance with Federal Transit Administration (FTA) guidance and include project-specific information such as the composition of the buildings, location of the various types of equipment used during each phase of the project, and the soil characteristics in the project area. If the assessment finds that the project may cause damage to these buildings, the structural engineer or other appropriate professional shall recommend design means and methods of construction to avoid the potential damage, if feasible. The assessment and its recommendations shall be reviewed and approved by the City of Foster City prior to construction activities. If there are no feasible design means and methods to eliminate the potential for damage, the structural engineer or other appropriate professional shall undertake an existing conditions study (study) of any buildings that may experience damage. The study shall be included in the project noise control plan and establish the baseline condition of adjoining buildings including, but not limited to, the location and extent of any visible cracks or spalls on the buildings. The study shall include written descriptions and photographs of the buildings. Upon completion of the project, the building shall be resurveyed, and any new cracks or other changes in the building shall be compared to pre-construction conditions and a determination shall be made as to whether the proposed project caused the damage. If it is determined that project construction has resulted in damage to the building, the damage shall be repaired to the pre-existing condition by the project sponsor, provided that the property owner approves of the repair.	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
J. PUBLIC SERVICES, UTILITIES, AND RECREATION			
No significant impacts to public services, utilities, and recreation would occur with implementation of the City SCOAs listed in this table.	LTS	**SCOA 2.4:** Prior to issuance of a building permit, the Construction Best Management Practices (BMPs) related to stormwater prevention shall be included as notes on the building permit drawings (see http://www.fostercity.org/Services/permits/List-of-Forms.cfm). **SCOA 2.9:** The construction contractor shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaints (e.g., beginning work too early, bad muffler) and institute reasonable measures warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site. The construction contractor shall protect all downstream sanitary sewer lines from construction debris while performing sanitary sewer construction. Means to prevent construction debris must be used and shall be inspected by the construction inspector. **SCOA 5.5:** Prior to issuance of a building permit, the applicants, at their expense, shall have a registered civil engineer prepare a complete sewer system capacity study of the on- and off-site sewer system (including lift stations) which services the project (both upstream and downstream). The study shall meet the approval of the City Engineer. All needed construction improvements shall be installed by the applicants at applicants' sole cost. No on-site or downstream overloading of existing sewer system will be permitted. **SCOA 5.6:** The applicant shall prepare a sewer flow projection study and a hydraulic capacity study, to be submitted to the Foster City Public Works Department for review, to verify that the existing sewer system is properly sized to meet the projected increase in wastewater generation on the project site. The studies shall show the new	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		connecting points to the existing sewers and model the estimated flows and peaking factors, as they relate to the changes in land use for the proposed project. **SCOA 5.12.1:** Prior to issuance of a building permit, the stormwater system shall be designed to be capable of handling a 25-year storm with the hydraulic grade line at least one foot below every grate, to the satisfaction of the Engineering Division. Drainage facilities shall be designed in accordance with accepted engineering principles and shall conform to the Foster City Drainage Design Criteria/Standards available on the City's website: https://www.fostercity.org/publicworks/page/city-standard-design-criteria **SCOA 5.14:** Prior to issuance of a building permit, a complete storm drainage study of the proposed development must be submitted showing the amount of runoff, and existing and proposed drainage structure capacities. This study shall be subject to review and approval by the Engineering Division. All needed construction improvements will be made by the applicants. No overloading of the existing system will be permitted. A hydrology/hydraulic analysis shall be completed on the existing storm drain system to verify it is adequately sized to handle the run-off from the project. Storm drainage study/Hydraulic Analysis shall conform to the City's Drainage Design Criteria/Standards available on the City's website: https://www.fostercity.org/publicworks/page/city-standard-design-criteria **SCOA 5.15:** Prior to issuance of a building permit, should the City determine that the City's storm drain system or storm drain pumping capacity requires expansion or modification as a result of the applicants' development, the applicants shall pay for all necessary improvement costs. The timing and amount of payment shall be as determined by the City.	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		SCOA 5.16: Prior to the issuance of a building permit, the improvement plans shall include the design of a domestic water system to the satisfaction of the Engineering Division. **SCOA 5.17.1:** Water lines shall be designed for fire flows to meet California Fire Code and Fire Department requirements. **SCOA 5.18:** All on-site fire water service mains shall have two sources of supply connections to City/District water system and meet the requirements of the State Department of Health Services and the City Fire Marshal. **SCOA 5.20:** Prior to the issuance of a building permit, fire mains shall be designed to Fire Department specifications. Fire mains shall be constructed according to those specifications. **SCOA 5.22:** To properly evaluate necessary improvements, a complete water system capacity study of the on-and-off site water system which services the proposed project shall be prepared by a registered civil engineer approved by the City/District Engineer, and retained by the project developer prior to approval of a building permit. The study shall include: a map showing the project location, utility drawings for the project area (pdf and CAD files), a project description (type of development, number of units, land use, acreage, etc.), and a system demand analysis (including average daily demand, maximum daily demand, peak hour demand, and fire flow requirements), specific to the proposed development. The study shall include a detailed water pipe hydraulic flow analysis to determine whether the existing water distribution system is properly sized to meet the projected new water demands on the project site. All needed construction improvements to upsize the existing water distribution system to meet the demands of the new project, shall be constructed by the applicant at the applicant's sole cost.	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to SCOA or Mitigation Measure	SCOAs/Mitigation Measures	Level of Significance With SCOA or Mitigation Measure
		SCOA 8.1: Documentation showing compliance with Chapter 8.8 of the EMID Code, including, but not limited to submittal of the Outdoor Water Use Efficiency Checklist. **SCOA 9.18:** All excess fill shall be disposed of in accordance with City requirements. All building debris shall be disposed of outside the City of Foster City, pursuant to Chapter 15.44, Recycling and Salvaging of Construction and Demolition Debris. **SCOA 10.23:** Prior to occupancy the existing storm drain pipe lines on the project site and downstream to the nearest lagoon inlet shall be cleaned and sediment removed at the completion of the project. Applicant shall submit a map illustrating the route to be televised for approval of the City/District Engineer prior to sediment removal. The storm drain pipe lines shall be televised after cleaning to verify that the sediment has been removed and to identify any damages to the storm drain pipe lines during construction. A post construction survey report shall be prepared identifying facilities to be repaired and confirming removal of sediment from storm lines. Sediment left in mains shall be subject to re-cleaning at the applicant's sole cost. **SCOA 10.24:** Prior to occupancy the applicant shall arrange a joint field meeting with representatives of the Water Department to perform a visual survey of the condition of the existing water distribution system (including testing of valves and appurtenances) in the vicinity of the project site. The applicant shall prepare a post-construction survey report to be submitted to the Foster City Public Works Department for review. Report shall document any necessary repairs required to the existing water supply infrastructure. The applicant shall be responsible for constructing and financing any such repairs.	

III. PROJECT DESCRIPTION

This chapter describes the proposed new hotel in the Metro Center General Development Plan (GDP) area project (the project) evaluated in this Environmental Impact Report (EIR). The chapter begins with a description of the project site, the regional and planning context, the project objectives, and a discussion of relevant project background. These are followed by a detailed description of the proposed development project, a discussion of the intended uses of the EIR, and an explanation of required project approvals and entitlements.

A. PROJECT SITE

1. Location and Site Characteristics

The project site comprises approximately 1.36 acres in the Metro Center neighborhood of Foster City. Foster City is located in San Mateo County, midway between the cities of San Francisco and San Jose. The City is bordered by San Francisco Bay to the north and east, the cities of Belmont and Redwood City to the south, and the City of San Mateo to the west. Figure III-1 shows the project site's regional and local context. Local access to the site is via Shell Boulevard and Metro Center Boulevard. Regional access to the site is via California State Route 92 (SR-92) to the Metro Center Boulevard exit from the west and SR-92 to Foster City Boulevard/East Hillsdale Boulevard exit from the east. Regional auto access to the site from the north and south is provided via U.S. Highway 101, which intersects with SR-92 approximately 1.25 miles west of the project site.

The project site, which is situated at the southwest corner of the intersection of Metro Center Boulevard and Shell Boulevard, does not yet have an address assigned. It is roughly square in shape and bounded by Metro Center Boulevard to the North, Shell Boulevard to the east, a driveway and the Cityhomes East multi-family residential (townhomes) complex to the southeast, and the parking garage for the Visa office building at 900 Metro Center Boulevard to the west. The driveway that forms the southern boundary of the project site provides access to Visa's parking garage from Shell Boulevard.

The project site encompasses approximately 1.36 acres of undeveloped land owned by the project applicant, MPQ Foster City Metro Center LLC. It falls within a single San Mateo County Assessor's parcel, with the following Assessor's Parcel Number (APN): 094 522-350. The project site is not on the list of hazardous waste and substances sites (Cortese List) compiled by the California Environmental Protection agency pursuant to Government Code Section 65962.5.

Parks & Open Space

Foster City city limit

Water bodies

Figure III-1
Project Location

The site is generally level and has never been developed with structures, although aerial photos indicate that it was previously used as a parking lot. Currently, a grassy lawn covers much of the project site. Several utility cabinets are also located within the project site in the southern corner of the site.

View of the project site from the corner of Metro Center Boulevard and Shell Boulevard (facing east). A grassy lawn covers much of the project site and mature Black Acacia trees line the edge of the site.

Planting strips between the sidewalk and street along both the Metro Center Boulevard and Shell Boulevard frontages of the project site contain a total of 17 mature Black Acacia trees. These planting strips are also landscaped with ornamental ground cover vegetation, including escallonia and jasmine shrubs.

The site is currently used for a weekly outdoor farmer's market and is occasionally rented out for private events.

2. Surrounding Land Uses

The project site is situated between the San Francisco Bay to the north and the Foster City Lagoon channel to the west. The Foster City Lagoon acts a stormwater retention and drainage system to reduce the likelihood of flooding during major rainfall events.[1] Surrounding land uses are predominately commercial, although a residential townhomes development is immediately south of the project site. The land uses around the project site include:

- Metro Center Boulevard and an approximately 3-acre surface parking lot for the Costco at 1001 Metro Center Boulevard to the north;
- A multi-tenant retail complex, hotel, and associated surface parking for both developments across Shell Boulevard to the east;
- The access driveway from Shell Boulevard for the parking garage at 900 Metro Center Boulevard and the Cityhomes East townhome development to the south; and

[1] City of Foster City, 2020. Foster City Lagoon webpage. Available at: https://www.fostercity.org/publicworks/page/lagoon-system, accessed January 30, 2020.

- The two-story parking garage and nine-story office tower located at 900 Metro Center Boulevard to the west.

A more detailed discussion of existing and planned land uses is provided in *Section V.A, Land Use*, and Figure V.A-1 illustrates the existing land uses on and surrounding the project site.

3. General Plan and Zoning Designation

The Foster City General Plan land use classification for the project site, as established by the Land Use and Circulation Element of the City's General Plan, is Town Center Commercial. The General Plan states that the Town Center Commercial designation is reserved for the area northwest of East Hillsdale Boulevard, bounded by Foster City Boulevard to the north and State Route 92 (SR-92) to the west. The Town Center Commercial designation includes the 100-acre development known as Metro Center (where the project site is located), which is intended to serve as Foster City's downtown core. The General Plan envisions that developments located within the Metro Center portion of the area designated as Town Center Commercial would have the highest intensity uses in the City.[2]

The zoning designation of the subject site is General Business/Planned Development (C-2/PD) district, which allows hotels, including associated restaurants and meeting rooms, as a permitted use. The PD combining district is "intended to accommodate a range of development types while offering flexibility by allowing tailoring of City standards to specific uses."[3]). The current zoning designation for the site is established in the Metro Center[4] GDP, which establishes the zoning map for the site. The Metro Center GDP currently allows 359,300 square feet of retail commercial use and siting of a 147-room courtyard-style hotel. Although the proposed project would not require a change in zoning designation, a GDP Amendment/Rezoning would be necessary to amend the Metro Center GDP to allow the proposed addition of a second hotel with up to 156-rooms.

B. PROJECT BACKGROUND

The project site occupies a portion of a larger 100-acre development area known as Metro Center. The area that currently comprises Metro Center was originally known as Town Center and is bounded by Foster City Boulevard, Metro Center Boulevard, Edgewater Boulevard, and East

[2] City of Foster City, 2016. General Plan, Land Use and Circulation Element.

[3] Moneda, Jeff, 2019. Staff Report: Preliminary Review Meeting to Consider a New Hotel at the Vacant Visa Lot.

[4] City of Foster City, 1983. Town Center General Plan Report, November. Amended by Foster City Ordinance Number 434, Septermber 16, 1996.

Hillsdale Boulevard. Foster City's first adopted General Plan states as one of its goals to establish "Town [Metro] Center as the hub of the City's commercial community."

A GDP for the Metro Center Area was approved by the Planning Commission in June 1981 and a revised plan was approved in 1984. The revised 1984 GDP envisioned the development of approximately 1.41 million square feet of office space, 287,000 square feet of retail space, a 300-room hotel, and between 410 to 500 dwelling units. In 1996, the City Council approved a zoning map amendment to the Metro Center GDP to permit up to 1.59 million square feet of general office use, 359,300 square feet of retail use, and a 147-room hotel.[5] In the 1984 GDP, the project site was designated for commercial retail use, and the 1996 GDP designated the site for restaurant use.

Currently, the Metro Center GDP area contains approximately 1.58 million square feet of offices, 360,000 square feet of commercial/retail space, a 147-room hotel, 372 dwelling units, and a 7,500-square-foot daycare center.

To introduce the project to the public and councilmembers, the City Council held a Development Project Preliminary Review meeting on January 22, 2019. As a 147-room hotel has already been developed within the Metro Center[6], the project would require a GDP Amendment/Rezoning to permit a second hotel to be developed within the Metro Center area.

C. PROJECT OBJECTIVES

The project applicant, MPQ Investment Management, has identified the following objectives and benefits for the proposed project:

- Enhance the image of Foster City with a new, three-star, select-service hotel in the commercial center of the city;
- Develop a 156-room limited service franchise hotel with a sky lobby, limited-service lounge, casual dining facility, parking garage, and ground-floor parking lot;
- Contribute to public health by providing an on-site gym for hotel guests to engage in physical activity during their travels;
- Provide business travelers with more modern hospitality choices during their stays in the Foster City area;

[5] City of Foster City, 1996. Ordinance Number 434. Passed September 16.
[6] Courtyard by Marriot located at 550 Shell Boulevard.

- Create a new community amenity on the roof-top sky lounge and decks as a gathering spot for small meetings and business traveler gatherings;
- Reduce local traffic congestion by reducing commuting into and out of the City through the provision of local accommodations for business travelers;
- Provide a comprehensive hotel bus shuttle service that will reduce automobile traffic on local streets and the San Mateo Bridge;
- Increase the walkability of the Metro Center by developing a hotel in close proximity to businesses and offices that hotel guests are likely to patronize, such as Costco, Visa, IBM, Qualys, Inc., and, Gilead Sciences; and
- Provide employment opportunities to local residents as well as to skilled workers from the surrounding areas.

D. PROJECT CHARACTERISTICS

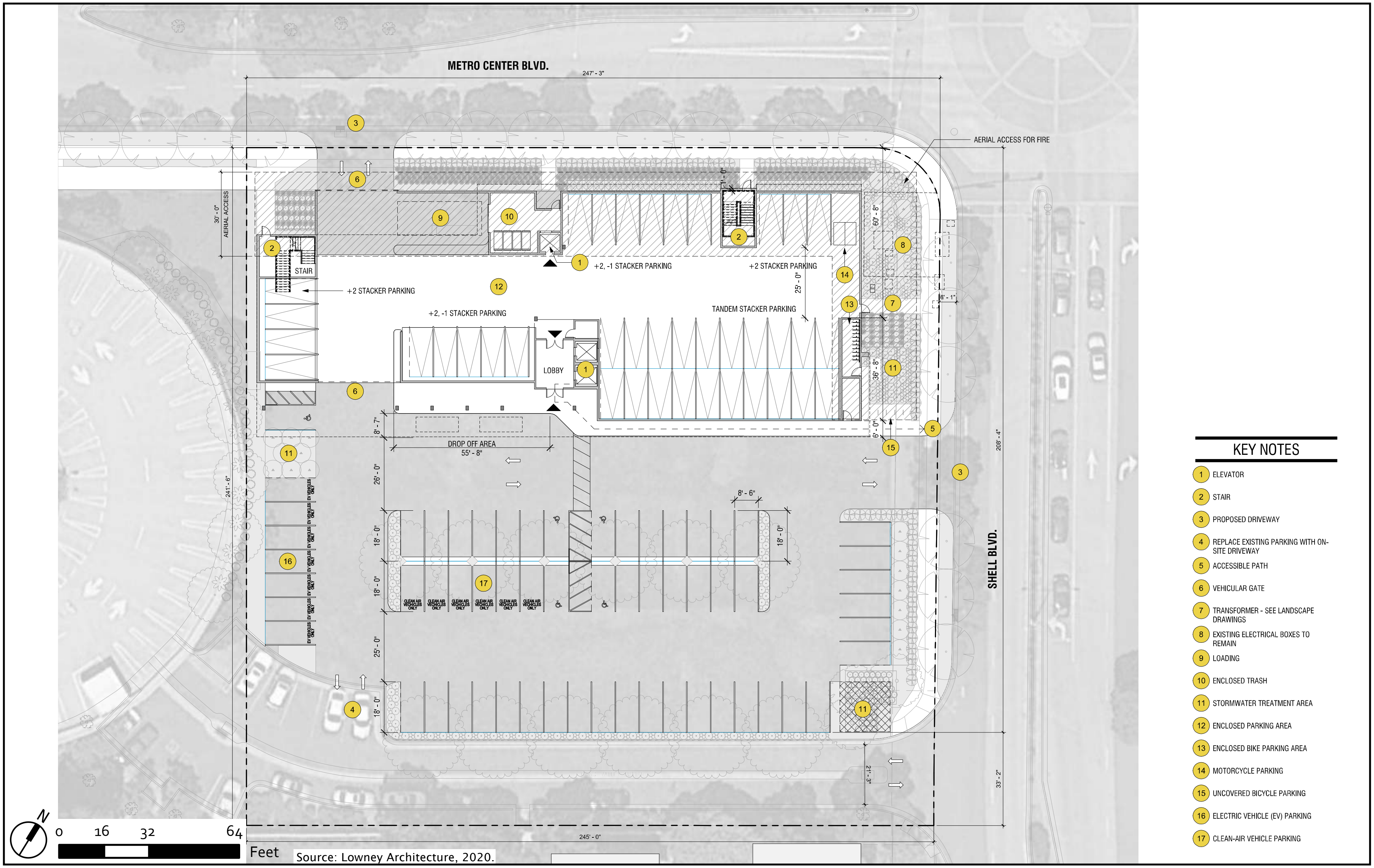
The project would create a new hotel with casual dining facilities and guest amenities. The project would include one seven-story building ranging in height from approximately 80 to 89 feet (including the roof parapet). Key elements of the project include:

- One building of approximately 83,187 square feet containing:
  - Up to 156 guest rooms.
  - A casual dining facility up to 1,500 square feet.
  - A rooftop deck of approximately 1,200 square feet.
  - Three (3) meeting rooms totaling approximately 1,700 square feet.
  - A guest fitness center of approximately 800 square feet.
- Surface parking at the rear of the site and mechanical parking lifts located below the building podium, accommodating a total of 141 parking stalls.

Based on the Trip Generation Manual daily trip rate ratio (0.6 employees/room), approximately 93 employees are anticipated for the hotel. A site plan is shown in Figure III-2 and the project's elements are described in more detail below.

1. Site Plan

As the site is currently undeveloped, no buildings would be demolished as part of the project. The project would develop one building in the vacant northeast portion of the lot containing the existing hotel and a ground-level parking area. A surface parking lot would be located to the rear of the hotel building. Vehicular access to the project site would be provided via three ingress/ egress driveways: one driveway along Metro Center Boulevard, one driveway from Shell Boulevard, and a driveway connected to the existing driveway from Shell Boulevard that serves



Source: Lowney Architecture, 2020.

Figure III-2

Site Plan

New Hotel in Metro Center GDP Area Project EIR

the Visa parking structure at 900 Metro Center Boulevard and visitor parking for the Cityhomes East townhomes complex adjacent to, and south of, the project site. Landscaping would be provided along the sidewalk edges of the project site, as described below.

2. Hotel Building

The project proposes to locate the seven-story hotel building in the northeast corner of the lot. The structure would have approximately 170 feet of frontage along Metro Center Boulevard and 82 feet of frontage along Shell Boulevard. The hotel would be set back approximately 16.5 feet from the property line on the Shell Boulevard frontage and approximately 13 feet from the property line along the Metro Center Boulevard frontage. The ground floor of the hotel would include vehicle parking in mechanical stackers and a secure bicycle parking room. A fully enclosed trash room and loading dock with space for one truck would be located on the ground floor adjacent to the driveway serving Metro Center Boulevard. The second floor would contain guest rooms and a 722-square foot garden deck along the southeast side of the building. The third through sixth floors would each contain only guest rooms and accessory spaces such as a linen closet. A rooftop deck on the north side of the building along Metro Center Boulevard would also be located on the seventh floor, along with the hotel's lobby, bar, casual dining facility, guest rooms, fitness center and meeting rooms.

The restaurant would have seating for a maximum of approximately 72 people. The rooftop deck would be restricted for the use of hotel guests only and would contain planters and outdoor furniture that is typical for outdoor spaces. No events that would generate excessive noise, such as live music, would take place on the rooftop. Food or drinks may be served at the rooftop deck subject to the discretion of the hotel operator and applicable regulations in the Foster City Municipal Code.

The building's roof would contain heating, ventilation, and air conditioning (HVAC) equipment.

Figure III-3 shows a visual simulation of the building's massing. Typical floor plans for the project are shown in Figures III-4 through III-7 and building elevations are shown in Figures III-8 through III-11.

Vertical circulation would be provided by three elevators in approximately the center of the building and two stairwells along the north and west side of the hotel.

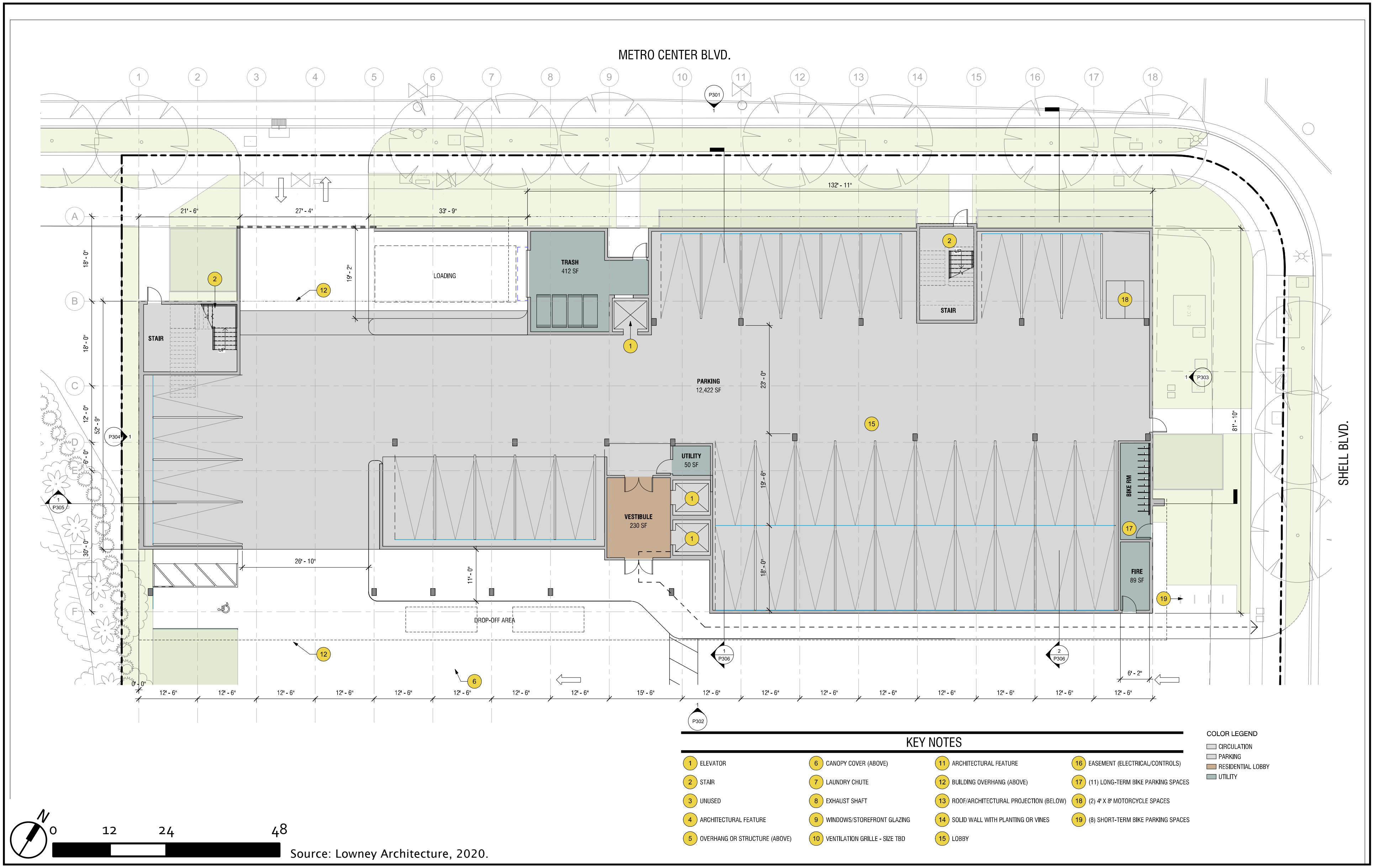
3. On-Site Circulation and Loading

Vehicular access to the site would be provided through two driveways, one along Metro Center Boulevard and the other along Shell Boulevard. Direct pedestrian access to the hotel would be through a walkway from the sidewalk along Shell Boulevard. A third shared access point would be

Source: Lowney Architecture, 2020.

Figure III-2

Project Massing from Metro Center Boulevard and Shell Boulevard



Source: Lowney Architecture, 2020.

Figure III-4
Ground Floor Plan

New Hotel in Metro Center GDP Area Project EIR

Source: Lowney Architecture, 2020.

Figure III-5

Floor Plan - Level 2

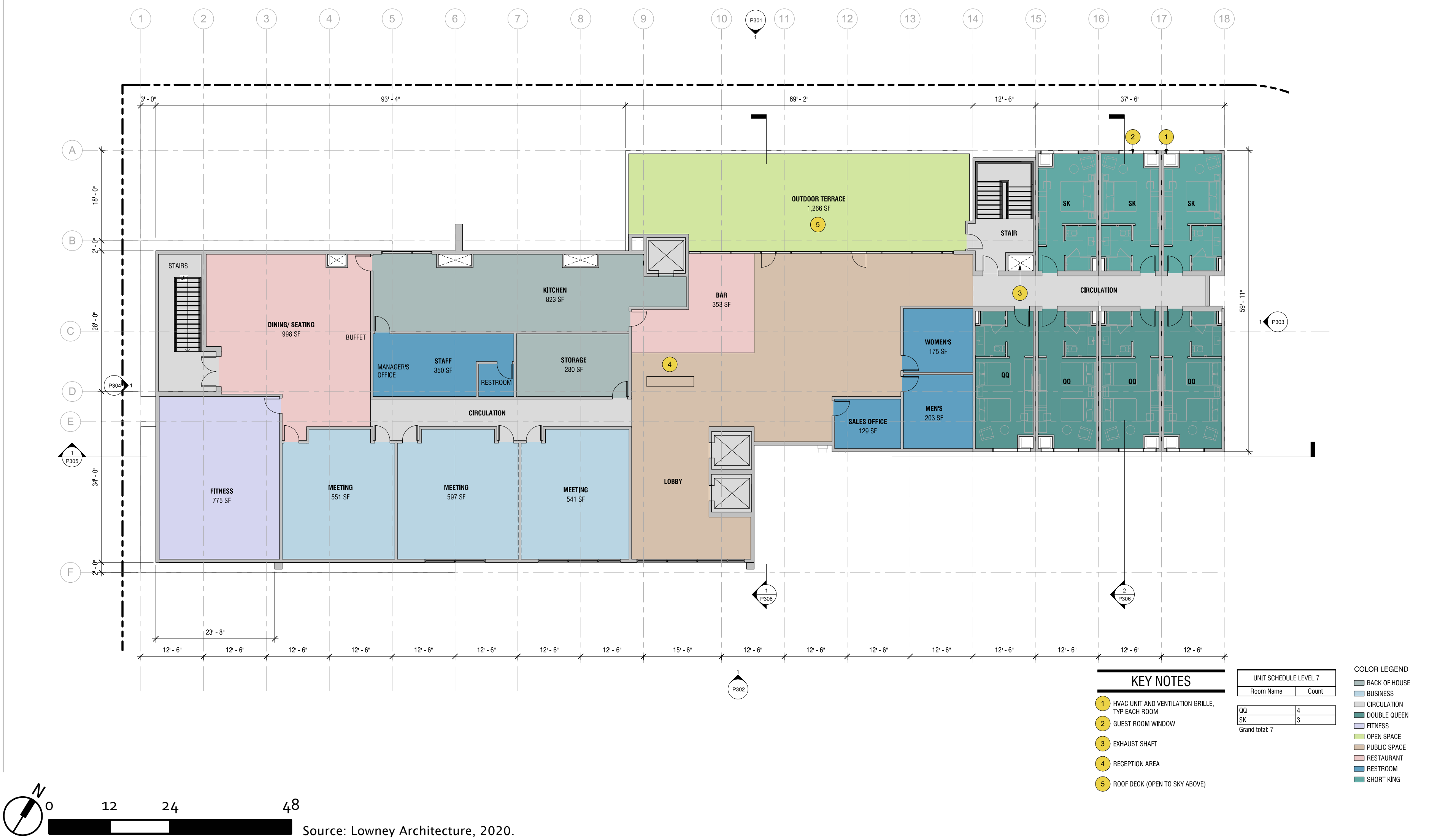
New Hotel in Metro Center GDP Area Project EIR

Source: Lowney Architecture, 2020.

Figure III-6

Floor Plan - Typical Level 3 through 6

New Hotel in Metro Center GDP Area Project EIR



Source: Lowney Architecture, 2020.

Figure III-7

Floor Plan - Level 7

New Hotel in Metro Center GDP Area Project EIR

N

0 12 24 48

Source: Lowney Architecture, 2020.

Figure III-8

Exterior Elevation - North

New Hotel in Metro Center GDP Area Project EIR

N

0 12 24 48

Source: Lowney Architecture, 2020.

Figure III-9

Exterior Elevation - South

New Hotel in Metro Center GDP Area Project EIR

Source: Lowney Architecture, 2020.

Figure III-10

Exterior Elevation - East

New Hotel in Metro Center GDP Area Project EIR

Source: Lowney Architecture, 2020.

Figure III-11

Exterior Elevation - West

New Hotel in Metro Center GDP Area Project EIR

available from the existing driveway to the Visa parking garage and Cityhomes East visitor parking.

The project would provide 60 parking spaces, including 5 accessible spaces, in a surface parking lot to the rear (south) of the hotel building. The parking garage below the building podium would provide 81 additional spaces in mechanical stackers. The mechanical stackers would lift parked cars off the ground, allowing additional cars to park underneath each lifted car, providing parking for up to three cars in the footprint of a single traditional parking space. The hotel will provide a valet/ concierge service for parking and retrieving vehicles from the mechanical stackers. Two motorcycle spaces would also be provided in the garage.

Guest loading and unloading would occur on the south side of the hotel building adjacent to the vehicle entrance along Shell Boulevard closest to the hotel. The loading zone would provide space for approximately two (2) passenger vehicles to unload simultaneously. A truck loading space adjacent to the Metro Center Boulevard entrance would allow for unloading of deliveries to the hotel and for trash and recycling pick-up.

4. Landscaping

The project would retain, or replace with species suitable to thrive in Foster City climatic and soil conditions, the 14 healthy Black Acacia trees in the planting strip between the sidewalk and road along both the Metro Center Boulevard and Shell Boulevard frontages. Between the existing sidewalk and the proposed hotel building and parking structures, the project would install a planting strip with low shrubs and grasses, including soft rush, butterfly-bush, Japanese cheesewood, oceanspray, and germander sage.

E. CONSTRUCTION SCHEDULE

Construction activities for the project would begin as early as June 2020 and last an estimated 26 months, ending in July 2022. Excavation for the hotel and parking structure would extend approximately 6 feet below the existing ground surface and require removal of approximately 13,000 cubic yards of soil. It was conservatively estimated that the same amount of import for engineered fill would be required.

F. USES OF THIS EIR

It is anticipated that this EIR will provide environmental review of all discretionary approvals and actions required for the proposed project. Approvals would be required before development of the project could be initiated. As Lead Agency for the proposed project, the City of Foster City is responsible for the majority of these approvals. Other agencies also may have some authority related to the project and its approvals. A list of permits and approvals that may be required by the City and other agencies, without limitations, is provided in Table III-1.

TABLE III-1 REQUIRED PERMITS AND APPROVALS

Lead Agency	Permit/Approval
City of Foster City	▪ Environmental Review ▪ General Development Plan/Rezoning ▪ Specific Development Plan/Use Permit ▪ Building Permits
Responsible Agencies	
San Francisco Bay Regional Water Quality Control Board (RWQCB)	▪ National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge

Source: Urban Planning Partners, 2019.

1. Discretionary Approvals

Key discretionary actions required by the City of Foster City are outlined below.

a. Environmental Review

An Environmental Assessment, in the form of an EIR, will be prepared in accordance with the California Environmental Quality Act (CEQA). The EIR will analyze the environmental impacts of the proposed project.

b. General Development Plan/Rezoning

The current General Business/ Planned Development (C-2/PD) district allows hotels, including restaurants and meetings rooms, as permitted uses. Although the proposed project would not require a change in zoning designation, a GDP Amendment/Rezoning would be necessary to amend the Metro Center GDP to allow the proposed addition of a second, 156-room hotel.

c. Specific Development Plan/Use Permit

Specific Development Plan (SDP)/Use Permit (UP) approvals would be necessary to allow the construction of any improvements or buildings. Site design, building design and architecture, as well as the details of any improvements, are considered as part of SDP/UP approval. An SDP/Use Permit in a PD district includes architectural review and requires approval by the Foster City Planning Commission.

IV. PLANNING POLICY

This chapter includes a discussion of the relationship of the new hotel proposed in the Metro Center General Development Plan (GDP) area (the project) to applicable planning-related policies, including land use policies. The main guiding documents regulating land use within and around the project site include the following:

- Foster City General Plan (particularly the Land Use and Circulation Element);
- Foster City Zoning Ordinance;
- Metro Center GDP;
- Foster City Climate Action Plan; and
- San Mateo County Comprehensive Airport Land Use Plan.

Policy conflicts in and of themselves, in the absence of adverse physical impacts, are not considered to have significant effects on the environment and are differentiated from impacts identified in the other topical sections of this chapter. Pursuant to the California Environmental Quality Act (CEQA), the fact that a specific project does not meet all of a general plan's goals, policies, and objectives does not inherently result in a significant effect on the environment. Physical impacts associated with policy conflicts are addressed in the appropriate technical sections of *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures* (e.g., Noise, Transportation). Additionally, local, regional, and State of California (State) plans and policies, such as those relating to air quality or water quality, are discussed in the applicable sections of this Environmental Impact Report (EIR).

A. FOSTER CITY GENERAL PLAN

This section provides a description of the Foster City General Plan (General Plan) and includes a discussion of the project's relationship to applicable goals, policies, and programs outlined in the General Plan. Applicable planning-related policies in the General Plan and the relationship of the project with these policies are summarized in Table IV-1 located at the end of this chapter. Table IV-1 is not a comprehensive list, and additional General Plan policies pertaining to resources such as air quality and biological resources or pertaining to issues such as traffic are presented in the topical sections dedicated to those issues.

The General Plan is a comprehensive plan for the growth, development, and conservation of the City. The General Plan includes policies related to land use and circulation, housing, parks and open space, conservation, and noise and safety. These topics are addressed within individual elements of the General Plan. The General Plan Land Use and Circulation Element is applicable to land uses within the project site. It is described below.

1. Land Use and Circulation Element

a. Overview

The Land Use and Circulation Element establishes a pattern for land use and sets clear standards for the density of population and the intensity of development for proposed land uses. The element establishes a direct link between the timing, amount, type, and location of development with the traffic, service, and infrastructure demands generated by development. The overall vision of the Land Use and Circulation Element is for the City to "maintain the integrity and high quality living environment of the City's residential neighborhoods; achieve a successful buildout that balances jobs and housing, infrastructure capacity with development needs; and respond to longer-term land use and circulation needs in an appropriate manner." [*sic*]

The General Plan Land Use Designation of the project site is Town Center Commercial, as depicted in Figure IV-1. The General Plan describes the Town Center Commercial Land Use Designation as follows:

> "This designation is reserved for the area located northwest of East Hillsdale Boulevard, bounded by Foster City Boulevard to the north and State Route 92 to the west. The area includes a 100-acre development known as Metro Center, in addition to Parkside Towers and other office developments. Metro Center is intended to serve as Foster City's downtown core."

Projects with an appropriate mix of commercial, office, and residential uses may also be considered compatible with the Town Center Commercial designation. The highest intensity uses in the city are permitted for the Metro Center development, with Floor Area Ratios (FAR) ranging from 0.55 to 2.0. Town Center Commercial developments outside of Metro Center have lower intensities, with FARs ranging from 0.18 to 1.5.

b. Relationship to Project

The hotel would feature up to 156 guest rooms on the upper floors; a causal dining facility; a rooftop terrace bar; and other guest amenities. The hotel would have a total floor area of approximately 83,187 square feet. The project would accommodate space for parking 141 vehicles, with vehicular access provided from Shell Boulevard and Metro Center Boulevard.

The FAR of the proposed hotel would be approximately 1.62, which is within the range of FARs contemplated in the General Plan for the Metro Center GDP area. The proposed hotel is consistent with the commercial uses prescribed for the Town Center Commercial land use

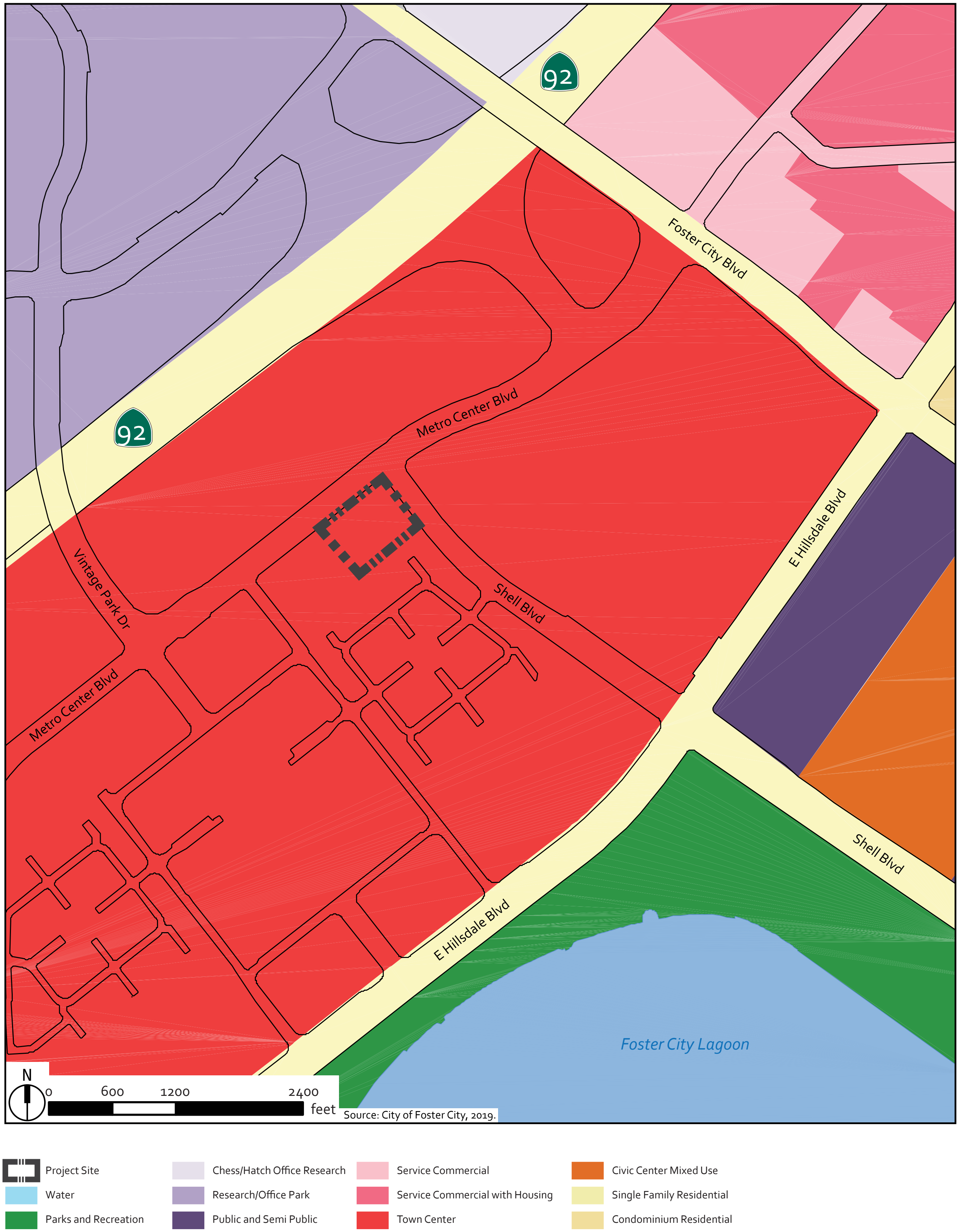


Figure IV-1
General Plan Land Use Designations

designation in the General Plan. The project is generally consistent with the goals and policies of the General Plan Land Use and Circulation Element, as detailed in Table IV-1 at the end of this chapter.

2. Parks and Open Space Element

a. Overview

The Parks and Open Space Element of the General Plan addresses the preservation of parks and open space within the City. The intent of this element is to provide policies that maintain and improve parks and open space in Foster City. The overall vision of this element is to preserve and improve the quality of life within existing neighborhoods; assure the proper development of undeveloped property; and assure that redevelopment of developed or underutilized property occurs in an appropriate manner. The Foster City General Plan has a parkland standard of 5 acres per 1,000 residents.

b. Relationship to Project

As discussed in *Chapter III, Project Description,* the project would increase employment on the site by approximately 93 new employees. The creation of these jobs could indirectly induce population growth in the city, increasing the demand for parks and recreational facilities. As described in *Section V.J, Public Services, Utilities, and Recreation*, the City is far surpassing its goal of providing 5 acres of parkland per 1,000 residents. Although the project could indirectly induce population growth due to project employees' relocating to the area, this population increase would not require the development of additional parks and recreational facilities because the project does not propose any new residents. Additionally, as the project is not a residential project, the provisions of Foster City Municipal Code Section 16.36, which require the dedication or land or payment of fees in lieu, do not apply. As such, an increase in demand for parks and open space indirectly associated with the project would not cause the project to be inconsistent with the Parks and Open Space Element.

3. Noise Element

a. Overview

The Noise Element of the General Plan identifies and appraises noise issues in the community as a basis for the goals, policies, and implementing actions necessary to maintain conditions desirable and appropriate for Foster City. The overall vision of this element is to preserve and improve the quiet ambience within existing neighborhoods; assure the proper development of undeveloped property; and assure that redevelopment of developed or underutilized property occurs in a manner compatible with existing land uses. To meet these objectives, the Noise

Element requires that new development or redevelopment projects be compatible with surrounding land uses. The Noise Element thus establishes land use compatibility standards and suggests ways to reduce noise impacts to adjacent sensitive land uses such as residences, schools, hospitals, and retirement homes.

b. Relationship to Project

According to the Noise Element of the Foster City General Plan, if the predicted future sound level is greater than 60 dBA L_{dn}[1], a 3-dBA increase in noise due to the project would be considered a significant noise impact. As detailed in *Section V.I, Noise and Vibration*, the operation of the project would not result in an increase of 3 dBA or greater in the ambient noise level. Thus, the operation of the project would be consistent with the City's established noise-related policies as established in the General Plan and Municipal Code. Although construction activities would temporarily exceed the land use compatibility standards in the Noise Element for the adjacent office and residential uses, these exceedances would be temporary and intermittent. Construction activities would comply with Mitigation Measure NOISE-1, described in *Section V.I, Noise and Vibration* and the requirements for construction noise provided in Section 17.68.030 of the Foster City Municipal Code.

B. FOSTER CITY ZONING ORDINANCE

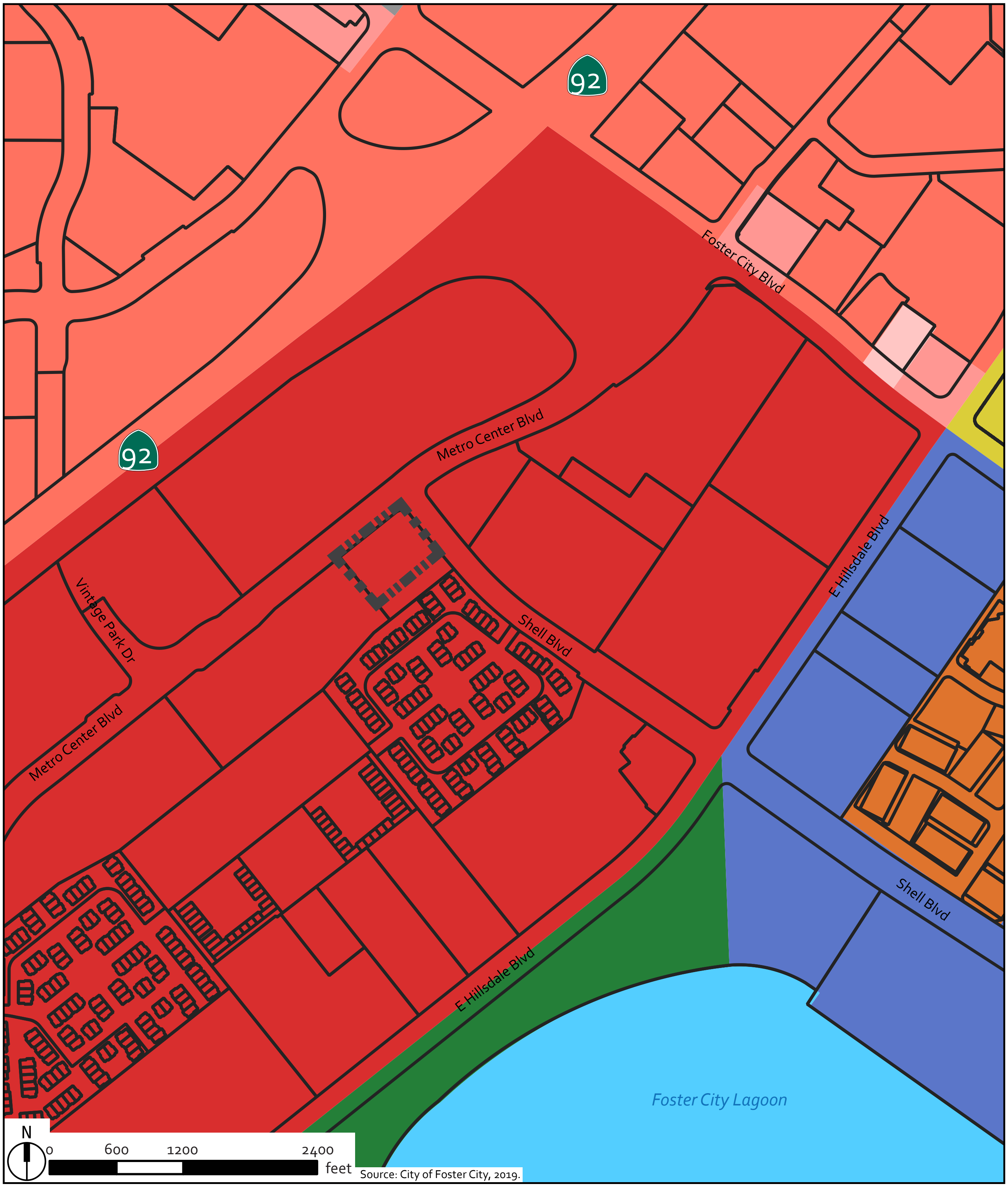
The following provides a description of the City of Foster City Zoning Ordinance (Zoning Ordinance) as well as the project's consistency with applicable provisions of the Zoning Ordinance.

1. Overview

The Zoning Ordinance (Title 17 of the Foster City Municipal Code) implements the land use policies of the General Plan and other City plans, policies, and ordinances. It achieves this by dividing the City into zoning districts, each of which is assigned different regulations regarding physical development. These regulations direct the type of allowable uses, as well building construction, nature, extent, and intensity.

The current zoning designation for the project site, as established in Chapter 17.28 of the Municipal Code, is General Business/Planned Development (C-2/PD) district, as shown in Figure IV-2. According to Chapter 17.36, Planned Development (PD) combining districts, "accommodate

[1] L_{dn} refers to Day/Night Average Noise Level, is the average loudness over a 24-hour period. Noise levels from between the hours of 10:00 p.m. and 7:00 p.m. are increased by 10 dBA before averaging to acocunt for the decrease in background noise during these hours, which causes other noises to be percieved louder during these hours.



Project Site
Open Space-Conservation (OSC)
Open Space-Conservation/Aquatic Development (OSC/W)
Commercial Neighborhood Business (C-1)
General Business District/Planned Development (C-2/PD)
Commercial Automobile Repair and Service (CA)
Commercial Mix/Planned Development (CM/PD)
Commercial Mix/Planned Development/Senior Housing Overlay (CM/PD/SHO)
Medium Density Multiple-Family Residence (R-3)
Public Facilities/Planned Development (PF/PD)

Figure IV-2
Zoning Designations

various types of development…or a combination of uses which can be made appropriately as part of a planned development." The purpose of PD districts is to "allow flexibility of design which is in accordance with the objectives and spirit of the General Plan."

Applications for development in a PD district must include a GDP/Rezoning that establishes design standards, development parameters, and traditional zoning standards such as site layout, setbacks, lot sizes, and building heights, among others. If and when the GDP is approved, it becomes a part of the zoning map of the City. The project site is located within the Metro Center GDP, approved in 1984.

Following approval of a GDP Amendment/Rezoning, the City requires the submittal and approval of a Specific Development Plan (SDP)/Use Permit before building permits may be issued and construction of any buildings or improvements can occur. Site development, building design, and architecture, as well as the details of any improvements, are considered as part of this approval. If the project is phased, the SDP can address the specific phase for which development approval is requested. An SDP/Use Permit in a PD district includes architectural review and requires approval by the Foster City Planning Commission.

2. Relationship to Project

As stated above, the project's location in the C-2/PD zoning district would require the approval of a GDP Amendment/Rezoning to allow the proposed development within the current Metro Center GDP. The GDP Amendment/Rezoning would not change the C-2/PD zoning designation, but would amend the maximum allowed development within the Metro Center GDP Area. The GDP currently permits a maximum of 359,700 square feet of retail commercial and one 147-room courtyard-style hotel. This 147-room hotel has already been developed.

The proposed GDP amendment/Rezoning would permit a second, 156-room hotel. This proposed GDP Amendment/Rezoning would be consistent with the intent of the C-2/PD district, as the proposal is commercial in nature. Additionally, as described in Section 17.26.020 of the Foster City Municipal Code, hotels are a permitted use in the C-2 zoning district. Once the GDP Amendment/ Rezoning is complete, the project would be consistent with the Metro Center GDP, which establishes the zoning and development standards for the site.

Prior to SDP approval, the project would be required to undergo the City's architectural and site design review process to ensure that the project conforms to the design review criteria for mixed-use development. As described above, the project is generally consistent with the provisions of the City's Zoning Ordinance.

C. FOSTER CITY CLIMATE ACTION PLAN

1. Overview

In September 2015, the City adopted a Climate Action Plan in order to meet greenhouse gas (GHG) reduction targets set by the State of California via Assembly Bill 32[2], Senate Bill 375,[3] and Executive Order S-3-05. The Climate Action Plan and the State actions mentioned above recognize that "human activity is changing the earth's climate through the release of GHGs) resulting from combustion of fossil fuels."[4] The Climate Action Plan catalogs sources of GHG emissions in Foster City and provides measures for both private developments and the City to reduce GHG emissions.

2. Relationship to Project

The Climate Action Plan provides a series of required and encouraged measure to reduce GHGs from private developments, which will allow the City to meet its GHG reduction targets. The project is generally consistent with the goals and policies of the Climate Action Plan, as detailed in Table IV-2 at the end of this chapter.

D. SAN MATEO COUNTY COMPREHENSIVE AIRPORT LAND USE PLAN

The project site is located within the vicinity of two airports governed by the San Mateo County Comprehensive Airport Land Use Plan (CLUP). A description of the proposed project's relationship to and consistency with the CLUP is provided below.

1. Overview

California state law requires an airport land use commission to prepare and adopt a CLUP for each public-use airport in the San Mateo County.[5] The CLUP is a tool used by airport land use commissions to fulfill their purpose of promoting airport/land use compatibility. The purpose of the CLUP is to provide for the orderly growth of each public airport and surrounding area and to safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general.

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[2] California Legislature, Assembly. California Global Warming Solutions Act of 2006. Assembly Bill 32. 2005-06 session.

[3] California Legislature, Senate. Sustainable Communities and Climate Protection Act of 2008. Senate Bill 375. 2007-08 session.

[4] City of Foster City, 2015. Foster City Climate Action Plan, September.

[5] California Public Utilities Code Section 21675(a).

The CLUP is focused on the following three major concerns: 1) aircraft noise impact reduction; 2) the safety of persons on the ground and in aircraft flight; and 3) height restrictions and airspace protection.[6] The project site is located within the airport influence areas of both the San Francisco International and San Carlos airports. The Airport Land Use Plan for each respective airport and applicable policies are discussed below.

a. San Carlos Airport

The project site is located approximately 3.3 miles north of the San Carlos Airport. Although the project site is located outside of the mapped height restriction area for this airport, it is located within Area A of the Airport Influence Area (AIA).[7] This boundary defines an area within which a real estate disclosure notice must be provided to a buyer or lessee of property within the boundary, regarding the proximity of the nearby airport.

The project site is located outside of the 55-dB Community Noise Equivalent Level (CNEL) aircraft noise contour for the San Carlos Airport. This noise contour is used by the Airport Land Use Commission as the threshold for triggering review and evaluation of proposed land use policy actions in proximity to the airport with respect to noise impacts.[8]

Certain types of land uses are recognized by the Airport Land Use Commission as hazards to air navigation in the vicinity of the San Carlos Airport. These land uses include any of the following:

- Any use that would direct a steady or flashing light toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in straight final approach toward a landing.
- Any use that would cause sunlight to be reflected toward an aircraft in an initial straight climb following takeoff or toward an aircraft engaged in straight final approach toward a landing.
- Any use that would generate smoke or rising columns of air.
- Any use that would attract large concentrations of birds within approach/climb-out areas.
- Any use that would generate electrical interference that may interfere with aircraft communications or aircraft instrumentation.

[6] City/County Association of Governments of San Mateo County (C/CAG), 1996. San Mateo County Comprehensive Airport Land Use Plan, 1996. Adopted November 14, 1996; City/County Association of Governments of San Mateo County (C/CAG), 2012, Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport, adopted October 2012.

[7] City/County Association of Governments of San Mateo County (C/CAG), 2004, CCAG Land Use Committee Recommendation: Revised Airport Influence Area Boundary for San Carlos Airport – Areas A & B, adopted October 2004.

[8] City/County Association of Governments of San Mateo County (C/CAG), 1996, op. cit., p. IV-25 to IV-27.

b. San Francisco International Airport

The project site is located approximately 7.3 miles south of San Francisco International Airport, within both Area A and Area B of the San Francisco International Airport AIA. Area A encompasses all of San Mateo County, above which aircraft fly to and from San Francisco International Airport at least once per week at altitudes of 10,000 feet or less above mean sea level.[9] Area A denotes the Real Estate Disclosure Area, within which the real estate disclosure requirements of State law apply. The law requires that the following statement must be included in the notice of intention to offer the property for sale:

> ***Notice of Airport in Vicinity***
>
> *This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.*

Area B is referred to as the Policy/Project Referral Area. The Airport Land Use Commission has statutory duties to review land use policy actions proposed in Area B. Such actions include General Plan updates and amendments, new Specific Plans, and changes to local zoning ordinances.[10]

Additionally, although the project site is not located within exclusion/restriction zones established by Part 77 airspace protection criteria, it is located within the far southeast side of the 14 Code of Federal Regulations (CFR) Part 77 Airport Imaginary Surfaces.[11] The highest obstruction permitted within the project site associated with the approach surface is approximately 499 feet.[12]

2. Relationship to Project

The project site is located outside of the mapped height restriction areas for the San Carlos Airport and San Francisco International Airport. Building heights are therefore not regulated by the CLUP. Implementation of the Standard Condition of Approval (SCOA) detailed in *Section V.B,*

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[9] City/County Association of Governments of San Mateo County (C/CAG), 2012, Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport, adopted October 2012.

[10] Ibid.

[11] Ibid, Exhibit IV-16: 14 CFR Part 77 Airport Imaginary Surfaces – Far Southeast Side.

[12] Ibid, Appendix F.

Aesthetics and Shade and Shadow, would reduce potential impacts associated with increased light and glare. It is anticipated that construction materials would be similar to other buildings in the area and would not create conflicts with design restrictions regarding light or direction of light towards aircraft, nor would any uses generate conflicts with the CLUP. The site is also located outside of the 65-dB CNEL aircraft noise contour for San Francisco International Airport which is used as the threshold for triggering review and evaluation of proposed land use policy actions in proximity to the airport with respect to noise impacts. The project is consistent with the CLUP.

As required, the real estate transfer documents distributed to prospective buyers or lessees at the project site would disclose that the property is located within Area A of the San Carlos International Airport AIA and in Areas A and B of the San Francisco International Airport AIA, and that the site may be subject to aircraft overflight. In addition, the Airport Land Use Commission (ALUC) recommends that the project applicants submit FAA Form 7460-1, "Notice of Proposed Construction or Alteration" to the FAA Western-Pacific Regional Office in Southern California. FAA staff would use this form to determine if the proposed structure (up to about 89 feet in height) would affect the Class B airspace for San Francisco International Airport. However, as the highest obstruction permitted within the project site associated with the approach surface is approximately 499 feet, the height of the proposed structures is significantly lower and would not impact the airspace.

Due to the project site's location within Area B of the San Francisco Airport AIA, the ALUC is required to review proposed land use policy actions associated with the project. The proposed GDP Amendment/Rezoning of the project site within the C-2/PD zoning designation constitutes a land use policy action that the ALUC has a statutory requirement to review. As such, the City of Foster City should ensure that the ALUC is notified of the rezoning and given the opportunity to review and comment on the proposed action.

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
Land Use and Circulation Element		
Goal LUC-B	*Promote Proper Site Planning, Architectural Design and Property Maintenance.* Ensure high quality site planning and architectural design for all new development, renovation or remodeling and require property maintenance to maintain the long-term health, safety, appearance and welfare of the community.	The site design and circulation are analyzed in this EIR. The site plan and architectural design have been, and will continue to be, the subject of detailed review by City staff and the Planning Commission to ensure a high-quality design, as described in Section 17.58 of the Foster City Municipal Code. The project would be subject to design review at the time of Specific Development Plan/Use Permit approval.
Policy LUC-B-1	*City Approach to Design (Architectural) Review.* The City will establish a continuing program of civic beautification, tree planting, maintenance of homes and streets, and other measures which will promote an aesthetically desirable environment in order that neighborhood areas appear attractive both within and without. The City will use a design review process (called Architectural Review) whereby the design of most public and private development proposals, including those for individual residences, are subject to review and approval by the City. The primary objective of this review is to preserve the character of the neighborhood and community regarding appropriate and acceptable design for property improvements. Design review shall address, among other things, the following issues: (a) Preservation of the architectural character and scale of neighborhoods; (b) That the development is well designed in and of itself, and in relation to surrounding properties; (c) Preservation of waterfront views; (d) Minimizing impacts on the privacy and access to sunlight of adjacent properties; (e) Minimizing impacts due to excessive noise or undue glare; (f) Screening of unsightly uses including trash, loading docks/areas, roof top equipment, and special ventilating systems; (g) Use of setbacks, open space and landscaping, (h) Exterior colors and materials.	The project would be subject to design review prior to the Specific Development Plan/Use Permit approval, as described in Foster City Municipal Code Section 17.58. Implementation of the recommended SCOA in *Section V.B, Aesthetics and Shade and Shadow*, would reduce potential impacts associated with light and glare.
Goal LUC-C	*Maintain a Variety of Land Uses.* Maintain land designated for a variety of residential, commercial, light industrial, recreational and public institutional purposes which (1) provide a mix of housing types, densities and tenure; (2) ensure that a variety of commercial and industrial goods, services and employment opportunities are available in Foster City; (3) offer a range of recreational and public facilities to meet the needs of Foster City's residents; and (4) maintain availability of commercial and retail services.	The proposed development would provide a hotel on the project site. The project would help to further this goal by ensuring a variety of commercial services near employment centers and residential uses.

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
Policy LUC-C-1	*Planned Development Zoning.* The Planned Development zoning designation may be applied to any designated multi-family, commercial or industrial site to allow a mixed-use project, subject to the following standards: …(c) advertising or identification signs are limited in size and number, and regulated by a project-specific sign program; (d) any residences located in the development can be protected by landscaping, open spaces, or other design features from the noise and traffic generated by commercial establishments; (e) off-street parking for residents, employees, and customers is provides in accordance with the Municipal Code; and (f) an adequate amount of open space for use by any residents of the project is provided. Such an open space area should be protected to provide a private area for residents.	The project site is within the General Business/Planned Development (C-2 PD) zone. Project signage would be subject to design review prior to issuance of a Specific Development Plan/Use Permit, as described in Section 17.36 of the Foster City Municipal Code. The project would provide adequate parking for employees and customers, as required by the municipal code. The proposed project has no residential component.
Policy LUC-C-11	*Permitted Land Uses on Vacant Sites.* Permitted land uses on vacant sites should be compatible with the existing uses of land surrounding the vacant parcel, environmental characteristics of the site, the capacity of public facilities, streets and infrastructure serving the site, and the need to maintain a balance between residential, commercial, and public land uses.	The project, located on a vacant site, is largely compatible with the surrounding hotels, offices, and parking lots that surround the site. The project accounts for these existing land uses, as well as the environmental characteristics of the site. More information is provided in *Section V.F, Geology and Soils*; *Section V.H, Hydrology and Water Quality*; and *Section V.J, Public Services, Utilities, and Recreation*. The project would contain commercial land uses only.
Policy LUC-C-12	*Density and Intensity of Uses.* Allow and encourage change that responds to the current and potential market and employment needs of businesses and that result in greater density and intensity of land uses and broad array of land uses including multi-family housing, commercial, retail, office, biotechnology and light industrial uses, and compatible uses, but prohibiting uses that would be incompatible with any of these uses, such as low-density housing, schools, day care and other uses serving primarily children.	The project intensifies the currently vacant site, resulting in a greater density of land uses in the Metro Center GDP Area. As described by the applicant, the hotel would also fulfill significant market demand for hotel accommodations in the vicinity of Foster City's many office buildings,
Policy LUC-D-9	*Design Review of Commercial and Industrial Projects.* The City will use a design review process for commercial and industrial projects to ensure that basic land uses, density, access, internal circulation, visual characteristics, noise, odors, fire hazards, vibrations, smoke, discharge of wastes and nighttime lighting do not negatively affect adjacent or nearby residential land uses. Residential projects to be located near existing commercial or industrial land uses shall be appropriately designed to reduce noise, traffic, visual, and other	The project would be subject to design review prior to Specific Development Plan/Use Permit approval as described in Foster City Municipal Code Section 17.58.

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
	potential conflicts.	
Goal LUC-E	*Provide for Diversified Circulation Needs.* Develop, improve and maintain a circulation system which provides efficient and safe access for private vehicle, commercial vehicles, public transit, emergency vehicles, bicycles and pedestrians.	The project's circulation system includes vehicle access to the site through two driveways, one along Metro Center Boulevard and the other along Shell Boulevard. Direct pedestrian access to the hotel would be through a walkway to the main entry from the sidewalk along Shell Boulevard.
Policy LUC-E-5	*Access to New Commercial and Industrial Projects.* New commercial and industrial developments shall be designed so that, wherever necessary and possible, entrance to the projects can be gained by way of left- or right-turn-only lanes. Only the minimum number of entrance or exit points shall be allowed as are needed to ensure safe and efficient internal traffic flow and to reduce through traffic delays on public roads serving the project.	Ingress and egress to and from the proposed development would be provided via both Metro Center Boulevard and Shell Drive. The project is anticipated to have an efficient and safe internal circulation system, as discussed in *Section V.C, Transportation*. The project will be required to provide safe access to the site as to Specific Development Plan/Use Permit approval.
Goal LUC-F	*Maintain Acceptable Operating Conditions on the City's Road Network.* Maintain acceptable operating conditions on the City's road network at or above LOS D and encourage the maximum effective use of public and private vehicles, reduce the growth in peak hour traffic volumes and reduce single passenger trips.	See Policy LUC-F-1, below.
Policy LUC-F-1	*Traffic Level of Service Standards.* The City shall seek to achieve a traffic service level of "C" or better on City streets and level of "D" or better during peak traffic hours, although it will be necessary to accept level of service "E" or "F" at the SR 92 Westbound Ramps/ Chess Drive, the Foster City Blvd./Metro Center Blvd./Triton Drive, Vintage Park Drive/Chess Drive, and the Foster City Boulevard/ Chess intersections due to their role as access points to the freeway system. The level of service standard will be maintained through the following means: a. Intelligent Transportation Systems (ITS) b. Transportation Demand Management (TDM) for development projects. c. Capital Improvement Program and coordination with federal, state, county and district funding programs for street and other transportation improvements. d. Developer payment of pro rata fair share of traffic improvement costs for new developments.	As discussed in detail in *Section V.C, Transportation*, with the addition of project trips, all intersections would operate at the same level of service as under Existing Conditions, except for Shell Boulevard / Metro Center Boulevard in the AM peak hour which degrades from LOS B to LOS C.

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
Policy LUC-F-2	*Traffic Reduction Programs.* The City will work with existing employers and developers of new non-residential development to participate in traffic reduction programs.	The hotel project will involve the use of a dedicated shuttle. Additionally, the project is providing reduced vehicle parking and 64 bicycle parking spaces to encourage non-automobile travel. Hotel patrons are expected to rely primarily on rideshare facilities for automobile transportation.
Goal LUC-G	*Provide Adequate Parking.* Ensure that adequate off-street parking is incorporated into new and modified projects, designed for safe and effective circulation.	The project would provide approximately 141 parking spaces and would be consistent with zoning requirements. These parking spaces would be housed through a combination of a single-level parking garage below the building podium and a surface parking lot.
Policy LUC-G-1	*Parking and Internal Circulation in Project Design.* The City shall continue to incorporate parking and internal circulation design into its overall review of project design. The review shall include compliance with City off-street parking design standards and ratios.	The project would be subject to design review prior to Specific Development Plan/Use Permit approval and prior to issuance of a Use Permit as described in Foster City Municipal Code Section 17.58. Also refer to LUC-E and LUC-G.
Policy LUC-G-3	*Off-Street Parking Requirements.* The City shall maintain off-street parking requirements based on use permits of record, the historical parking patterns of residential and non-residential projects, and related information developed by the Urban Land Institute, Institute of Traffic Engineers, and other reliable sources.	Refer to Goal LUC-G.
Policy LUC-H-2	*Reduce GHG Emissions.* The City will strive to reduce GHG emissions by reducing vehicle miles traveled by supporting trip reduction programs and encouraging the use of alternative fuels and transportation technologies.	As detailed in *Section V.E, Greenhouse Gas Emissions*, the project would be consistent with local measures identified in the Climate Action Plan to reduce GHG emissions.
Goal LUC-I	*Provide for Economic Development.* Provide for economic development which: (1) maintains the City's ability to finance City services and construction and maintenance of public improvements; (2) offers local employment opportunities for Foster City residents so that inter-city commuting can be reduced; (3) assures the availability and diversity of resident-serving goods and services; and (4) allows for specialized commercial uses, such as automobile service stations, water-oriented commercial uses and day care facilities.	The project site is currently vacant. Development of the project would provide new jobs at the project site. These new jobs would increase the availability of local employment opportunities and could reduce inter-city commuting.

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
Goal LUC-K-2	*Consistency with City's Infrastructure.* Ensure that all new buildings, whether free-standing or multi-building developments and all expansions of existing buildings demonstrate consistency with the infrastructure of the Estero Municipal Improvement District and the City, including sewer, storm sewer, parks/recreation facilities, and street system capacity.	*SCOAs in Section V.J, Public Services, Utilities, and Recreation*, require necessary repairs and/or upgrades to the existing infrastructure serving the project site. With implementation of these SCOAs, the project would be adequately served by existing public service providers and infrastructure.
Goal LUC-L	*Provide Adequate Services and Facilities.* Ensure that new and existing developments can be adequately served by municipal services and facilities.	Refer to Goal LUC-K-2.
Housing Element		
Goal H-D	Consider potential public and private redevelopment opportunities to increase the supply of housing.	The project is a private commercial development and will thus be required to pay a housing commercial linkage fee to mitigate the impacts of the project on the need for affordable housing, as described in Foster City Municipal Code Section 17.88.
Policy H-D -8	*Secure Funding for Housing Programs.* Identify and/or develop a source of funding for affordable housing programs, including one-time development assistance and on-going programs.	See discussion in Housing Element Goal H-D.
Parks and Open Space Element		
Goal PC-A	*Provide Sufficient and Diverse Recreational Opportunities* Provide sufficient and diverse recreational opportunities for all the City of Foster City residents through the development of new recreation facilities as needed, given available funding and support, and the construction of additional park amenities in existing parks and elsewhere in locations where deficiencies have been identified or opportunities occur.	This development would not include a residential component. The project would not include construction of new recreational facilities or open spaces except for those designed for employees and customers.
Policy PC-18	*Access to Sunlight.* Consider the impact of new development on sunlight to existing public open spaces.	As detailed in *Section V.B, Aesthetics and Shade and Shadow,* the project would not impact access to sunlight from existing public open spaces.
Program PC-n	*Architectural Review.* Review all new development or improvement proposals through the City's Architectural Review process for: (1) impacts on access to sunlight on public areas; (2) provision of street furniture and attractive landscaping in public open spaces; and (3) impacts on waterfront views.	The project would be subject to design review prior to Specific Development Plan/Use Permit approval as described in Foster City Municipal Code Section 17.58. As detailed in *Section V.B, Aesthetics and Shade and Shadow,* the project would not impact access to sunlight on public or quasi-public open space and does not include any waterfront views.

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
Noise Element		
Goal N-A	*Assure that the Noise Impacts of the New Development or Redevelopment of Property is Done in a Manner that is Compatible with Existing Land Uses.* Assure the appropriateness of new development with the noise environment of Foster City and establish mitigation measures for any changes in land use as are reasonably necessary to assure compatibility with the surrounding area.	As detailed in *Section V.I, Noise and Vibration*, the project would result in no significant increases in noise that are incompatible with existing neighboring land uses.

Source: City of Foster City General Plan, February 2016, February 2015, September 2009, May 1993; Urban Planning Partners, Inc., 2020.

TABLE IV-2 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CLIMATE ACTION PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
Climate Action Plan (CAP_		
EC 4	*Adopt a Commercial Green Building Ordinance.*	The project would be required to meet Green Building Standards specified by Title 24 of the California Code of Regulations (CalGreen), as referenced in Section 1.01.010(H) of the Foster City Municipal Code. In addition, as described in *Section V.G, Greenhouse Gas Emissions*, the project would also implement several LEED-prescribed green building measures.
EC 8	*Create A Requirement for Urban Forestation.*	The project would retain as many of the existing healthy Black Acacia trees on the site as feasible. Additionally, the project would involve to installation of trees throughout the surface parking lot and the southeastern property line.
TL 1	*Implement Smart Growth Development*	As described in the CAP, this policy is implemented by updated policies in the Land Use and Circulation Element. The project's consistency with applicable Land Use and Circulation Element policies that would implement TL 1 is described above in LUC-C-12 and LUC-F-2.
WC 2	*Adopt an ordinance to prohibit disposable polystyrene food ware.*	As described in the CAP, the City adopted the San Mateo County ordinance prohibiting single-use polystyrene-based food containers for restaurants and food vendors on October 17, 2011. The project would be required to comply with this prohibition, which went into effect on April 1, 2012.
WC 5	*Adopt a construction and demolition ordinance.*	As described in the CAP, Foster City Municipal Code Section 15.33 describes the requirements for managing construction and demolition waste and debris. The project would be required to submit a Waste Management Plan and divert a minimum of 50 percent of demolition debris, consistent with State law.
EW 1	*Lower residential and commercial water usage in Foster City.*	This policy would be implemented through six measures, three of which are applicable to the project. The project would be required to comply with the water-wise landscaping ordinance, the indoor water savings ordinance, and pay conservation-based water rates for all water used.
EW 2	*Adopt a water-wise landscaping ordinance and outdoor water saving.*	The policy is achieved through compliance with the Estero Municipal Improvement District's Outdoor Water Conservation in Landscaping Ordinance, which includes standards for water efficient landscaping as well as provisions for review of the project's landscaping plan for compliance with the ordinance.

Source: City of Foster City, 2015. Foster City Climate Action Plan, September; Urban Planning Partners, Inc., 2020.

V. SETTING, IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

This chapter provides the analysis for each environmental topic determined to be potentially significant with regard to the proposed new hotel in Metro Center GDP area project (the project) during the scoping period. Sections V.A through V.J of this chapter describe the existing setting, the potential impacts that could result from implementation and buildout of the project, the Standard Conditions of Approval (SCOAs), and the mitigation measures designed to reduce the significant impacts of the project to a less-than-significant level.

The following provides an overview of the scope of the analysis included in this chapter, the organization of the sections, and the methods for determining which impacts are significant.

ENVIRONMENTAL TOPICS

The following environmental topics are considered in this chapter:

- A. Land Use
- B. Aesthetics and Shade and Shadow
- C. Transportation
- D. Air Quality
- E. Greenhouse Gas Emissions
- F. Geology and Soils
- G. Hazards and Hazardous Materials
- H. Hydrology and Water Quality
- I. Noise and Vibration
- J. Public Services, Utilities, and Recreation

Chapter VII, CEQA-Required Assessment Conclusions, includes a brief analysis of each environmental topic for which effects from the project were found to be either not significant or less than significant through the scoping process and preliminary review. These topics include: agriculture and forest resources, biological resources, cultural resources, energy, mineral resources, population and housing, tribal cultural resources, and wildfire.

FORMAT OF TOPIC SECTIONS

Each environmental topic section generally includes three main subsections: (1) Setting; (2) Regulatory Setting; and (3) Impacts (construction, operational, and cumulative), SCOAs, and Mitigation Measures. Identified significant impacts are numbered and shown in **bold** type, and the corresponding mitigation measures are numbered and indented. Significant impacts and mitigation measures are numbered consecutively within each topic and begin with a shorthand abbreviation for the impact section (e.g., AIR for Air Quality). The following abbreviations are used for individual topics:

LU:	Land Use
AES:	Aesthetics and Shade and Shadow
TRANS:	Transportation
AIR:	Air Quality
GHG:	Greenhouse Gas Emissions
GEO:	Geology and Soils
HAZ:	Hazards and Hazardous Materials
HYD:	Hydrology and Water Quality
NOISE:	Noise and Vibration
SVCS:	Public Services, Utilities, and Recreation

The following notations are provided after each identified significant impact and mitigation measure:

SU = Significant and Unavoidable
S = Significant
LTS = Less than Significant

These notations indicate the significance of the impact with and without mitigation.

DETERMINATION OF SIGNIFICANCE

Under the California Environmental Quality Act (CEQA), a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment. Each impact evaluation in this chapter is prefaced by an explication of the applicable criteria of significance, which are the thresholds for determining whether an impact is significant.

The criteria of significance identified in this EIR are intended to implement and supplement provisions in the CEQA Guidelines for determining the significance of environmental effects, including Sections 15064, 15064.5, 15065, and 15382, and Appendix G.

CEQA requires the analysis of potentially adverse effects of the project on the environment. Potential effects of the environment on the project are legally not required to be analyzed or mitigated under CEQA according to the California Supreme Court's decision in California Building Industry Association v. Bay Area Air Quality Management District.[1] This document nevertheless analyzes potential effects of the environment on the project in order to provide information to the public and decision-makers. Where a potentially significant effect of the environment on the project is identified, the document, as appropriate, identifies project-specific non-CEQA recommendations to address these issues through implementation of SCOAs or conformance with applicable policies or regulations.

A summary of the project's relationship to each significance criteria is provided at the beginning of the impact, SCOA, and mitigation measures subsection for each topic.

CUMULATIVE ANALYSIS CONTEXT

CEQA defines a cumulative impact as "two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts when the project's incremental effect is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. These impacts can result from a combination of the proposed project together with other projects causing related impacts. "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects."[2]

The CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future projects, or the use of adopted projections from a general plan, other regional planning document, or a certified EIR for such a planning document.

The specific methodology used for assessing cumulative impacts varies depending on the specific topic being analyzed and is explained in the impact section of each environmental topic For

[1] California Building Industry Association v. Bay Area Air Quality Management District, 2015. No. S213478, December 17.

[2] CEQA Guidelines, Section 15355(b).

example, the geographic and temporal (time-related) parameters related to a cumulative analysis of air quality impacts are not necessarily the same as those for a cumulative analysis of noise or aesthetic impacts. This is because the geographic area that relates to air quality is much larger and regional in character than the geographic area that could be impacted by potential noise or aesthetic impacts from a proposed project and other cumulative projects/growth. The noise and aesthetic cumulative impacts are more localized than air quality and transportation impacts, which are more regional in nature. Accordingly, the parameters of the respective cumulative analyses in this document are determined by the degree to which impacts from this project are likely to occur in combination with other development projects.

A. LAND USE

This section describes existing land uses within and in the vicinity of the project site and evaluates the project's potential land use impacts. General Plan goals, policies, and programs related to land use are discussed in *Chapter IV, Planning Policy*.

1. Setting

The following section describes existing land uses within the project site and surrounding areas. The section begins by discussing the regional and local setting, and then provides more specific information about the project site and its vicinity. Land uses within and adjacent to the project site boundaries are generally identified in the aerial photo provided in Figure V.A-1.

a. Regional Setting

The project site is located within Foster City at the southwest corner of the intersection of Metro Center Boulevard and Shell Boulevard, as shown in Figure III -1 in *Chapter III, Project Description*. Foster City is approximately 15 miles southeast of the City of San Francisco and approximately 30 miles northwest of the City of San Jose. The City is located in San Mateo County, bordered by the San Francisco Bay to the north and east, the cities of Belmont and Redwood City to the south, and the City of San Mateo to the west. Major transportation corridors in the area include U.S. Highway 101 and California State Route 92 (SR-92).

b. Local Setting

Foster City is a "Planned Community" constructed and implemented through an organized program of development.[1] The City was originally designed in the 1960s as a suburban community with a clear community center and an industrial base to support required services.[2] It was constructed on reclaimed marshlands previously devoted to dairy farming and evaporation ponds. Development of the City is guided and limited by the natural, often water-oriented, constraints of the filled marshlands.

The approximately 1.36-acre project is bounded by Costco Wholesale and SR-92 to the northwest; the Cityhomes East multi-family residential (townhomes) complex to the southeast; the nine-story Visa office building and adjoining two-level parking structure to the southwest; and the Metro retail center and Courtyard by Marriot hotel to the northeast.

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[1] History of Foster City, 2019. Available at: https://www.fostercity.org/community/page/history-foster-city, accessed December 17.

[2] City of Foster City, 2016a. Foster City General Plan Summary, February 1.

Project Location

Figure V.A-1
Surrounding Land Uses

New Hotel in Metro Center GDP Area Project EIR

c. Existing Conditions and Land Uses on the Project Site and in its Vicinity

The project site is currently undeveloped and predominantly covered by a grassy lawn with several utility cabinets. The project site currently hosts a weekly farmer's market and is occasionally rented out for private events. A driveway along the southeast boundary of the project site provides vehicular access from Shell Boulevard to the Visa office parking structure and Cityhomes visitor parking. As discussed in *Chapter IV*, *Planning Policy*, the existing General Plan Land Use Designation for the project site is Town Center Commercial. The Foster City General Plan states that the Town Center Commercial designation promotes a mix of high-density office, residential, and commercial land uses that serve as Foster City's downtown core.[3] As shown in Figure IV-1, the project site is surrounded by other lands designated as Town Center Commercial, Service Commercial, Service Commercial with Housing, Public and Semi-Public, Parks and Recreation, and Research/Office Park.

The project site is zoned General Business/Planned Development (C-2/PD) district, as established in the Metro Center General Development Plan (GDP) (Ordinance 434), which encompasses a 100-acre area bounded by SR-92, East Hillsdale Boulevard, Edgewater Boulevard, and Foster City Boulevard. The C-2/PD district is designed to accommodate various types of uses and structures within a planned development by allowing flexibility in design and development standards as long as the planned development as a whole substantially conforms to the City's General Plan. According to the City of Foster City Municipal Code, development standards are to be established

Photo 1– Costco Wholesale
Source: Google Maps, 2019.

Photo 2– Metro retail center and Marriot Hotel, obscured by trees
Source: Google Maps, 2019.

on a case-by-case basis by a required GDP/Rezoning. The project site is centrally located within the Metro Center GDP and surrounded by C-2/PD-designated parcels on all sides.

[3] City of Foster City, 2016b. General Plan, Land Use and Circulation Element, February 1.

(1) Land Uses to the Northwest

Costco Wholesale, a one-story commercial building, and its associated surface parking lot lie northwest of the project site, on the north side of Metro Center Boulevard. The property has a General Plan Land Use Designation of Town Center Commercial and is located in the C-2/PD district.

(2) Land Uses to the Northeast

The Metro retail center and Courtyard by Marriott Hotel lie northeast of the project site, across Shell Boulevard. The Metro retail center, located at the intersection of Metro Center Boulevard and Shell Boulevard, is a one-story building that houses several food service establishments. Courtyard by Marriott is a two-story hotel fronting Shell Boulevard. Both properties have General Plan Land Use Designations of Town Center Commercial and are located in the C-2/PD district.

Photo 3– Cityhomes East townhomes
Source: Google Maps, 2019.

(3) Land Uses to the Southeast

The Cityhomes East townhomes lie immediately southeast of the project site. The townhomes are two stories tall, with vehicle access from Shell Boulevard and Portal Lane and pedestrian gates facing the project site. The entire multi-family residential complex has a General Plan Land Use Designation of Town Center Commercial and is located in the C-2/PD district.

(4) Land Uses to the Southwest

A Visa office building and two-level uncovered parking structure lie southwest of the project site. The office building includes an eight-story tower atop a concrete podium adjoining the parking structure. This development is part of the larger, high-density Visa corporate campus located along the intersection of Metro Center Boulevard and Vintage Park Drive. The parking structure forms the southwest border of the project site. The property has a General Plan Land use designation of as Town Center Commercial and is located in the C-2/PD district.

Photo 4– Office buildings on the Visa corporate campus

d. Regulatory Setting

The applicable goals, policies, programs, and regulations of the Foster City General Plan, the Foster City Climate Action Plan, the Foster City Zoning Ordinance, the Metro Center General Development Plan, the San Mateo County Comprehensive Airport Land Use Plan, and relevant regional land use plans are discussed in *Chapter IV*, *Planning Policy*.

2. Impacts, Standard Conditions of Approval, and Mitigation Measures

This subsection analyzes environmental impacts related to land use that could result from development of the project. Included are (1) the criteria of significance, which establish the thresholds for determining whether an impact is significant; and (2) the land use impacts that could result from construction and/or operation of the project and any necessary Standard Conditions of Approval (SCOAs) to reduce significant impacts. Impacts are divided into separate categories based on their significance according to the following criteria: less-than-significant impacts, which do not require mitigation, and significant impacts, which do require mitigation.

a. Significance Criteria

Based on Appendix G of the CEQA Guidelines, development of the project would have a significant impact on land use if it were to:

1. Physically divide an established community; or
2. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

b. Analysis and Findings

All land use impacts associated with implementation of the project are discussed below.

(1) Divide an Established Community (Criterion 1)

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas.

The project site is situated in the northeastern portion of Foster City. The infill site is surrounded on all four sides by man-made features that currently act as physical barriers to contiguous development: Metro Center Boulevard to the northwest, Shell Boulevard to the northeast, the Cityhomes East townhomes to the south, and the Visa office building and parking structure and Cityhomes visitor parking to the southwest (see Figure III-1 in *Chapter III, Project Description*).

The project would develop the currently vacant site with up to a seven-story, 83,190 square feet of hotel space and associated improvements. The project would not divide the physical arrangement of an established community. Pedestrian access would be provided along existing sidewalks on Metro Center Boulevard and Shell Boulevard. The location of the site at the intersection of Metro Center Boulevard and Shell Boulevard would result in a project that conforms to existing physical barriers and would not create new divisions. The seven-story project would also conform to the surrounding area which includes other commercial buildings ranging from one to nine stories. Implementation of the project would not result in the physical division of the adjacent surrounding areas or any other established community. Therefore, this impact would be less than significant.

(2) Conflict with Land Use Plans, Policies, or Regulations (Criterion 2)

Potential land use policy conflicts are described in detail in *Chapter IV, Planning Policy*. Conflicts with a general plan do not inherently result in a significant effect on the environment within the context of the California Environmental Quality Act (CEQA). As stated in Section 15358(b) of the CEQA Guidelines, "Effects analyzed under CEQA must be related to a physical change." Section 15125(d) of the CEQA Guidelines states that Environmental Impacts Reports (EIRs) shall discuss any inconsistencies between the proposed project and applicable general plans in the Setting section of the document (not under Impacts). Further, Appendix G of the CEQA Guidelines (Environmental Checklist Form) explicitly focuses on environmental policies and plans, asking if the project would "conflict with any applicable land use plan, policy, or regulation …adopted for the purpose of avoiding or mitigating an environmental effect." Even a response in the affirmative, however, does not necessarily indicate the project would have a significant effect, unless a physical change would occur. To the extent that physical impacts may result from such conflicts, such physical impacts are analyzed in this EIR. A brief summary is provided below.

General Plan Policy

The General Plan Land Use Designation for the project site is Town Center Commercial. As described in *Chapter III, Project Description*, properties designated Town Center Commercial typically provide a mix of high-density office, residential, and commercial land uses that serve as Foster City's downtown core.

As detailed in *Chapter IV, Planning Policy,* Table IV-1, the project is generally consistent with all other General Plan policies related to land use.

Zoning

The zoning of the project site is General Business/Planned Development (C-2/PD). As discussed in *Chapter IV, Planning Policy,* new development with a C-2/PD zoning designation will require approval of a GDP/Rezoning. The Planned Development (PD) combining district is intended to accommodate flexibility in application of zoning and design standards in exchange for high quality of design. These standards must be determined to be in accordance with "the objectives and spirit of the General Plan (Ord. 289 1 (part), 1984)."[4]

The Code establishes that zoning, design, and development standards customized to individual project sites are to be established via the GDP/Rezoning described above. According to the Code, the GDP "shall become a part of the zoning map of the city" only when "approved by the planning commission and city council."[5] This process ensures that the rezoning process and changes to development standards at the project site are reviewed for conformance with the General Plan, including all land use policies aimed at targeting the environment and reducing environmental impacts.

The project applicant has acted in compliance with the GDP process. On February 25, 2019, project applicant MPQ Foster City Metro Center LLC submitted applications for both GDP/Rezoning and Environmental Assessment related to the project. Because the Metro Center GDP currently in place specifies the subject lot as a restaurant site and allows for siting of only one 147-room courtyard style hotel, an amendment to the GDP is required to allow a second hotel with the proposed number of guest rooms. As a result of regulations built into the C-2/PD zoning designation (i.e., zoning and design standards that must be in conformance with the intent of the General Plan), and the project applicant's compliance with those regulations, the proposed rezoning and development standard changes do not represent significant land use policy impacts.

c. Cumulative Land Use Impacts

As described throughout this section, the project would not result in a significant land use impact by potentially physically dividing an established community; or conflicting with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. The project would develop the vacant site with up to 83,190 square feet of hotel, restaurant, and guest amenities. The project would increase the previous intensity of development in a manner compatible with the existing surrounding development pattern which includes a mix of office, residential, and commercial uses. Land uses proposed for the project site would also be internally compatible. Infill projects in downtown areas allow for the capitalization of existing transit systems and infrastructure and minimize impacts to sensitive resources that would likely be degraded in a development on a greenfield site. Additionally, by locating a hotel

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[4] City of Foster City Municipal Code, Title 17, 17.36.010, Purpose.
[5] City of Foster City Municipal Code, Title 17, 17.36.030, General Development Plan.

in a downtown core area, hotel guests would have the opportunity to access nearby office and commercial uses by walking instead of driving. As such, operation of the project would not result in long-term land use impacts in conjunction with other planned development

Projects included in the cumulative analysis would all be required to conform to General Plan policies (including those for jurisdictions outside Foster City, as applicable) and to applicable design guidelines that are intended to minimize land use conflicts. While the project and cumulative projects would result in land use changes, the proposed development and GDP/Rezoning is consistent with the intent of zoning regulations and General Plan land use policies as discussed in more detail in *Chapter IV, Planning Policy*.

B. AESTHETICS AND SHADE AND SHADOW

This section evaluates potential effects of the project on visual resources in the vicinity of the project site. The project's consistency with Foster City General Plan policies relevant to aesthetics, shade, and shadow are considered, as well as compliance with relevant requirements and standards set forth in the Foster City Zoning Code. Architectural and site details are not considered in this evaluation; as the City will consider design details (e.g., building relief, colors and materials, artistic features) as part of its required design review process.

1. Setting

This subsection describes the existing visual character of the project site, the areas immediately surrounding project site, and the general project vicinity.

a. Local Context

As discussed in *Section V.A, Land Use,* of this EIR, Foster City is a "Planned Community" constructed and implemented by an organized program of development. The 1.36-acre site is located within Metro Center, a 100-acre master planned development that serves as the city's commercial center. The built environment surrounding the project site is typical of suburban commercial centers. All buildings within Metro Center are between 1 to 9 stories in height, apart from the 22-story office tower at 950 Tower Lane. Circulation in the surrounding area is provided by 4- to 6-lane boulevards. The boulevards serving the project vicinity do not provide on-street parking; parking is instead provided in surface lots and low-rise (2- to 3-story) parking structures. The mature trees and low hedges that line the edges and medians of the boulevards in the area are the defining visual feature of Metro Center.

b. Existing Visual Character of the Project Site

As discussed in *Chapter III, Project Description,* the project site is flat, undeveloped, and covered in grasses. Existing features on or adjacent to the project site include utility cabinets at the north and west corners. A paved driveway that provides access from Shell Boulevard to the parking structure at 900 Metro Center Boulevard serves as the project site's southeastern border. Along the sidewalks that mark the project site's northeastern and northwestern borders, a series of low hedges and mature Black Acacia trees run parallel to Metro Center Boulevard and Shell Boulevard. The project site's southwestern border is marked by a change in vegetation from the grass of the project site to a bed of ivy on the adjacent lot at 900 Metro Center Boulevard.

c. Visual Character of the Surrounding Area

The visual character of the surrounding area is of the planned built environment that defines this area of Foster City. The project area is characterized by relatively dense urban development, with little undeveloped land in the vicinity. San Francisco Bay is located approximately 0.7-mile to the north. The prevailing flatness of the area, existing buildings, and mature vegetation between properties prevent expansive vistas or perspectives, including views of the Bay. There are no scenic vistas of natural landscapes visible from the project site or from neighboring properties in the project vicinity. There are also no State-designated scenic highways or potentially eligible scenic highways near the project site.

Buildings near the project site range from 1 to 22 stories, although wide (six-lane) boulevards and large surface parking lots provide separation between adjacent buildings. The nearby buildings were built in the latter half of the 20th century and display architecture typical of office and institutional buildings of that era. The following section describes the visual character of the area surrounding the project site:

- **North**. Directly to the north of the project site is a wholesale retail store (Costco) and its associated surface parking lot. The wholesale retail store is a single-story, double-height warehouse-style building clad in beige stucco of various tones. Beyond the wholesale retail store to the north is State Route 92 (SR-92), a six-lane freeway.
- **South**. South of the project site is a townhome development (Cityhomes East), containing 115 townhomes. The townhomes are two stories in height with gray stucco siding and terra cotta-colored metal roofs and fabric awnings. Beyond the townhomes to the south is a single-story strip retail center (Metro Center Shopping Center) and a four-story office building (989 E. Hillsdale Boulevard).

Photo 1– Costco and surface parking lot
Source: Google Maps, 2019.

Photo 2– Cityhomes East townhome development
Source: Google Maps, 2019.

- **East**. Shell Boulevard, a four-lane boulevard, is immediately east of the project site. Further east, directly across Shell Boulevard from the project site, is the single-story strip retail development at 1000 Metro Center Boulevard, which contains four counter-service food and beverage establishments. A two-story courtyard-style hotel (Courtyard by Marriot) at 550 Shell Boulevard is just south of the retail development. Further east beyond the hotel and retail development area is a single-story home improvement garden supply store (the recently closed Orchard Supply Hardware), an eight-story office building (1001 East Hillsdale Boulevard), and a four-story office building (1065 East Hillsdale Boulevard).

- **West**. Immediately to the west of the project site is the two-story parking garage at 900 Metro Center Boulevard. Further to the west is the nine-story office building at 900 Metro Center Boulevard; directly across Metro Center Boulevard from that building is a six-story office building at 901 Metro Center Boulevard. Beyond the office is an office and hotel development featuring a series of midrise office buildings, a two-story courtyard hotel, and surface parking.

Photo 3– Shell Boulevard and one-story commercial
Source: Google Maps, 2019.

Photo 4– Midrise office buildings

d. Views from the Project Site

Due to the presence of the mature trees, hedges, and buildings that line the boundary of the project site and the prevailing flatness of the project site and surrounding area, views from within the project site into the surrounding area are limited to adjacent buildings and related features.

(1) Views to the North (Toward State Route 92)

Views to the north from the project site are restricted by the low hedges and mature trees that line the border of the project site along Metro Center Boulevard, which runs immediately north of the site. Visible through the trees across Metro Center Boulevard is the six-story hotel at 1221 Chess Drive, currently occupied by the Crowne

Photo 5– Costco parking lot and Crowne Plaza – Foster City hotel

Plaza hotel. These buildings are of typical mid-rise hotel design, defined by alternating rows of beige concrete siding and black windows.

(2) Views to the South

Views to the south from the project site are restricted by several mature trees and a solid wall that form the northern border of the Cityhomes East townhome development. The Cityhomes East development consists of several blocks of two-story townhomes clad in a beige stucco with windows and rust-colored accents on the roof, railings, and doors of the buildings. The nearest of the townhome buildings is less than 15 feet from the southern edge of the project site's property line; due to the distance from the project site and the height of the buildings, the townhome development dominates views towards the south.

Photo 6– Cityhomes East townhome development

(3) Views to the East

As is the case in other directions, views to the east from the project site are restricted by vegetation surrounding the project site. On the site's eastern boundary, adjacent to Shell Boulevard, vegetation includes several Black Acacia (*Acacia melanoxylon*) trees that are approximately two stories in height. Across Shell Boulevard, the one-story commercial complex at 1000 Metro Center Boulevard is the most prominent feature. Visible to the south of the aforementioned commercial complex is a two-story hotel; most of the views of this hotel from the project site are blocked by trees both on the project site and on the hotel site. Beyond the hotel site, an eight-story office building located at the intersection of Shell Boulevard and East Hillsdale Boulevard is visible through gaps in the trees.

Photo 7– One-story commercial building along Shell Boulevard

(4) Views to the West

Views to the west from the project site are restricted by the parking garage located immediately to the west of the project site. Although the garage is only two stories

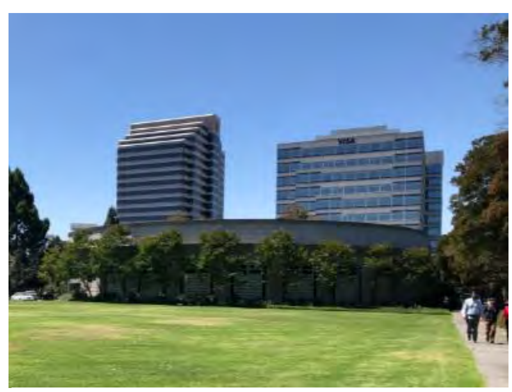

Photo 8– Two-story parking structure and office buildings

in height, its proximity to the project site restricts views to the west from ground level on much of the project site. From the eastern portion of the site, where views to the west are less restricted by the parking garage, three mid- and high-rise office buildings are visible. These office buildings display architecture that is characteristic of many office buildings constructed in the last half-century, with light-colored facades broken by rows of dark-colored windows.

e. Views of the Project Site

The flat, undeveloped, tree-lined project site is visible from only a few surrounding vantage points. From public viewpoints along Metro Center Boulevard and Shell Boulevard, the only notable feature is a steel utility cabinet approximately 4 feet tall located towards the northern edge of the site. Views to and through the project site can be made from the office buildings at 900 and 901 Metro Center Boulevard and the three-level parking garage immediately to the west of the project site.

Photo 9– View of the project site from the intersection of Metro Center and Shell Boulevard

(1) Views from the North

Views from the north of the project site from Metro Center Boulevard are mostly blocked by the mature trees and low hedges that line the northern boundary of the project site. The lawn that covers the majority of the project site is visible, as is the Cityhomes East townhomes development beyond the project site to the south. The project site is not visible from the area of Foster City north of SR-92.

Photo 10– View of the project site from the north

(2) Views from the South

The Cityhomes East townhome development immediately to the south of the project restricts views from the south. Within the Cityhomes East townhome development, views of the project site are restricted by the townhomes, landscaping, and the solid wall that serves as the boundary between the townhome development and the project site. Further south of the townhomes, the project site is not visible from the

Photo 11 – View of the project site from Cityhomes East townhome development parking lot at the East Hillsdale Boulevard and Shell Boulevard intersection, due to the flatness of the project site.

(3) Views from the East

Restricted views to and through the project site from the east are available from the commercial development and associated parking lot at 1000 Metro Center Boulevard, although these views are obstructed by the mature trees and low hedges that line the eastern boundary of the project site. The grass that covers much of the project site is visible through gaps in the trees, as are the office buildings beyond the project site to the west.

Photo 12– Views of the project site from the patio at 1000 Metro Center Boulevard

(4) Views from the West

The nine-story office building and associated two-story parking garage at 900 Metro Center Boulevard are located immediately to the west of the project site. These buildings block any views of the project site from publicly accessible viewpoints to the west of the project site, with the exception of a vantage point from Tower Lane at the northwest corner of the Cityhomes East development. Only a narrow view corridor between the office building at 900 Metro Center Boulevard and the Cityhomes East development exists from this vantage point.

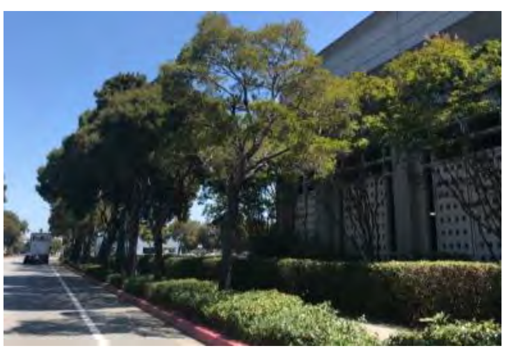

Photo 13 – View of project site from east-bound Metro Center Boulevard

Photo 14– View of project site from pedestrian walkway between the office and townhomes

f. Regulatory Context

Applicable regulatory provisions are discussed below. Included in this discussion are policies of the Foster City General Plan and regulations of the Foster City Zoning Code.

(1) Foster City General Plan

The Foster City General Plan contains the following applicable goals and policies related to aesthetics and shade and shadow impacts.

Goal LUC-B: Promote Proper Site Planning, Architectural Design and Property Maintenance. *Ensure high quality site planning and architectural design for all new development, renovation or remodeling and require property maintenance to maintain the long-term health, safety and welfare of the community.*

Policy LUC-B-1: City Approach to Design (Architectural) Review. The City will establish a continuing program of civic beautification, tree planting, maintenance of homes and streets, and other measures which will promote an aesthetically desirable environment in order that neighborhood areas appear attractive both within and without. The City will use a design review process (called Architectural Review) whereby the design of most public and private development proposals, including those for individual residences, are subject to review and approval by the City. The primary objective of this review is to preserve the character of the neighborhood and community regarding appropriate and acceptable design for property improvements. Design review shall address, among other things, the following issues: (a) preservation of the architectural character and scale of neighborhoods; (b) that the development is well designed in and of itself, and in relation to surrounding properties; (c) preservation of waterfront views; (d) minimizing impacts on the privacy and access to sunlight of adjacent properties; (e) minimizing impacts due to excessive noise or undue glare; (f) screening of unsightly uses including trash, loading docks/areas, roof top equipment, and special ventilating systems; (g) use of setbacks, open space, and landscaping; and (h) exterior colors and materials.

Policy LUC-D-9: Design Review of Commercial and Industrial Projects. The City will use a design review process for commercial and industrial projects to ensure that basic land uses, density, access ,internal circulation, visual characteristics, noise, odors, fire hazards, vibrations, smoke, discharges of wastes, and nighttime lighting do not negatively affect adjacent or nearby residential land uses.

Policy PC-18: Access to Sunlight. Consider the impact of new development on sunlight to existing public open spaces.

Program PC-n: Architectural Review. Review all new development or improvement proposals through the City's Architectural Review process for: (1) impacts on access to sunlight on public areas; (2) provision of street furniture and attractive landscaping in public open spaces; and (3) impacts on waterfront views.

(2) Foster City Municipal Code

The Foster City Municipal Code contains the following regulations related to aesthetics and visual impacts.

Chapter 17.36 PD Planned Development (PD) Combining District

The project site is zoned C-2/PD, meaning it is subject to the PD combining district regulations described in Chapter 17.36 of the Foster City Municipal Code. Although the PD combining district regulations permit project-specific design guidelines and standards to be applied as part of the approval process, Chapter 17.36.070 also describes general development criteria for projects within a PD combining district zone. Among other criteria, these guidelines include the undergrounding of utility lines where feasible, the designing of structures in harmony with existing topography and vegetation, and the minimizing of detraction of scenic and visual quality of the City.

Chapter 17.58.010.B. Architectural Control and Supervision

Projects involving construction of new buildings are subject to architectural review by the Planning Commission.[1] Chapter 17.58 of the Foster City Municipal Code establishes procedures and criteria for review of proposed structures, buildings, and improvements to real property and modifications to such that are necessary in order to meet the following objectives:

1. To preserve the architectural character and scale of the neighborhoods and community;
2. To assure that development is well designed, in and of itself and in relation to surrounding properties, including that the height, façade length, roof form, colors, materials, and architectural details of a proposed building should be compatible with the height, façade length, roof form, colors, materials, and architectural details of buildings in the immediate vicinity;
3. To prevent the erection of structures, additions, or alterations or other property improvements which significantly impact the privacy of adjacent properties; cause a significant diminution of sunlight to the interior of an adjacent building or to the exterior of adjacent properties; cause undue glare or noise impacts to adjacent properties; and significantly block or limit existing views from the interior and exterior of adjacent properties, and that individual rights are weighed against the needs and requirements of the community;
4. To assure that developments enhance their sites and are harmonious with the highest standards of improvements in the surrounding area;
5. To promote and protect the health, safety and general welfare of the City;
6. To preserve views of and from the lagoons and waterways which provide a visual connecting link for adjacent lots and developments;
7. To enhance the residential and business property values within the City and in neighborhoods surrounding new or modified development;
8. To assure that each new development is designed to best comply with the intent and purpose of the zone in which the property is located and with the general plan of the City;

[1] City of Foster City Municipal Code, Title 17 Zoning, Chapter 17.58.

9. To encourage the maintenance, repair, replacement or improvement of surrounding properties. (Ord. 371 Section 24 (part), 1989)

Chapter 17.68.080. General Performance Standards: Glare

No direct or reflected glare, whether produced by floodlight, high-temperature processes such as combustion or welding, or other processes, so as to be visible from any boundary line of property on which the same is produced, shall be permitted. Sky-reflected glare from buildings or portions thereof shall be so controlled by such reasonable means as are practical to the end that the sky-reflected glare will not inconvenience or annoy persons or interfere with the use and enjoyment of property in and about the area where it occurs. (Ord. 38 1 (part), 1972: prior code 10-406.508)

(3) Foster City Standard Conditions of Approval

Foster City has adopted Standard Conditions of Approval (SCOAs) for large new and redevelopment projects. The following SCOAs related to aesthetics and shade and shadow would apply to the project.

SCOA 8.2: An exterior lighting plan including fixture and standard design, coverage and intensity, to be reviewed and approved by the Community Development Department and the Police Department. In its review of the lighting plan, the City shall ensure that any outdoor night lighting proposed for the project is downward-facing, and shielded so as to minimize nighttime glare and lessen impacts to neighboring properties. The City shall also ensure that all development plans for the proposed project conform to the performance standards provided under Section 17.68.080 of the Foster City Municipal Code.

g. Policy Consistency

The project is generally consistent with Foster City's policies, guidelines, and standards as they pertain to aesthetics and visual resources. The proposed development does have the potential to increase glare from the sun's reflection off exterior building materials and may contribute to evening lighting in the immediate vicinity of the project through grounds and building illumination during the evening hours. However, SCOAs are provided below to ensure this potential is minimized to a less-than-significant level. A more detailed discussion of the project's relationship to the City's policies is provided in *Chapter IV, Planning Policy*.

The project would result in a hotel being sited on a lot site that is currently characterized by a flat, undeveloped grass lawn. The project site is a vacant, approximately 1.36-acre lot. Development of the project would bring visual continuity to the land uses and structures surrounding the site.

The project would undergo design review prior to project entitlement and building permit issuance. During this process, the project design will be refined to ensure compatibility with the architectural and urban design guidelines presented above. Based on preliminary plans, it is anticipated that there would be no major inconsistencies or conflicts between the project's design and the requirements of the City.

2. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section analyzes impacts to aesthetic resources that could result from development of the project. The first part of this subsection outlines the criteria of significance contained in Appendix G of the CEQA Guidelines, which establish the thresholds for determining whether an impact is significant. The second part of this subsection identifies impacts associated with the proposed development. SCOAs are recommended, as appropriate, to ensure impacts are less than significant.

a. Significance Criteria

Implementation of the project would have a significant impact on aesthetic resources or related shade and shadow if it would:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.
3. Substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that one experiences from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?
4. Cast a shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space.
5. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the areas.

In 2018, the Governor's Office of Planning and Research adopted new CEQA Guidelines which removed the threshold of significance related to shade and shadow. However, the Foster City General Plan contains policies that seek to preserve access to sunlight on public spaces, as described in the Regulatory Context section above. The shadow impact threshold (bullet #4) reflects the intent of these policies. This criterion was developed based on similar thresholds used in comparable jurisdictions. The other four thresholds of significance are drawn from Appendix G of the CEQA Guidelines. Applicable thresholds of local significance from the City's Environmental Review Guidelines[2] are discussed in this section as well.

b. Analysis and Findings

Discussed below are the less-than-significant visual resource and shadow impacts that could result from development of the project.

As described in Section 1.f, Regulatory Context, of this section, the General Plan identifies several policies related to preservation of views and sunlight access to public open space and the waterfront. Potential impacts to these views are analyzed below. Potential impacts to other views, such as views of the San Bruno hills, are also described for informational purposes.

(1) Scenic Vistas

Foster City is generally flat with limited scenic vistas from public vantage points. The city's topography, combined with the freeway, vegetation, and development patterns surrounding the project site, limit visual access to the site from all but a few public viewpoints. Scenic vistas available in Foster City are generally views of the San Bruno Hills to the west and views of the various water bodies surrounding and within the city, including Belmont Slough, Seal Slough, the Central Lake, and the San Francisco Bay. The City's Environmental Review Guidelines[3] specify that projects that eliminate or significantly alter public views of the San Francisco Bay shall be considered to have a potentially significant impact on the environment.

The flat, generally uniform topography, dense development, and tree cover of Foster City limit scenic vistas to all but a few public viewpoints. Scenic views of the San Francisco Bay and other water bodies are generally only available from streets or sites directly adjacent to these features and would not be affected by the project. Views of the San Bruno Hills from public viewpoints near the project site are blocked by existing development and trees and would not be impacted by the project. For these reasons, development of the project would have a less-than-significant impact on scenic vistas.

(2) Scenic Resources within a State Scenic Highway

SR-92 is the only State highway in the vicinity of the project site. No part of SR-92 is an Officially Designated State Scenic Highway. One section of SR-92 is an Eligible State Scenic Highway,

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[2] City of Foster City/Estero Municipal Improvement District, 2007. Environmental Review Guidelines, October.
[3] Ibid.

although this portion—from SR-1 near Half Moon Bay to Interstate 280[4]—is over 5 miles away from the project site. The project would not result in the damage of trees, rock outcroppings, or historic buildings, nor would it substantially damage resources within a State scenic highway. As such, construction of the project would have no impact on scenic resources viewed from a State scenic highway.

(3) Visual Character

Development of the project would change the visual character of the project site and its surroundings. However, these changes would not be incompatible with the character of the surrounding area, nor would they degrade the visual quality of the site. The current project site is vacant, characterized by utility cabinets and flat, grass with sidewalks along Metro Center Boulevard and Shell Boulevard lined by mature trees.

The project would develop a seven-story hotel. Along the Metro Center Boulevard and Shell Boulevard frontages, the hotel building would be landscaped with low shrubs at the ground level and star jasmine vines growing up the structure's walls to approximately the second story, providing views of vegetation for drivers and pedestrians along these streets. Views of the hotel's rear elevation from the driveway at the rear of the proposed surface parking lot would be screened by trees planted in the parking lot medians.

The tallest portion of the building, which would include the rooftop mechanical screening for elevator equipment, would be approximately 89 feet tall. The seven-story building would not be out of scale with adjacent and nearby developments, and in fact would be noticeably shorter than much of the nearby development. The Metro Center office complex, located at 800-900 Metro Center Boulevard, is immediately adjacent to the project site and features two office buildings 9 stories in height and approximately 122 feet tall. Less than 700 feet to the southeast of the project site is the Metro Center tower, located at 950 Tower Lane. The Metro Center tower is 22 stories in height and approximately 260 feet tall. Approximately 750 feet to the southwest of the project site is the office and retail complex at 1001 E. Hillsdale Boulevard, portions of which are eight stories and approximately 100 feet in height.

The site design of the project responds to the existing natural features and built barriers that physically and visually frame the site. The site is currently defined by its border of mature Black Acacia trees and low Jasmine shrubs that line the street-side sidewalk edge along Metro Center Boulevard and Shell Boulevard. These plants provide a physical and visual boundary separating

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[4] California Department of Transportation (Caltrans), 2017. California Scenic Highway Mapping Program. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm, accessed 2017.

the public right-of-way from the privately-owned project site. The project would leave this boundary in place and accentuate it by providing a complementary vegetated border of low shrubs and grasses such as jasmine, Australian laurel, germander sage, and blue wild rye between the proposed hotel structure and the sidewalk.

Finally, the project would be subject to the Foster City Design Review process[5], , which ensures that projects meet all guidelines, standards, and objectives related to building design and aesthetics, prior to final approval. Also evaluated in this process is a proposed project design's compatibility with or appropriateness for its surroundings. Design review also includes assessment of the compatibility of the development project with surrounding properties in terms of colors, materials, architectural details, façade lengths, and roof forms. Conformance with this process would help ensure that the project would not "substantially degrade the existing visual character or quality of the site or surroundings."[6]

Residents of the Cityhomes East townhomes development, located directly adjacent to the project site, would be impacted by the change in visual character of the project site. However, this impact would be minimized as the hotel structure would be located on the northern portion of the project site, approximately 140 feet away from the shared property line between the townhomes and the project site. Views of the hotel from the townhomes would also be screened by landscaping, including the 12 Gold Medallion trees proposed to be planted in the surface parking lot between the hotel and the townhomes. CEQA only considers the quality of public views of the site, and views from the vantage point of observers positioned at the townhomes' development are views from private property. Lastly, the Cityhomes East townhomes are in an urban area where views of buildings of similar height and massing are not uncommon. For these reasons, impacts on views of the site from the Cityhomes East townhomes are not considered in the overall significance determination under the visual character threshold.

For these reasons, the project would have a less-than-significant impact on the visual character of the project site.

(4) Shade and Shadow

Development of the project would result in a seven-story hotel with casual dining facility, meeting spaces, and rooftop deck ranging from approximately 80 feet (not including roof screening and equipment) to 89 feet (top of roof parapet) in height. While this construction would shift the daily pattern of shade and shadow cast from within the currently vacant project site, the

[5] Described in Foster City Municipal Code Sections 2.28.100 and 17.58.
[6] CEQA Guidelines, Appendix G.

land uses immediately surrounding the site would prevent these patterns from impacting any public or quasi-public open spaces.

The closest open space is the quasi-public plaza between the Metro Center Shopping Center at 927 East Hillsdale Boulevard and Metro Center tower at 950 Tower Lane, approximately 800 feet south of the project site. Due to its location to the south of the project site (the sun shines predominately from the south and thus the most prominent shadows would be cast towards the north during winter months) and distance from the project site, this plaza would not be affected by any shadow cast by the hotel structure. Figure V.B-1 shows shadows that would be cast by the hotel structure at various points throughout the year. These shadow diagrams show that no public or quasi-public open space would be affected by shade and shadow cast by the project. The shadows that would be cast by the project would primarily fall on Metro Center Boulevard and Shell Boulevard, with the longest shadows of the year (on December 21) reaching a portion of the Costco parking lot at 1001 Metro Center Boulevard. The Cityhomes East townhomes development would not be impacted by shadow cast by the project.

As discussed in *Chapter IV, Planning Policy*, the existing General Plan Land Use Designation for the project site is Town Center Commercial, a designation that encourages a mix of high-density office, residential, and commercial uses within Foster City's downtown core. As detailed in *Section V.A, Land Use*, the project site is surrounded by compatible land uses also designated as Town Center Commercial: Costco Wholesale to the northwest; the Metro Center Shopping Center and Courtyard by Marriott hotel to the northeast; Cityhomes East townhomes complex to the southeast; and the nine-story Visa office building and parking structure to the southwest. No sensitive uses such as residences, parks, or schools would be affected by shadows cast by the project. Because no public or quasi-public open space would be affected by shade and shadow cast by the project, the project would result in less-than-significant shade- and shadow-related impacts.

(5) Light and Glare

The project would create additional sources of glare in the vicinity of the project site. The project site currently contains no light-emitting or reflective surfaces. The project would construct two new structures, including one building of up to 87 feet in height. As discussed above, this building would be at least partially visible from various points throughout the City. The public could experience some degree of glare due to sunlight reflecting off the façade of the building. In the evening hours, the lights used to illuminate the building would add new sources of light to the vicinity of the project site and to the nighttime skyline. However, implementation of SCOA 8.2 would require an exterior Lighting Plan and building materials to be reviewed and approved by the City to ensure that light and glare impacts would be reduced. For these reasons, the project would result in less-than-significant light- and glare-related impacts.

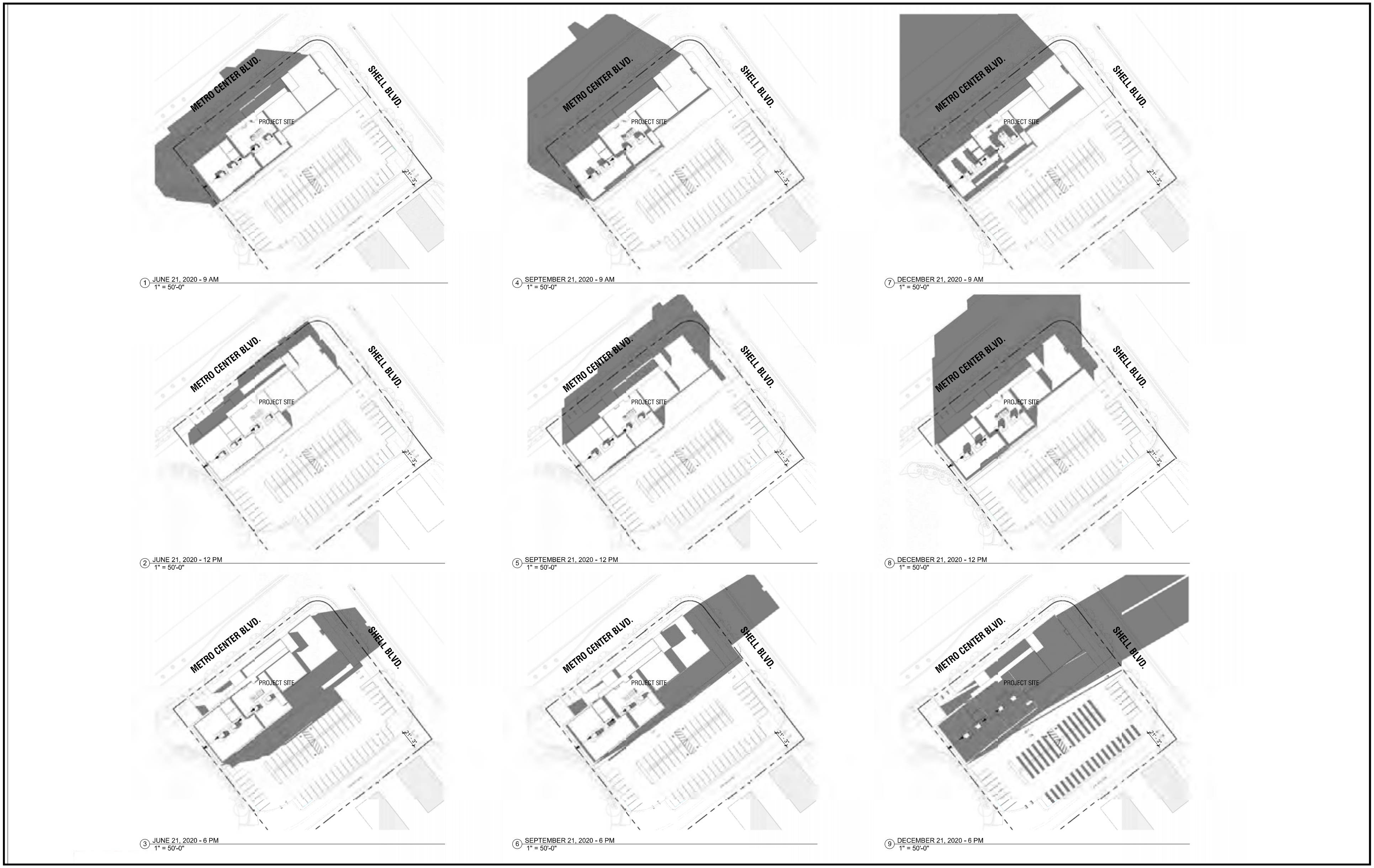


Figure V.B-1
Project Shadow Patterns

New Hotel in Metro Center GDP Area Project EIR

c. Cumulative Aesthetics and Shade and Shadow Impacts

The geographic area considered for the aesthetic cumulative analysis includes the area near the project site including the parcels with Town Center Commercial Land Use Designation (the downtown core). This area was defined because it includes the project site and the immediately surrounding neighborhood. There are no significant development projects included in this area. The project would not substantially alter existing views of scenic vistas within the vicinity of the project site, including views of the distant hills or mountain ranges. Therefore, the project would not make a considerable contribution to cumulative impacts related to the obstruction of scenic vistas in Foster City.

The project is consistent with the City's General Plan Land Use Designation for the site, and together with the majority of past, present, existing, pending, and reasonably foreseeable future development projects, is subject to the City's design review process. The objective of the City's design review process is to "preserve the character of the neighborhood and community. The design review process is intended to assure the proposed development is well designed, in and of itself and in relation to surrounding properties, and that individual rights are weighed against the needs and requirements of the community."[7] The project site is also surrounded by developed, urban properties of similar land use and development patterns, and therefore, the construction of the project would not adversely alter the visual character of the area.

Although the project and future projects in the vicinity of the site could increase light and glare in the area, the City's General Plan includes goals and policies related to design review, which govern the use of reflective materials and outdoor lighting. With implementation of SCOA 8.2, the project would not make a considerable contribution to cumulative light and glare impacts. Thus, the project would not combine with, or add to, any potential adverse aesthetic impacts that may be associated with other cumulative development.

[7] City of Foster City, 2001. Architectural and Solar Guidelines. Available at: https://www.fostercity.org/sites/default/files/fileattachments/community_development/page/8401/arch-and-solar-guidelines-entire-version-doc.pdf, accessed February 21, 2019.

C. TRANSPORTATION

This section describes the existing transportation and circulation system—including roadway, bicycle, pedestrian, and transit facilities—in the vicinity of the proposed project site (the site); discusses project-generated traffic; and assesses the potential impacts of the project on the transportation system.

1. Setting

This subsection describes the existing transportation system in the vicinity of the project site. This includes the existing transit service, roadway operations, bicycle system, and pedestrian facilities.

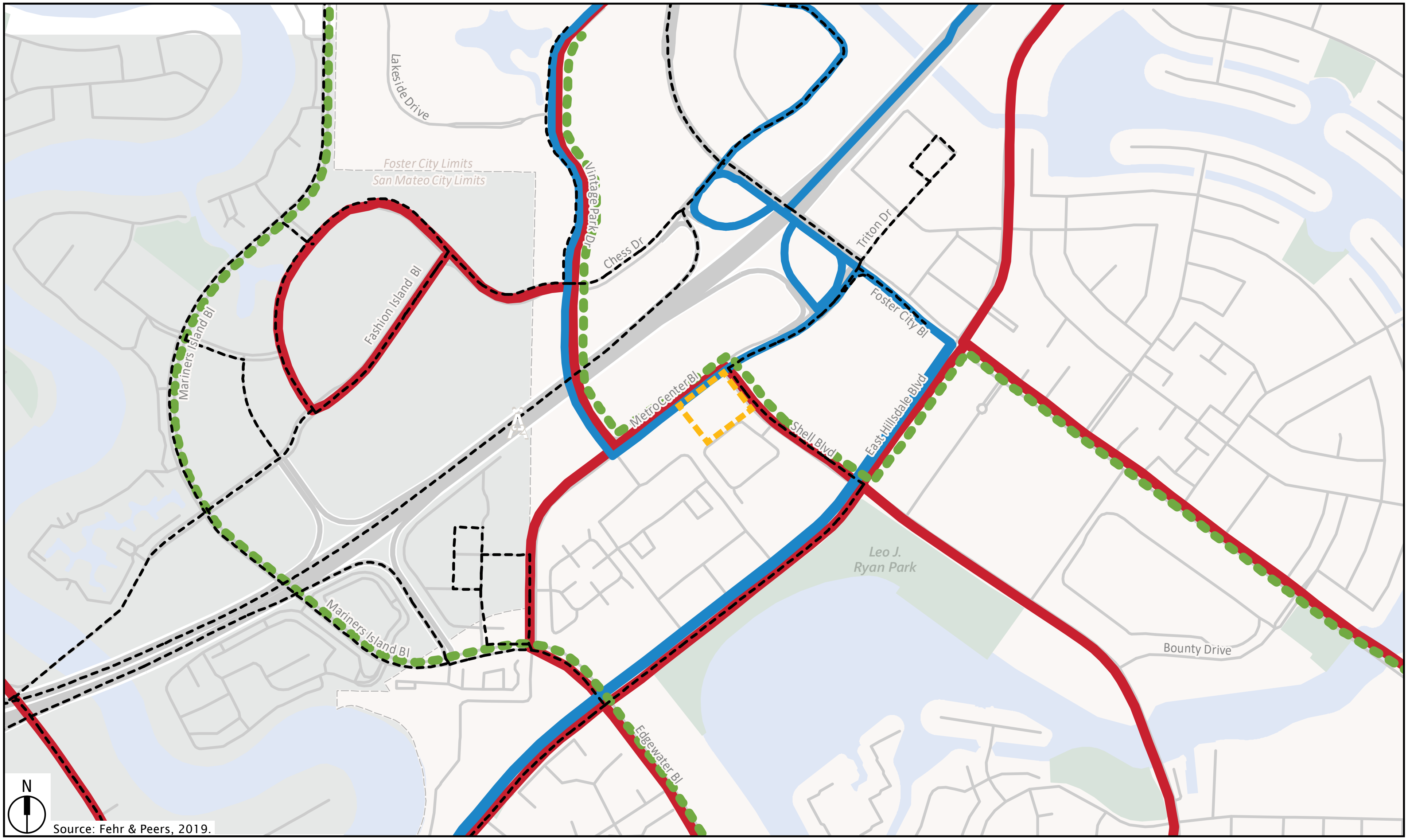
a. Transit System

Transit service within Foster City is provided by several agencies. San Mateo County Transit District (SamTrans) and Alameda-Contra Costa Transit District (AC Transit) provide bus service, while the Peninsula Traffic Congestion Relief Alliance operates shuttle routes connecting to Bay Area Rapid Transit (BART) and Caltrain stations. Figure V.C-1 illustrates the transit routes in the vicinity of the project site. Descriptions of these routes, the hours of operation, and their service headways (time between arrivals) are described below and summarized in Table V.C-1.

(1) SamTrans

SamTrans operates Route 251, Route 256, Route 54, Route 57, and Route FCX in Foster City. Route 251 provides a connection between the Hillsdale Shopping Center and Hillsdale Caltrain station in San Mateo, Foster City, and the Bridgepointe Shopping Center in San Mateo. Route 256 operates along the same route as Route 251, but in the opposite direction for the loop within Foster City. Routes 54 and 57 serve the weekday morning and afternoon school commute to/from Bowditch Middle School and Hillsdale High School in San Mateo and Foster City, respectively. Route FCX (Foster City Commuter Express) operates weekday morning and evening express service between Foster City and downtown San Francisco. Bus stops on Metro Center Boulevard near Vintage Park Drive serve Routes 251/256 and FCX and are located approximately 500 feet west of the project site. A bus stop for Route 54 is located on East Hillsdale Boulevard at Shell Boulevard, approximately 0.25 miles south of the project site

In addition to its traditional bus routes, SamTrans runs paratransit service for persons with disabilities through its Redi-Wheels program. The Foster City Parks & Recreation Department's Senior Express Shuttle also operates on-demand service for Foster City residents who are 50 years of age and above.



Project Site
AC Transit Bus Service
Samtrans Bus Service
Commute.Org Shuttle Service (Peak Only)
Foster City Commuter Express (Peak Only - Operated by Samtrans)

Figure V.C-3
Existing Transit Facilities

TABLE V.C-1 EXISTING TRANSIT SERVICE

Service Provider	Name/Description	Hours of Operation (Headways)
SamTrans	251 – Caltrain Connection	11:30 a.m. – 8:17 p.m. Weekdays (60 min.) 8:30 a.m. – 7:20 p.m. Saturdays (120 min.)
	256 – Caltrain Connection	6:34 a.m. – 5:25 p.m. Weekdays (60 min.) 7:30 a.m. – 8:18 p.m. Saturdays (120 min.)
	54 – School Service	7:39 a.m. – 8:05 a.m. Weekdays (one bus) 1:50 p.m. – 3:40 p.m. Weekdays (six buses)
	57 – School Service	6:50 a.m. – 7:20 a.m. Weekdays (one bus) 2:10 p.m. – 4:02 p.m. Weekdays (two buses)
	FCX – Foster City Commuter Express	6:00 a.m. – 8:00 a.m. Weekdays (30 min.) 3:30 p.m. – 6:00 p.m. Weekdays (30 min.)
AC Transit	M – Transbay Service	5:57 a.m. – 6:53 p.m. Weekdays (40 min.)
Commute.org Shuttles	Foster City – North BART/Caltrain	6:35 a.m. – 10:02 a.m. Weekday (30 min.) 4:04 p.m. – 7:18 p.m. Weekday (30 min.)
	Foster City – Lincoln Centre Caltrain	7:00 a.m. – 9:40 a.m. Weekday (45 min.) 3:08 p.m. – 7:05 p.m. Weekday (40 min.)
	Mariners Island Caltrain	7:00 a.m. – 10:25 a.m. Weekday (45 min.) 3:12 p.m. – 6:39 p.m. Weekday (45 min.)

Source: SamTrans, AC Transit, Commute.org.

(2) AC Transit

AC Transit provides Transbay service between Hayward and San Mateo. Line M operates across the San Mateo Bridge/SR-92 and travels on Foster City Boulevard, Chess Drive, Vintage Park Drive, Metro Center Boulevard, and East Hillsdale Boulevard in Foster City. A bus stop on Metro Center Boulevard near Vintage Park Drive serves Line M and is located approximately 500 feet west of the project site.

(3) Commute.org Shuttles

The Foster City-North BART/Caltrain Shuttle provides service operated by commute.org between the Millbrae Intermodal Station and businesses and office buildings in the North Foster City Area during commute hours, Monday through Friday. The nearest stop to the project site is located at Chess Drive and Bridgepointe Parkway, nearly 0.75 miles away.

Commute.org operates two other shuttle buses during weekday commute hours: Foster City-Lincoln Centre Caltrain Shuttle and Mariners Island Caltrain Shuttle. The Lincoln Centre Shuttle runs between the Hillsdale Caltrain Station and businesses in the Lincoln Centre Area in North Foster City. The nearest Lincoln Centre Shuttle stop to the project site is at 353 Lakeside Drive, approximately 1 mile away. The Mariners Island Shuttle provides service between the Hillsdale Caltrain Station and businesses in the San Mateo and Foster City border areas. The nearest

Mariners Island Shuttle stop to the project site is located on East Hillsdale Boulevard at Shell Boulevard, approximately 0.25 miles south of the project site.

b. Roadway Network

Figure V.C-2 presents the study area roadways, intersections and freeway segments evaluated in this analysis.

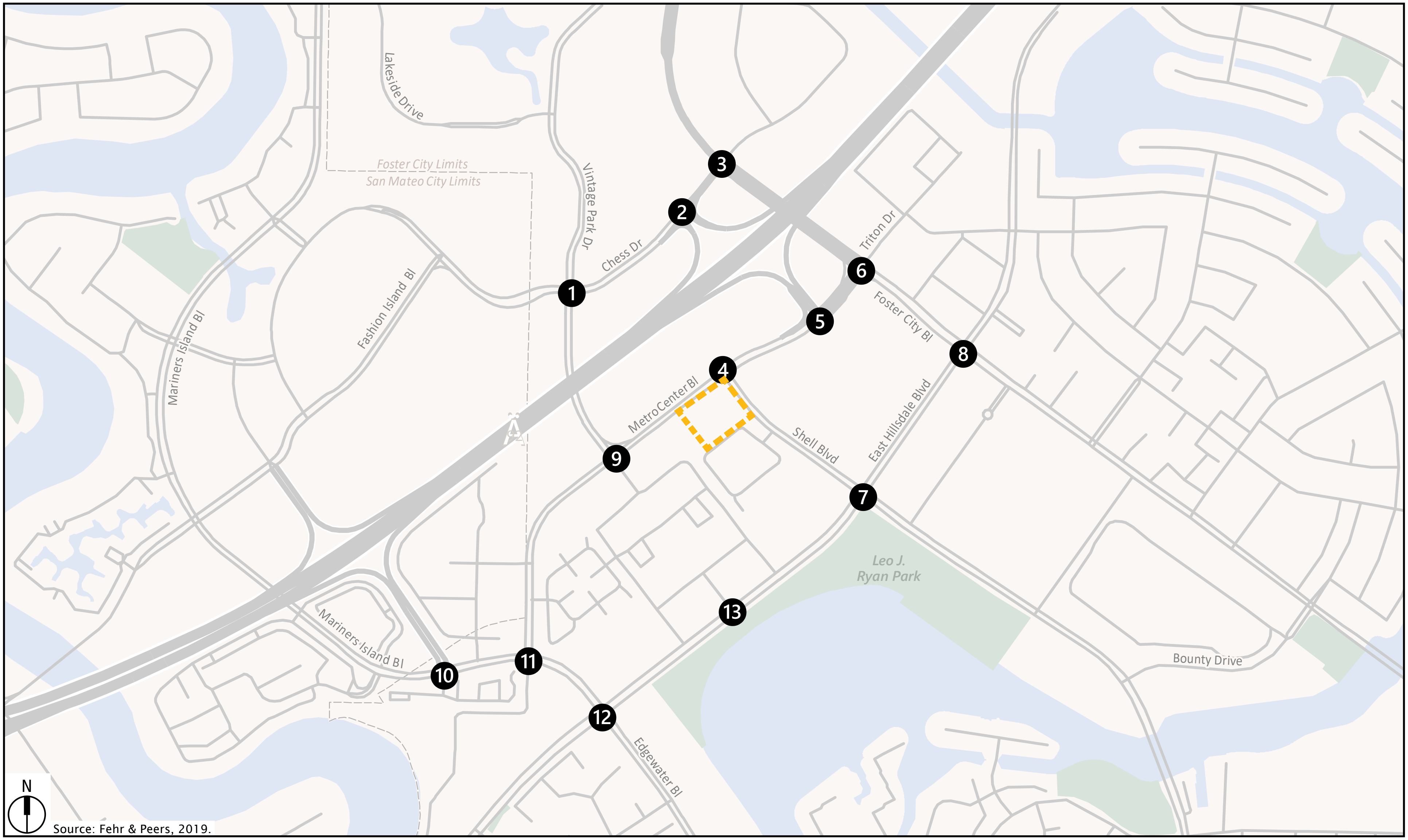
The study area was selected based on local traffic patterns and engineering judgment and in consultation with City of Foster City staff. All study intersections are signal-controlled.

Study Intersections

1. Chess Drive/Vintage Park Drive
2. Chess Drive/State Route 92 (SR-92) Westbound Ramps
3. Chess Drive/Foster City Boulevard
4. Metro Center Boulevard/Shell Boulevard
5. Metro Center Boulevard/SR-92 Eastbound Ramps
6. Metro Center Boulevard/Triton Drive/Foster City Boulevard
7. East Hillsdale Boulevard/Shell Boulevard
8. East Hillsdale Boulevard/Foster City Boulevard
9. Vintage Park Drive and Metro Center Boulevard
10. SR-92 Eastbound Ramps and Edgewater Boulevard/Mariners Island Boulevard
11. Metro Center Boulevard and Edgewater Boulevard
12. Edgewater Boulevard and East Hillsdale Boulevard
13. East Hillsdale Boulevard and Metro Center Shopping Center

Study Freeway Segments

1. U.S. Highway 101 (US 101), north of East 3rd Avenue
2. US 101, between East 3rd Avenue and SR-92
3. US 101, between SR-92 and East Hillsdale Boulevard
4. US 101, south of East Hillsdale Boulevard
5. SR-92, between US 101 and Edgewater Boulevard
6. SR-92, between Edgewater Boulevard and Foster City Boulevard
7. SR-92, east of Foster City Boulevard



Project Site
Study Intersections

Figure V.C-1
Study Area

New Hotel in Metro Center GDP Area Project EIR

Regional access to the project site is provided by SR-92 and US 101. Access to SR-92 is provided via interchanges at Chess Drive/Foster City Boulevard/Metro Center Boulevard and Edgewater Boulevard/Mariners Island Boulevard/Fashion Island Boulevard. Access to US 101 is provided via interchanges at East 3rd Avenue and East Hillsdale Boulevard, and with SR-92. Key city streets used for local access include Foster City Boulevard, Vintage Park Drive, Chess Drive, Metro Center Boulevard, East Hillsdale Boulevard, Edgewater Boulevard, Shell Boulevard, and Beach Park Boulevard. Speed limits on roadways in the study area range from 25 miles per hour (mph) on local streets to 35–45 mph on arterials. The speed limit is 55 mph on SR-92 and 65 mph on US 101. On-street parking is not allowed on the local roadways within the study area except where noted in the roadway descriptions below.

(1) Regional Highways

SR-92 is a State highway that runs in an east-west direction from Half Moon Bay, near the coast, to Hayward on the east side of San Francisco Bay via the San Mateo Bridge. SR-92 has partial interchanges (hook ramps) with Chess Drive/Foster City Boulevard/Metro Center Boulevard and Edgewater Boulevard/Mariners Island Boulevard/Fashion Island Boulevard within the study area. It generally has three travel lanes in each direction east of US 101 and two travel lanes in each direction west of US 101, with auxiliary lanes between interchanges. Average daily volumes on SR-92 through the study area range from 147,000 vehicles between US 101 and Mariners Island Boulevard to 98,000 vehicles at the San Mateo Bridge.

US 101 is an Interstate freeway that provides regional north-south access along the San Francisco Peninsula. In the vicinity of Foster City, US 101 typically has four travel lanes in each direction with an auxiliary lane between interchanges. Although US 101 does not run directly through Foster City, it provides the primary north-south regional access to the study area via interchanges at SR-92, East Hillsdale Boulevard, and East 3rd Avenue in the City of San Mateo. Average daily traffic volumes on US 101 through Foster City range from 233,000 vehicles at East Hillsdale Avenue to 263,000 vehicles north of SR-92.

(2) Local Roadways

Metro Center Boulevard is a four-lane, east-west roadway that runs parallel to SR-92 south and extends between Edgewater Boulevard and Foster City Boulevard where it becomes Triton Drive. Access to eastbound SR-92 is provided by hook ramps just west of Foster City Boulevard. It fronts the project site to the north and provides driveway access to the project.

Foster City Boulevard is a four- to six-lane arterial that extends from East 3rd Avenue, across SR-92, to Beach Park Boulevard. It is a major north-south arterial in Foster City. On-street parking is allowed along northbound Foster City Boulevard between Bounty Drive and approximately 450 feet south of East Hillsdale Boulevard.

Shell Boulevard is a four-lane arterial that runs north-south from Metro Center Boulevard to Beach Park Boulevard. It fronts the project site to the east and provides driveway access to the project.

Chess Drive extends eastward from Bridgepointe Parkway past Foster City Boulevard and then curves around to the north and west to intersect with Foster City Boulevard at Vintage Park Drive. Access to westbound SR-92 is provided via hook ramps just west of Foster City Boulevard. Chess Drive is four lanes wide west of Foster City Boulevard and two lanes wide to the east. On-street parking is allowed along Chess Drive to the east of Hatch Drive.

East Hillsdale Boulevard is a 4- to 6-lane divided arterial that runs in an east-west direction south of SR-92. It has a full access interchange with US 101 in the City of San Mateo. Foster City recently implemented turn restrictions to prevent eastbound left turns from East Hillsdale Boulevard onto Edgewater Boulevard and Shell Boulevard during the PM peak period as part of the Traffic Relief Pilot Program to discourage freeway traffic traveling between US 101 and SR-92 from cutting through Foster City.

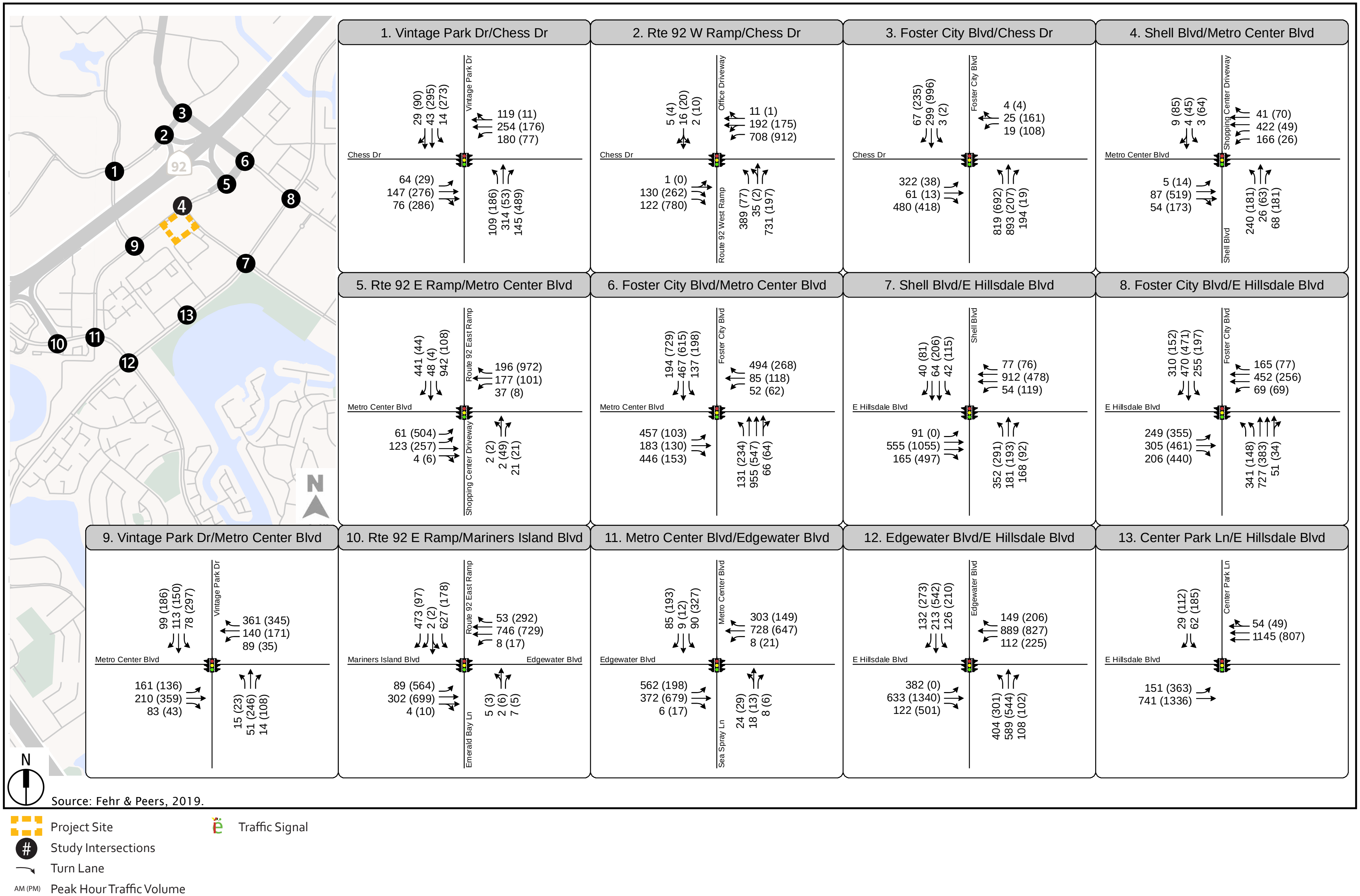
Edgewater Boulevard is the continuation of Mariners Island Boulevard south of SR-92. It is four lanes wide with on-street parking south of East Hillsdale Boulevard.

Beach Park Boulevard is a two- to four-lane roadway that runs along the eastern edge of Foster City until it turns into East Hillsdale Boulevard, just south of SR-92. It is a two-lane residential street west of Edgewater Boulevard with on-street parking on both sides of the street. It is a four-lane roadway east of Edgewater Boulevard with on-street parking allowed north of Foster City Boulevard.

East 3rd Avenue is a four-lane divided roadway that runs in an east-west direction along the San Francisco Bay shoreline north of SR-92. It has a full access interchange with US 101 in the City of San Mateo.

(3) Traffic Volumes and Operations

Intersection turning movement counts were conducted at the study intersections during the morning and evening peak periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.) in May 2019 on non-holiday weekdays, when local area schools were in normal session. Intersection lane configurations and traffic control devices (traffic signals) were confirmed during field visits in October 2019. The existing morning and evening peak-hour traffic demand volumes, lane geometries, and intersection controls for the study intersections are summarized in Figure V.C-3. Raw intersection volumes are included in Appendix B.



Source: Fehr & Peers, 2019.

Figure V.C-2

Existing Peak Hour Turning Movement Volumes

New Hotel in Metro Center GDP Area Project EIR

Traffic Operations Analysis Methodology

The evaluation of traffic conditions on local streets involves an analysis of intersection operations, as intersections represent the locations where the roadway capacity is most constrained. Intersection and freeway mainline segment operations were evaluated with level of service (LOS) calculations. Level of service is a qualitative description of operations ranging from LOS A, when the roadway facility has excess capacity and vehicles experience little or no delay, to LOS F, where the volume of vehicles exceeds the capacity resulting in long queues and excessive delays. Typically, LOS E represents "at-capacity" conditions and LOS F represents "over-capacity" conditions. At signalized intersections operating at LOS F, for example, drivers may have to wait through multiple signal cycles prior to making intended traffic movements.

Nine of the 13 study intersections were evaluated using the Vistro software package, which incorporates the methods from Chapter 16, Signalized Intersections, and Chapter 17, Unsignalized Intersections, of the Highway Capacity Manual (HCM). These methods evaluate operations of intersections that function independently. The intersections in the SR-92/Foster City Boulevard interchange complex, namely the intersections on Chess Drive and on Metro Center Boulevard with Foster City Boulevard and the SR-92 eastbound and westbound ramps, interact with each other as vehicle queues often extend between intersections and affect operations at the adjacent intersections. These four intersections were evaluated using the VISSIM micro-simulation software package to account for these interactions. Freeway analysis was conducted according to the methodology adopted by the San Mateo City/County Association of Governments (C/CAG). A description of each methodology is included in the Foster City General Plan Update EIR.[1]

Intersection Operations

The existing intersection level of service analysis results for the study intersections are shown in Table V.C-2. It is based on recently collected turning movement volumes, existing lane configurations, and traffic control. The level of service analysis results for the four intersections near the SR-92/Foster City Boulevard interchange are based on simulation results from the VISSIM micro-simulation model, while the remaining study intersections were analyzed as isolated intersections based on the Highway Capacity Manual methodology using the Vistro analysis software.

Most study intersections operate at an acceptable LOS D or better as outlined in Table V.C-2. Intersection 3, Foster City Boulevard and Chess Drive, and Intersection 5, Metro Center Boulevard

[1] City of Foster City, 2015. Foster City General Plan Update EIR.

and SR-92 Eastbound Ramps operate at LOS F during the PM peak hour, while intersection 6, Foster City Boulevard and Metro Center operates at LOS E during the PM peak hour. These intersections connect westbound and eastbound SR-92 ramps via Foster City Boulevard. The poor level of service is primarily due to congestion at the SR-92 Eastbound On-ramp that spills back to block southbound traffic on Foster City Boulevard and eastbound Chess Drive. Field observations in October 2019 confirmed the existing operations and were used to further calibrate the microsimulation model to reflect the queuing near the ramp intersections. Foster City General Plan Land Use and Circulation Policy LUC-F-1 acknowledges these operations and limited improvement opportunities by stating that it will be necessary to accept LOS E or F at the following intersections: Chess Drive/SR-92 Ramps, Foster City Boulevard/Triton Boulevard/Metro Center Boulevard, and East Hillsdale Boulevard/Edgewater Boulevard. Intersection level of service calculation worksheets for all scenarios are included in Appendix B.

TABLE V.C-2 EXISTING INTERSECTION LEVELS OF SERVICE

		AM Peak Hour		PM Peak Hour	
Intersection	**Control**	**Delay[a]**	**LOS**	**Delay[a]**	**LOS**
1. Vintage Park Dr / Chess Dr	Signal	15	B	26	C
2. SR-92 WB Ramps / Chess Dr[b]	Signal	18	B	43	D
3. Foster City Blvd / Chess Dr[b]	Signal	22	C	**>80**	**F**
4. Shell Blvd / Metro Center Blvd	Signal	14	B	32	C
5. SR-92 EB Ramps / Metro Center Blvd[b]	Signal	17	B	**>80**	**F**
6. Foster City Blvd / Metro Center Blvd[b]	Signal	32	C	66	E
7. Shell Blvd / E Hillsdale Blvd	Signal	29	C	29	C
8. Foster City Blvd / E Hillsdale Blvd	Signal	39	D	42	D
9. Vintage Park Dr / Metro Center Blvd	Signal	27	C	43	D
10. Mariners Island Blvd / Edgewater Blvd	Signal	30	C	31	C
11. Edgewater Blvd / Metro Center Blvd	Signal	44	D	31	C
12. Edgewater Blvd / E Hillsdale Blvd	Signal	28	C	43	D
13. E Hillsdale Blvd / Center Park Ln	Signal	11	B	21	C

Note: **Bold** indicates unacceptable level of service.
[a] For signalized intersections, the delay shown is the weighted average for all movements in seconds per vehicle.
[b] Intersection analyzed using the VISSIM microsimulation model.
Source: Fehr & Peers, 2019.

Freeway Analysis

Existing freeway mainline volumes were compiled from Caltrans' California Freeway Performance Measurement System (PeMS), as described in the Pilgrim Triton Master Plan Proposed Amendment to Phase C Transportation Impact Assessment (TIA).[2] The existing freeway level of service analysis results are shown in Table V.C-3. Most freeway segments currently operate under capacity and within their level of service threshold as defined by the C/CAG Congestion Management Plan (CMP) with the exception of two segments where existing demand exceeds capacity during the PM peak hour: US 101 southbound between East 3rd Avenue and SR-92, and SR-92 eastbound east of Foster City Boulevard.

c. Bicycle System

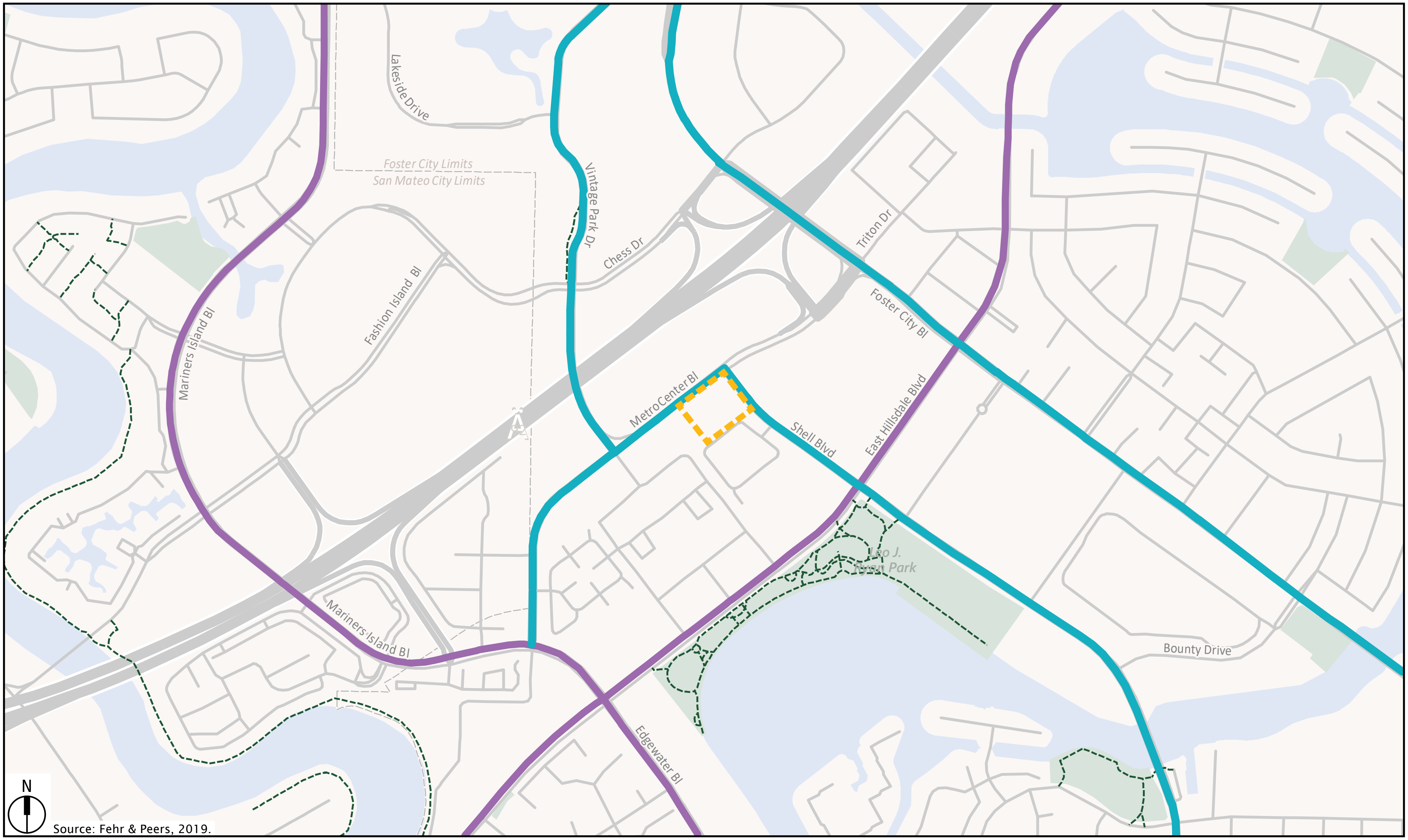
Bicycle facilities include Class I multi-use paths, Class II bike lanes, Class III bike routes, and Class IV protected bike lanes. Class I multi-use paths are paved pathways or trails that are not on streets shared with vehicles. Class II bike lanes are lanes on the outside edge of roadways that are intended for the exclusive use of bicycles and are designated with special signing and pavement markings. Class III bike routes are roadways designated for bicycle use with only a bike route sign. Class IV protected bike lanes are on-street bike lanes that are physically separated from the vehicle travel lane with infrastructure beyond painted pavement markings.

The bicycle facilities in Foster City are shown on Figure V.C-4. Class I bicycle paths are provided near and along the bay shoreline as part of the Bay Trail. Class II bike lanes run along Mariners Island Boulevard, Norfolk Street, Bridgepointe Circle, and Bridgepointe Parkway. Class III bicycle routes are located on Foster City Boulevard, Vintage Park Drive, East 3rd Avenue, Lakeside Drive, Metro Center Boulevard, Shell Boulevard, and East Hillsdale Boulevard.

d. Pedestrian Facilities

Pedestrian facilities comprise sidewalks, off-street pathways, marked and enhanced crosswalks (mid-block and at intersections), curb ramps, median refuges, and pedestrian-scale lighting. Sidewalks are provided along both sides of many streets within Foster City, with marked crosswalks and curb ramps at intersections. At smaller intersections where a local street meets a main arterial, such as the intersection of Foster City Boulevard/Polynesia Drive, marked crosswalks rarely exist and traffic is often uncontrolled on the larger roadway. Pedestrian signals with pedestrian-activated push buttons are provided at signalized intersections. Medians are often present on the wide boulevards, but median curb cuts are rarely provided for pedestrian

[2] Kittleson & Associates, 2018. Pilgrim Triton Master Plan Proposed Amendment to Phase C TIA.



Project Site
Class I - Bike Path
Class II - Bike Lane
Class III - Bike Route

Figure V.C-4

Existing Bicycle Facilities

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TABLE V.C-3 EXISTING FREEWAY OPERATIONS

		AM Peak Hour			PM Peak Hour		
Location	**Criteria**	**Volume[a]**	**V/C[b]**	**LOS[c]**	**Volume[a]**	**V/C[b]**	**LOS[c]**
US 101 Northbound							
North of E 3rd Ave	F	10,669	0.97	E	10,041	0.91	E
Between E 3rd Ave and SR-92	F	9,662	0.88	D	9,362	0.85	D
Between SR-92 and E Hillsdale Blvd	E	8,539	0.78	D	8,742	0.79	D
South of E Hillsdale Blvd	E	8,598	0.78	D	9,385	0.85	E
US 101 Southbound							
North of E 3rd Ave	F	9,417	0.86	E	11,271	0.98	E
Between E 3rd Ave and SR-92	F	9,556	0.87	E	**11,564**	**1.01**	**F**
Between SR-92 and E Hillsdale Blvd	E	9,298	0.85	D	10,963	1.00	E
South of E Hillsdale Blvd	E	10,830	0.98	E	11,627	0.99	E
SR-92 Eastbound							
Between US 101 and Edgewater Blvd	E	4,688	0.71	D	5,021	0.76	D
Between Edgewater Blvd and Foster City Blvd	E	3,760	0.57	C	5,733	0.87	E
East of Foster City Blvd	E	2,730	0.41	B	**7,038**	**1.07**	**F**
SR-92 Westbound							
Between US 101 and Edgewater Blvd	E	4,388	0.66	C	5,452	0.83	D
Between Edgewater Blvd and Foster City Blvd	E	4,410	0.67	C	4,508	0.68	D
East of Foster City Blvd	E	5,209	0.79	D	3,108	0.47	C

Note: **Bold** indicates the segment is operating over capacity.
[a] Volume is shown in vehicles per hour.
[b] V/C = Volume to Capacity ratio.
[c] LOS = Level of service, calculated based on HCM 2010 methodology.
Source: Fehr & Peers, 2019.

2. Regulatory Setting

State and local laws, regulations, and orders that pertain to transportation and traffic resources in the project area are presented below.

a. California Senate Bill 743

California Senate Bill 743 (SB 743) was signed into law in 2013 and fundamentally changes the way transportation impacts under CEQA are analyzed. It required the Office of Planning and Research (OPR) to "prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed revisions to the [CEQA] guidelines …establishing criteria for determining the significance of transportation impacts of projects" in order to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses."

On December 28, 2018, the Natural Resources Agency adopted CEQA Guidelines Section 15064.3 which establishes specific criteria for evaluating a project's transportation impacts and states that "vehicle miles traveled is the most appropriate measure of transportation impacts". It gives agencies the "discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure" provided that "[a]ny assumptions used to estimate vehicle miles traveled… should be documented and explained in the environmental document prepared for the project." Section 15064.3 further states that except for certain transportation projects, "a project's effect on automobile delay shall not constitute a significant environmental impact." See *Citizens for Positive Growth & Preservation v. City of Sacramento* (2019) 43 Cal. App. 5th 609, 626 (holding that a general plan's impact on level of service (LOS) which effectively measures automobile delay can no longer constitute a significant environmental impact).

Additionally, OPR issued a technical advisory memorandum in December 2018 that includes general guidance and information for lead agencies to use in implementing SB 743, including choosing vehicle miles traveled (VMT) methodology and establishing VMT thresholds. Lead agencies have until July 1, 2020 to implement methodologies and thresholds related to VMT to comply fully with SB 743. Since Foster City has not yet adopted citywide generally applicable VMT thresholds for impact determination (pursuant to 14 Cal. Code Regs 15064(b) and because LOS analysis can no longer be used to make impact determinations , a project-specific (or ad hoc) VMT threshold is used for this analysis as allowed under CEQA and as explained in further detail in other sections.

b. Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area (Bay Area). It is responsible for developing the regional transportation plan and prioritizing regional transportation projects for State and federal funding.

c. City/County Association of Governments of San Mateo County

The C/CAG of San Mateo County is the County's Congestion Management Agency. It prepares a Congestion Management Plan (CMP), which identifies improvements and strategies to relieve congestion on regional transportation facilities and sets funding priorities. The CMP is required to be consistent with the MTC planning process and projects for the Regional Transportation Improvement Program. The C/CAG also provides guidelines for the analysis of land use projects and their effects on the designated CMP roadway system.

The San Mateo County CMP roadway system comprises 53 roadway segments and 16 intersections. The CMP facilities in Foster City include US 101 and SR-92. The level of service standards for these facilities vary by roadway segment:

- SR-92 from US 101 to Alameda County Line, LOS E
- US 101 from Peninsula Avenue to SR-92, LOS F
- US 101 from SR-92 to Whipple Road, LOS E

d. Caltrans

Caltrans is responsible for the maintenance and operation of State routes and highways. In Foster City, Caltrans facilities include SR-92 and US 101. Caltrans maintains a volume monitoring program and reviews local agencies planning documents (such as this EIR) to assist in its forecasting of future volumes and congestion points. The Guide for the Preparation of Traffic Impacts Studies published by Caltrans[3] is intended to provide a consistent basis for evaluating traffic impacts to State facilities. The City recognizes that "Caltrans endeavors to maintain a target level of service at the transition between LOS C and LOS D on State highway facilities;" however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target level of service. Caltrans states that, for existing State highway facilities operating at less than the target level of service, the existing level of service should be maintained.

Caltrans released a VMT-Focused Transportation Impact Study Guide (February 28, 2020) that recommends use of the OPR recommendations for land use projects and plans. For transportation projects, Caltrans has suggested that any increase in VMT would constitute a significant impact for transportation projects. This has been referred to as the "Net Zero VMT threshold."

[3] Caltrans, 2002. Guide for the Preparation of Traffic Impacts Studies, December.

e. San Mateo County Transportation Authority

The San Mateo County Transportation Authority was formed in 1988. The authority administers the proceeds from Measure A, the voter approved half-cent sales tax, to fund a variety of transportation-related projects and programs. San Mateo County Transportation Authority projects in the vicinity of Foster City include construction of new auxiliary lanes on US 101.

f. Foster City General Plan

All cities in California are required to prepare and adopt a General Plan. The General Plan presents the community's long-range view regarding its physical development. Specifically, it contains goals, policies, and programs addressing the development and redevelopment of land, preservation of parks and open spaces, provision of housing, conservation of natural resources, improvement of the transportation system, control of noise, and protection from hazards.

The Land Use and Circulation Element of the Foster City General Plan was adopted in February 2016. The applicable circulation goals, policies, and programs related to transportation impacts related to the construction of the project are included below. Foster City's City Council recently adopted amendments to the General Plan[4] to include reference to the recently adopted Green Infrastructure Plan[5] which encourages all street design and development to incorporate green streets and green infrastructure best practices.

> ***Goal LUC-E: Provide for Diversified Circulation Needs.*** *Develop, improve and maintain a circulation system which provides efficient and safe access for private vehicles, commercial vehicles, public transit, emergency vehicles, bicycles and pedestrians.*
>
> ***Goal LUC-F: Maintain Acceptable Operating Conditions on the City's Road Network.*** *Maintain acceptable operating conditions on the City's road network at or above LOS D, or equivalent measurement, and encourage the maximum effective use of public and private vehicles, reduce the growth in peak hour traffic volumes and reduce single passenger trips.*
>
> ***Goal LUC-G: Provide Adequate Parking.*** *Ensure that adequate off-street parking is incorporated into new and modified projects and designed for safe and effective circulation.*
>
> ***Goal LUC-H: Foster a More Sustainable Community.*** *Strive to be a community that meets the needs of the present without compromising the ability of future generations to meet their own needs by promoting land use strategies that*

[4] General Plan amendments include changes to the following Land Use and Circulation Element goals and policies: LUC-D-4, LUC-D-8, LUC-E, LUC-E1, LUC-E-2, LUC-E-2-a, LUC-E-2-b, LUC-E-2-d, LUC-E-2-e, LUC-E-3, LUC-E-4, LUC-E-7, LUC-E-7-a, LUC-E-8-b, LUC-F-1-d, LUC-H-6, LUC-H-6-a, LUC-K-2, and LUC-L-10. (https://fostercityca.civicclerk.com/Web/GenFile.aspx?ad=12742).

[5] Foster City Green Infrastructure Plan, approved by the City Council of the City of Foster City August 19, 2019 (Resolution No. 2019-83) (https://www.fostercity.org/publicworks/page/foster-city-green-infrastructure-plan).

decrease reliance on automobile use, increase the use of alternative modes of transportation, maximize efficiency provision of services and reduce emissions of GHGs.

Goal LUC-L: Provide Adequate Services and Facilities. *Ensure that new and existing developments can be adequately served by municipal services and facilities.*

Policy LUC-E-1: Improvements to Existing Streets. The City will maintain and improve the existing system of major and collector streets.

Policy LUC-E-2: Complete Streets. The City will plan for a balanced, multimodal transportation network that meets the needs of all users of the streets, roads, and highways for safe and convenient travel.

Policy LUC-E-3: Streets in Residential Neighborhoods. Residential neighborhoods shall be protected from through traffic by maintaining the system of narrower collector and local streets and minimizing the number of through streets. To accomplish this, the City may consider other traffic calming techniques.

Policy LUC-E-4: Private Streets and Public Loop or Cul-de-Sac Streets. The City will enforce design standards for private streets and public loop or cul-de-sac streets to ensure that they meet minimum requirements for two-way traffic, parking, and emergency access. Private streets and public loop or cul-de-sac streets may be approved with narrower than standard widths, provided that emergency access and parking can be safely accommodated. They are not intended to provide curbside parking, and the roads are designed to serve only those residences on that street or within that development.

Policy LUC-E-5: Access to New Commercial and Industrial Projects. New commercial and industrial developments shall be designed so that, wherever necessary and possible, entrance to the projects can be gained by way of left- or right-turn only lanes. Only the minimum number of entrance or exit points shall be allowed as are needed to ensure safe and efficient internal traffic flow and to reduce through traffic delays on public roads serving the project.

Policy LUC-E-6: Create Opportunities for Transit Access. Create opportunities to improve transit and access to regional transit with new or modified development, as appropriate.

Policy LUC-E-7: Coordination with Transit Agencies that Serve San Mateo County. The City shall work with SamTrans, Alameda-Contra Costa Transit District (AC Transit), the Peninsula Traffic Congestion Relief Alliance, RIDES and other agencies that serve San Mateo County in defining new transit routes and improving the public transit and transportation system.

Policy LUC-E-8 Pedestrian, Bicycle and Neighborhood Electric Vehicle (NEV) Friendly Design. Encourage bicycling, walking and use of NEVs instead of driving automobiles to reduce greenhouse gas emissions, save money on fuel and maintenance, and foster a healthier population. Prioritize pedestrian and bicycle-friendly improvements including bike lanes on main streets, an urban bike-trail system, bike parking, pedestrian crossings, and associated master plans with new or modified development, as appropriate.

Policy LUC-E-9: Bicycle Routes and Pedestrian Paths. Maintain a system of bicycle routes and pedestrian paths, which will include separate bicycle lanes and posted bicycle routes. Pedestrian pathways and easements shall be maintained, either by the City, or, in the case of private ownership, according to a maintenance agreement or landscaping district agreement applicable to the pathway/easement.

Policy LUC-F-1: Traffic Level of Service Standards. The City shall seek to achieve a traffic service level of "C" or better on City streets and level of "D" or better during peak traffic hours, although it will be necessary to accept level of service "E" or "F" at the SR-92 Westbound Ramps/Chess Drive, the Foster City Boulevard/Metro Center Boulevard/Triton Drive, Vintage Park Drive/Chess Drive, and the Foster City Boulevard/Chess intersections due to their role as access points to the freeway system. The level of service standard will be maintained through the following means:

a. Intelligent Transportation Systems (ITS).
b. Transportation Demand Management (TDM) for development projects.
c. Capital Improvement Program and coordination with federal, state, county and district funding programs for street and other transportation improvements.
d. Developer payment of pro rata fair share of traffic improvement costs for new developments.

Policy LUC-G-2: Preferred Parking/Electric Plug-in. Encourage businesses, developers, and property managers to create preferred parking for electric and alternative fuel vehicles and study the installation of electric charging stations for plug-in vehicles.

Policy LUC-G-3: Off-Street Parking Requirements. The City shall maintain off-street parking requirements based on use permits of record, the historical parking patterns of residential and non-residential projects, and related information developed by the Urban Land Institute, Institute of Traffic Engineers, or other reliable sources.

Policy LUC-H-2: Reduce GHG Emissions. The City will strive to reduce GHG emissions by reducing vehicle miles traveled by supporting trip reduction programs and encouraging the use of alternative fuels and transportation technologies.

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section discusses the potential impacts related to transportation that could result from implementation of the proposed project. Included are: (1) analysis scenarios; (2) significance criteria, which establish how an impact is determined to be significant; and (3) any necessary SCOAs and/or mitigation measures to reduce significant impacts.

a. Analysis Scenarios

The transportation analysis is presented for the following scenarios:

- **Existing (2019) Conditions** – Existing conditions are representative of observed conditions from October 2019 by Fehr & Peers staff.
- **Existing Plus Project Conditions** – Existing conditions plus the addition of the project.
- **Cumulative (2040) Conditions** – Projected conditions in Year 2040, including buildout of approved and probable future development projects. Future transportation network is based on approved and probable changes to the transportation network.
- **Cumulative Plus Project Conditions** – Cumulative conditions plus the addition of the project.

b. Significance Criteria

The criteria for evaluating the significance of a project's environmental impacts are based on the CEQA Guidelines Appendix G checklist, the City's Environmental Review Guidelines, and applicable standards recognized by C/CAG. For this analysis, transportation impacts would be considered significant if the project would:

1. Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
2. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b), concerning VMT;
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
4. Result in inadequate emergency access.

c. Thresholds of Significance

To apply the significance criteria listed above, the analysis in this section uses the following significance thresholds, which are based on federal, State, and local regulations.

(1) Circulation System Consistency Thresholds (Criterion 1)

Transit. Based on General Plan Goals LUC-E and LUC-H and the City's interpretation of CEQA Appendix G, conflicts with a program, plan, ordinance or policy related to transit would be considered significant if the project would:

(a) Disrupt existing transit services or facilities. This includes disruptions caused by project access points or staging areas near streets used by transit and transit stops/shelters; or

(b) Interfere with planned transit services or facilities; or

(c) Conflict or create inconsistencies with adopted transit system plans, guidelines, policies, or standards.

Roadway System. Per SB 743, transportation impacts related to vehicle delay or level of service are no longer considered significant environmental impacts. The criteria listed below related to intersection and freeway segments are discussed for consistency with General Plan Goal LUC-F.

Intersection effects would be inconsistent with the standards set forth in the General Plan if the project would:

(a) Cause a signalized intersection operating at an acceptable level of service (LOS A-D) to deteriorate to an unacceptable level (LOS E-F) with the addition of project trips; or

(b) Increase average delay by four or more seconds at an intersection that is already operating at an unacceptable level (LOS E-F) without the project.

However, the Foster City General Plan Land Use and Circulation Policy LUC-F states that it will be necessary to accept LOS E or F at the following intersections: Chess Drive/SR-92 Ramps, Foster City Boulevard/Triton Boulevard/Metro Center Boulevard, and East Hillsdale Boulevard/ Edgewater Boulevard.

Freeway segment effects would be inconsistent with the standards set forth in the General Plan if the project would:

(a) Cause a freeway mainline segment operating below the applicable threshold to deteriorate to an unacceptable level with the addition of project trips; or

(b) Increase freeway segment demand volume by 1 percent or more at a location that is already operating above the applicable threshold without the project.

Bicycle and Pedestrian Facilities. Based on General Plan Goals LUC-E and LUC-H and the City's interpretation of CEQA Appendix G, conflicts with a program, plan, ordinance or policy related to bicycle and pedestrian facilities would be considered significant if the project would:

(a) Disrupt existing or planned bicycle or pedestrian facilities (e.g. San Mateo County Bike Plan, Foster City Bicycle Master Plan); or

(b) Create inconsistencies with adopted bicycle or pedestrian system plans, guidelines, or policy standards.

(2) VMT Thresholds (Criterion 2)

VMT. Based on California Air Resources Board (ARB)[6] recommended thresholds, impacts related to VMT would be considered significant if the project would:

(a) Generate VMT/service population that is higher than 16.8 percent below the regional average.

[6] California Air Resources Board, 2019. 2017 Scoping Plan-Identified VMT Reductions and Relationships to State Climate Goals, January.

As noted above, Foster City has not yet adopted generally applicable VMT thresholds for impact determination. Foster City is currently working with C/CAG to identify citywide VMT thresholds before the July 2020 implementation date. The project-specific threshold used for analysis in this document is based on recommendations published by ARB, which is the most current available for Foster City at the time of preparation of this Draft EIR. Additional information related to VMT thresholds is included in other sections.

(3) Hazards Thresholds (Criterion 3)

Hazards. Based on General Plan Goal LUC-E and the City's interpretation of CEQA Appendix G, impacts related to hazards would be considered significant if the project would:

(a) Substantially increase hazards due to a geometric design feature; or

(b) Result in an incompatible land use.

(4) Emergency Access Thresholds (Criterion 4)

Emergency access. Based on General Plan Goal LUC-E and the City's interpretation of CEQA Appendix G, impacts related to emergency access would be considered significant if the project would:

(a) Limit emergency vehicle access routes or roadway facilities; or

(b) Create a project site that is inaccessible to emergency vehicles.

d. Project Characteristics

This section describes the project being analyzed in this study and the process used to develop the project travel patterns that are used for the significance determination.

(1) Project Description

As described in more detail in *Chapter III, Project Description*, the proposed project includes a 156-room hotel with a small restaurant and other ancillary hotel uses such as small meeting spaces, a lobby, and office. The project includes 141 parking spaces, utilizing stackers on one level and a surface lot at the rear of the project site.[7]

[7] During preparation of this Draft EIR, the number of hotel rooms was increased from 154 to 156 rooms after completion of the transportation analysis. However, the addition of two rooms would have a negligible effect on the results of the transportation analysis and would not change the significance findings.

(2) Project Trip Generation

The first step in estimating the amount of traffic added to the roadway system by the project is determining the project's vehicle trip generation. Vehicle trip estimates for the project were developed by applying national trip generation rates presented in the Institute of Transportation Engineers (ITE) Trip Generation Manual 10th Edition to the proposed land uses. As shown in Table V.C-4, Fehr & Peers used the trip generation methodology known as MXD+ to calibrate the trip generation estimates to local conditions and the mixed-use nature of the project. The MXD+ method accounts for built environment factors such as the density and diversity of land uses, design of the pedestrian and bicycling environment, demographics of the site, and distance to transit to develop more realistic trip generation estimates than those provided by traditional traffic engineering methods. Some of the inputs associated with the hotel and restaurant land uses were slightly modified to match the characteristics for the suburban nature of Foster City. Intersection Density, average household size, vehicle ownership, employment within 1 mile, and employment within 30 minutes of transit were all adjusted to the default suburban inputs.

TABLE V.C-4 PROJECT TRIP GENERATION

				AM Peak Hour			PM Peak Hour		
Land Use	**Amount**	**ITE Category**	**Daily Trips**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Hotel	154 Rooms[a]	310	1,312	42	30	72	45	44	89
Restaurant	2,500 sq. ft.	932	280	14	11	25	15	9	24
MXD Trip Reductions			-481	-13	-9	-22	-19	-9	-28
		Total	**1,111**	**43**	**32**	**75**	**41**	**44**	**85**

[a] During preparation of this Draft EIR, the number of hotel rooms was increased from 154 to 156 rooms after completion of the transportation analysis. However, the addition of two rooms would have a negligible effect on the results of the transportation analysis and would not change the significance findings
Source: ITE Trip Generation Manual 10th Edition; Fehr & Peers, 2019.

MXD reductions include trip reductions attributed to internal capture and walk/bike trips. Trip reductions from internal capture represent trips between the two land uses (e.g., hotel guests eating at the on-site restaurant). Trip reductions from walk/bike trips represent external person trips that are taken by foot or by bicycle (e.g., hotel guests walking to the Metro Center Shopping Center or nearby offices). Accounting for the trips internal to the project and those by walk, bike, or transit modes, the project is projected to generate approximately 1,100 vehicle trips on an average weekday with about 80 occurring in the AM and PM peak hours. Note that these trip generation estimates do not account for the proposed shuttle service, which would reduce the number of private vehicle trips to the project.

(3) Project Trip Distribution and Assignment

Trip distribution refers to the directions the vehicle trips generated by the project would use to approach and depart the site and the percentage of traffic using each direction. The geographic distribution and trip percentages are shown on Figure V.C-5.

Trip distribution was based on guest demographic information provided by the project applicant, a review of prior studies conducted in Foster City (such as Chess Hotel),[8] and local knowledge of travel patterns. Based on a market analysis provided by the project sponsor, most guests are expected to be staying at the hotel to tend to business in Foster City in places like Vintage Park, Bridgepointe Circle, and Metro Center. Remaining trips would travel west on SR-92 and on US 101 to travel north or south along the peninsula for business, and many guests will ultimately be traveling to or from the San Francisco International Airport (SFO) via US 101. A proportion of trips are expected to be transportation network companies (TNC) trips to the Hillsdale Caltrain station (i.e., Lyft or Uber rides) based on data provided by the applicant for similar hotels in the area.

Project trip assignment refers to assigning trips to the roadway network via specific turning movements at study intersections. It can vary between the peak AM and PM hours, but many of the assignments are the same. Project trip assignment assumes that vehicles accessing the project site would use two right-in/right-out only driveways on Metro Center Boulevard and Shell Boulevard. Project trip assignment is shown on Figure V.C-6 and the resulting Existing Plus Project Volumes are shown on Figure V.C-7.

e. Analysis and Findings

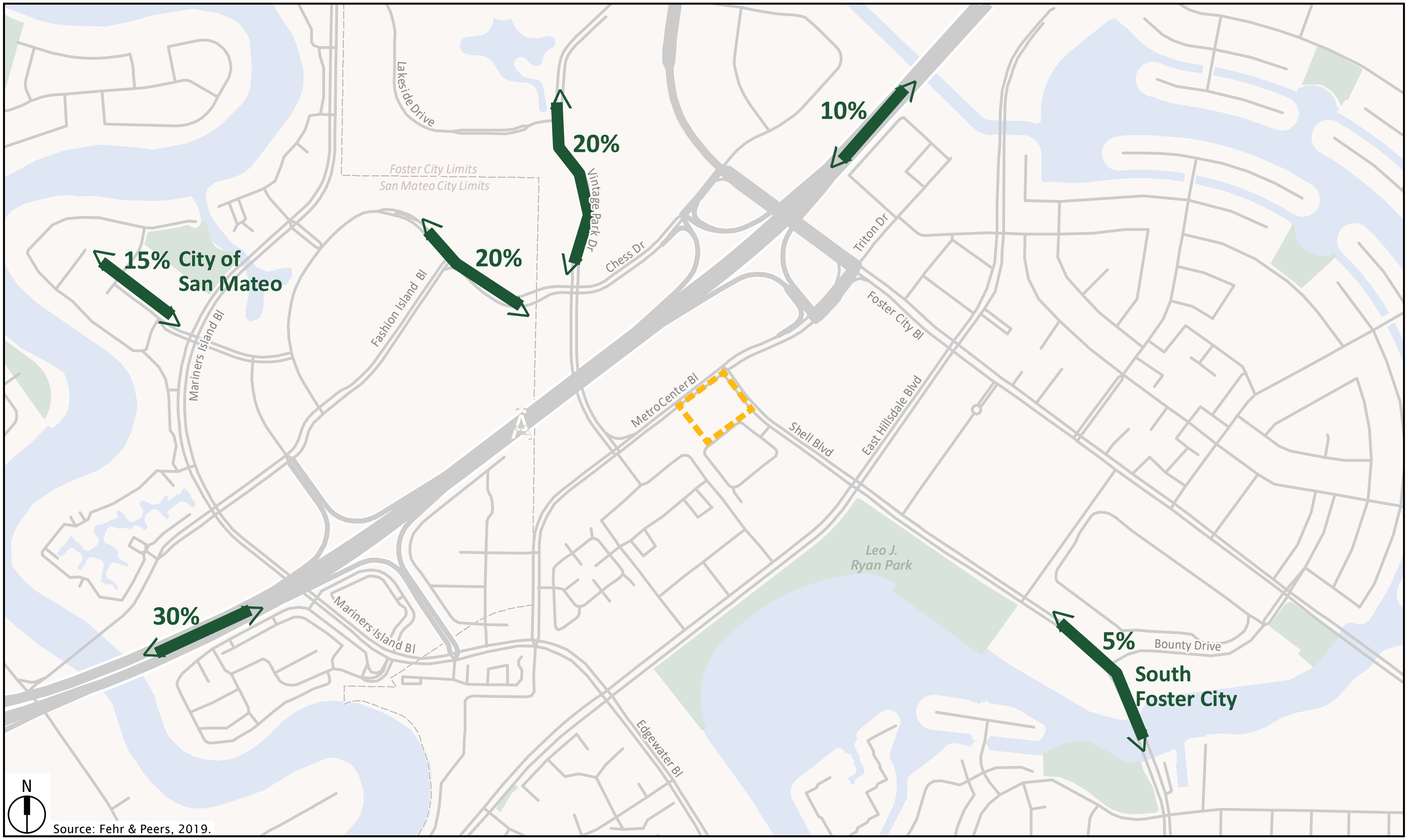
This section presents the impacts associated with transportation that would results from the project for Existing Plus Project Conditions. Existing Conditions, as presented above, form the baseline against which the Existing Plus Project scenario is compared.

(1) Circulation System Consistency (Criterion 1)

Transit Facilities

The project would generate vehicle trips in the vicinity of existing transit services and would generate some new transit trips to existing routes. AC Transit, SamTrans, and Commute.org shuttles travel along the project's frontage. The addition of 85 vehicle trips during the PM peak hour, or one to two new vehicles per minute, would not create a disruption to transit service surrounding the project site. Project-added vehicle trips represent less than 2 percent of entering

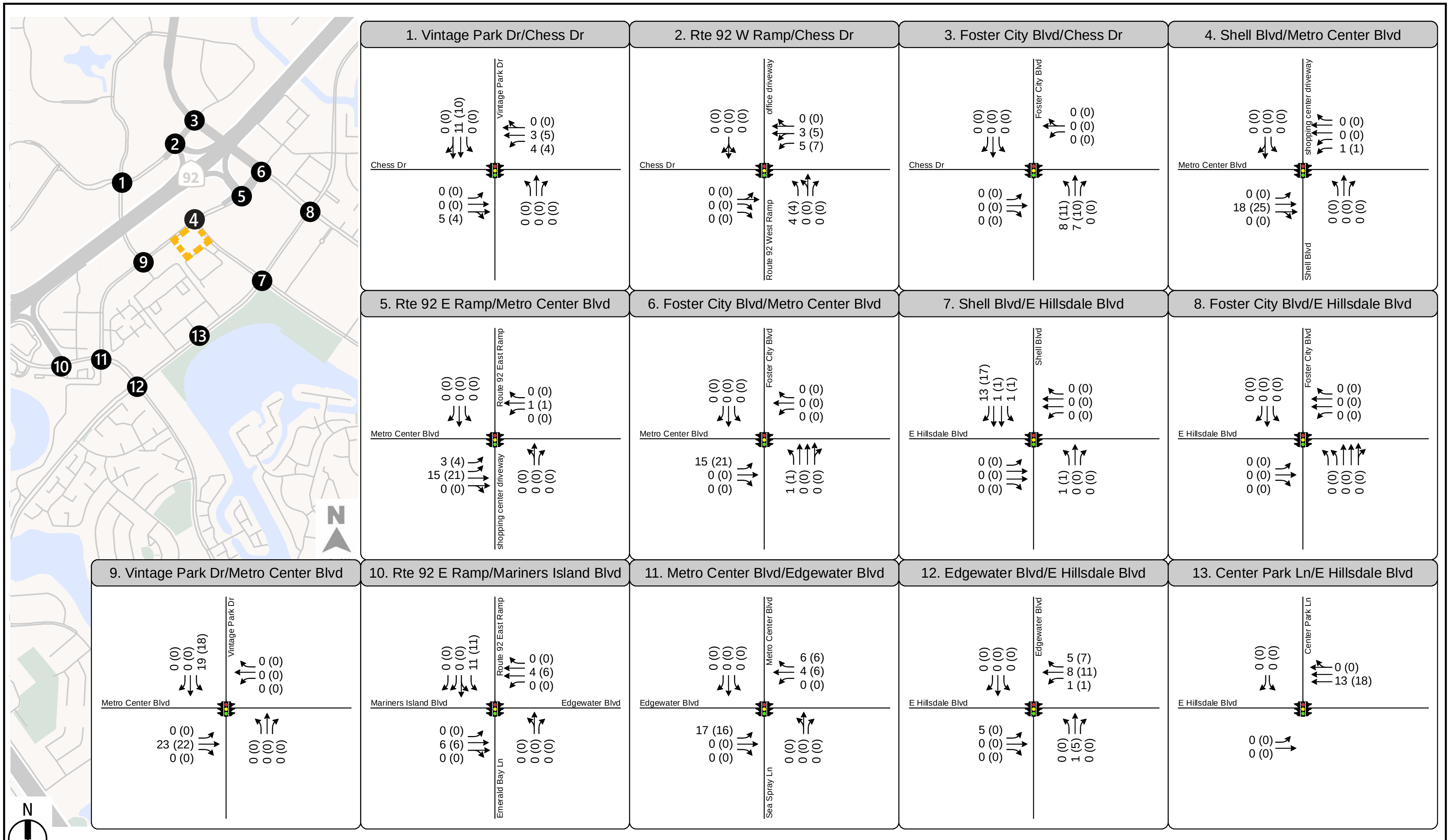
[8] Fehr & Peers, 2013. Chess Drive Hotel Focused Transportation Analysis.



Project Site
Trip Distribution

Figure V.C-5
Trip Distribution

New Hotel in Metro Center GDP Area Project EIR



Source: Fehr & Peers, 2019.

Project Site
Study Intersections
Turn Lane
AM (PM) Peak Hour Traffic Volume
Traffic Signal

Figure V.C-6
Project Trip Assignment
New Hotel in Metro Center GDP Area Project EIR

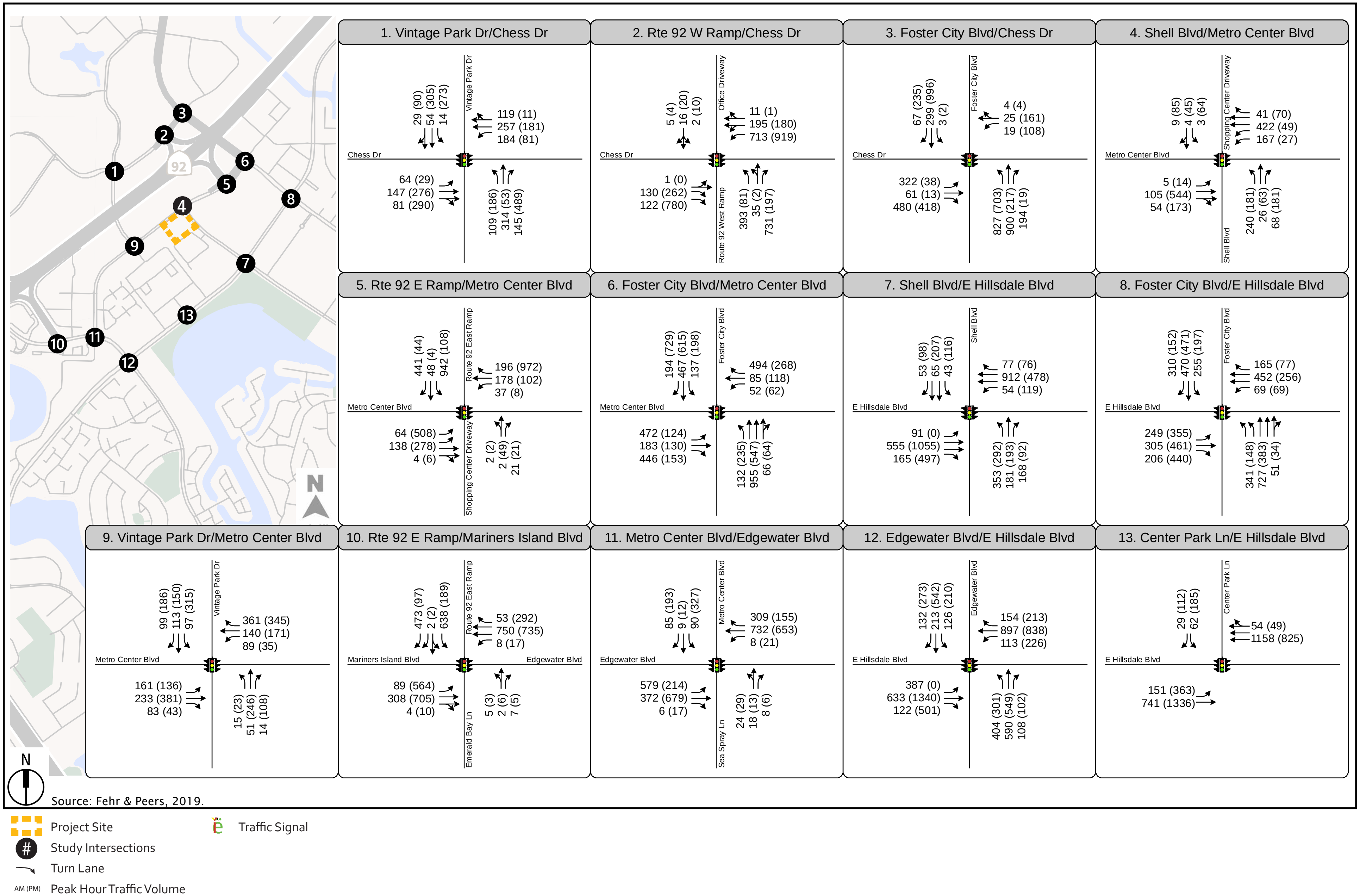


Figure V.C-7

Existing Plus Project Peak Hour Intersection Turning Movement Volumes

New Hotel in Metro Center GDP Area Project EIR

volumes at study intersections during the PM peak hour. Most people are expected to arrive by automobile to the project as documented in the project travel demand section, and the project is not expected to generate a substantial number of new transit trips that would cause any transit route to require additional capacity. The project would not include features that would disrupt existing or planned transit routes or facilities. The project's driveways would not cause disruptions to existing or planned transit service or transit stops. The project would not conflict with any adopted transit system plans, guidelines, policies, or standards. Therefore, impacts to transit facilities are anticipated to be less than significant.

Roadway Facilities

Vehicle access to the project site is provided by two driveways that feed directly into the proposed parking area plus a third shared driveway. Proposed access to the project site is shown on Figure III-2 in *Chapter III, Project Description*. One driveway is provided on Metro Center Boulevard, approximately 200 feet west of the intersection with Shell Boulevard. The second driveway is located on Shell Boulevard, approximately 100 feet south of the intersection with Metro Center Boulevard. A third access point would be available from the existing driveway to the Visa parking garage and Cityhomes East visitor parking. All driveways would be right-in/right-out access only due to the existing medians on Shell Boulevard and Metro Center Boulevard and the proximity of the proposed driveways to the adjacent signalized intersection.

Intersection Operations

With the addition of project trips, all intersections operate at the same level of service as under Existing Conditions, except for Shell Boulevard / Metro Center Boulevard in the AM peak hour, which degrades from LOS B to LOS C. As shown in Appendix B, all intersections continue to operate at an acceptable level of service with project-added trips during the AM peak hour. During the PM peak hour, three intersections continue to operate at unacceptable LOS E or F with the addition of project trips, as shown in Appendix B. However, average delay does not increase by four or more seconds with the addition of project trips at any intersection already operating unacceptably. Therefore, intersection operations under Existing Plus Project Conditions are anticipated to be consistent with standards set forth in the General Plan.

Freeway Analysis

As shown in Appendix B, the freeway mainline segments operate at the same levels of service under Existing Plus Project Conditions compared to Existing Conditions. The project adds between zero and 11 project trips to each freeway study segment, which represents much less than 1 percent of the capacity of any one segment. Therefore, freeway operations under Existing Plus Project Conditions are anticipated to be consistent with standards set forth in the General Plan.

Pedestrian and Bicycle Facilities

The project includes 56 long-term protected (class I) and eight short-term (class II) bicycle parking spaces. Class I bicycle parking spaces are typically lockers or restricted access parking rooms and are intended for employees. This project proposes a bicycle parking storage area to be shared between hotel guests and employees located in a locked room with 24-hour camera monitoring. Employees would use the elevator to the third floor and self-lock their bicycles in the storage room. Guests would check in their bicycles and be given a claim ticket at the lobby front desk. Guests' bikes would be stored and secured by hotel team members. A claim ticket and/or room key would be needed to obtain stored bikes. Class II bicycle parking spaces are standard bike racks and are intended for guests and visitors. Bike racks should be located near entrances where they are highly visible.

The project would generate additional vehicle trips adjacent to existing sidewalks and bicycle facilities and would generate some new walking and bicycling trips. However, the project would not worsen existing or planned bicycle or pedestrian facilities. The existing bike paths along Metro Center Boulevard and Shell Boulevard are proposed to be combined with the existing sidewalks which will relocate the bike paths but are not expected to result in any impact to bicycle access or ease of travel. The project would not create inconsistencies with adopted bicycle or pedestrian system plans, guidelines, or policy standards. Therefore, impacts to pedestrian and bicycle facilities are anticipated to be less than significant.

(2) Vehicle Miles Traveled (Criterion 2)

Senate Bill 743 and the resulting CEQA Guidelines update replaces the use of level of service (LOS) for determining transportation impacts with an evaluation of daily VMT. The City of Foster City has not yet adopted a citywide methodology or significance threshold for VMT impacts. Therefore, this EIR applies a project-specific VMT threshold that incorporates California Air Resource Board (ARB) guidance to make impact determinations for VMT.

Vehicle Miles Traveled Forecast Methodology

VMT is calculated by multiplying the number of trips generated by a project by the total distance traveled by each trip for a typical weekday. The results can be reported as Total VMT or as an efficiency metric such as VMT per Service Population (the sum of the population served by the project including employees, residents, and visitors). Both VMT metrics were produced for this EIR. The air quality and GHG assessments use Total VMT, while VMT per Service Population is used to assess transportation impacts. The per-capita metric standardizes changes in VMT based on the number of people a project serves and allows comparison to a regional average VMT per Service Population threshold, which Total VMT cannot. For this reason, and to be consistent with

OPR guidance, VMT per Service Population (rather than Total VMT) is used for the transportation impact determinations in this EIR.

VMT forecasts prepared for this EIR use a combination of trip generation for the project and trip length data by trip purpose taken from the 2012 California Household Travel Survey (CHTS).

- Total VMT is the amount of VMT generated by the project; in this case, it is the sum of all trips multiplied by the average trip length for each purpose (home-based work, home-based other, and non-home-based), and is presented as total average weekday VMT.
- VMT per Service Population is the total VMT represented as a per capita metric. The Total VMT is divided by the service population which includes hotel guests, restaurant visitors, and employees.

Vehicle Miles Traveled Significance Threshold

Congestion Management Program legislation requires that C/CAG, as the congestion management agency for San Mateo County, develop and maintain a countywide travel demand model. C/CAG, in coordination with the Santa Clara Valley Transportation Authority (VTA), have developed a joint C/CAG-VTA Travel Demand Model (C/CAG Model). This analysis uses the C/CAG Model to develop the VMT threshold because it is optimized for San Mateo County while still accounting for transportation effects from neighboring counties and regional commute sheds by building off the regional MTC travel demand model. Because VMT thresholds are tied to the region-wide average, a travel forecasting model provides for a high level of consistency between the threshold setting and project analysis.

The CEQA Guidelines offer the option for an agency to use a threshold that is adopted or recommended by another agency, as long as that decision is supported by substantial evidence. The California Air Resources Board (ARB) has developed a quantitative threshold recommendation for VMT reduction. This recommendation is largely based on State goals related to meeting GHG reduction targets. Recent ARB publications[9] have recommended that projects achieve VMT levels of at least 14.3 percent below the existing baseline (the ARB report does not specify whether this "baseline" is the regional average or some other baseline) when considering all VMT, and 16.8 percent below the existing baseline when considering only passenger vehicle VMT.

Because the City of Foster City has not yet established a significance threshold for VMT, and because the project is only considering passenger vehicle VMT, this analysis uses ARB's VMT per

[9] California Air Resource Board, 2019, op. cit.

capita reduction threshold of 16.8 percent reduction compared to a 2015 to 2018 regional (nine-county Bay Area) average, as calculated using the C/CAG Model. Table V.C-5 presents existing total VMT for the region and the 16.8 percent reduction set for the project's threshold. Dividing the existing total VMT for the Bay Area by the total Bay Area service population results in the existing VMT per service population of 25.3. A 16.8 percent reduction to 25.3 results in a 21.0 VMT threshold. Based on the table below, the project would result in a significant impact if the VMT per Service Population is greater than 21.0 average weekday miles per capita.

TABLE V.C-5 EXISTING VEHICLE MILES TRAVELED AND SIGNIFICANCE THRESHOLD

Scenario	Existing Total VMT	Existing VMT Per Service Population	16.8% Reduction Threshold
Existing Regional VMT	274,546,565	25.3	**21.0**

Note: VMT = vehicle miles traveled
Source: C/CAG-VTA Travel Demand Model, 2017 RTP.

Project Vehicle Miles Traveled Analysis

Using the trip generation data discussed above in Section 3.b.(2), Project Trip Generation, along with average trip length data taken from the CHTS for San Mateo County and trip purpose data taken from the National Cooperative Highway Research Program (NCHRP) Transportation Circular 716, Table V.C-6 shows the expected total project VMT to be 6,921 VMT per weekday.

TABLE V.C-6 PROJECT TOTAL VEHICLE MILES TRAVELED

Trip Purpose	% of All Trips	Total Daily Trips	Average Trip Length (Miles)	Total VMT
Home-Based Work	10%	111	11.0	1,221
Home-Based Other	60%	*667*	*5.3*	3,535
Non-Home-Based	30%	333	6.5	2,165
Total	**100%**	**1,111**	**6.2**	**6,921**

VMT = vehicle miles traveled
Sources: California Household Travel Survey, 2012; NCHRP Transportation Circular 716, 2016; Fehr & Peers, 2019.

Based on information provided by the applicant and industry reports on hotel standards, the expected daily service population of the project, including employees, hotel guests, and restaurant visitors is 332 people. As shown in Table V.C-7, this results in a VMT per service population of 20.8 average weekday VMT per capita. This is below the regional threshold of 21.0

TABLE V.C-7 VEHICLE MILES TRAVELED PER SERVICE POPULATION

	Total VMT	Service Population[a]	VMT/Service Population
Bay Area Region	274,546,565	10,851,643	25.3
16.8% Regional Average Reduction Threshold			21.0
Project	6,921	332	20.8
More than 16.8% below the regional average?			**Yes**

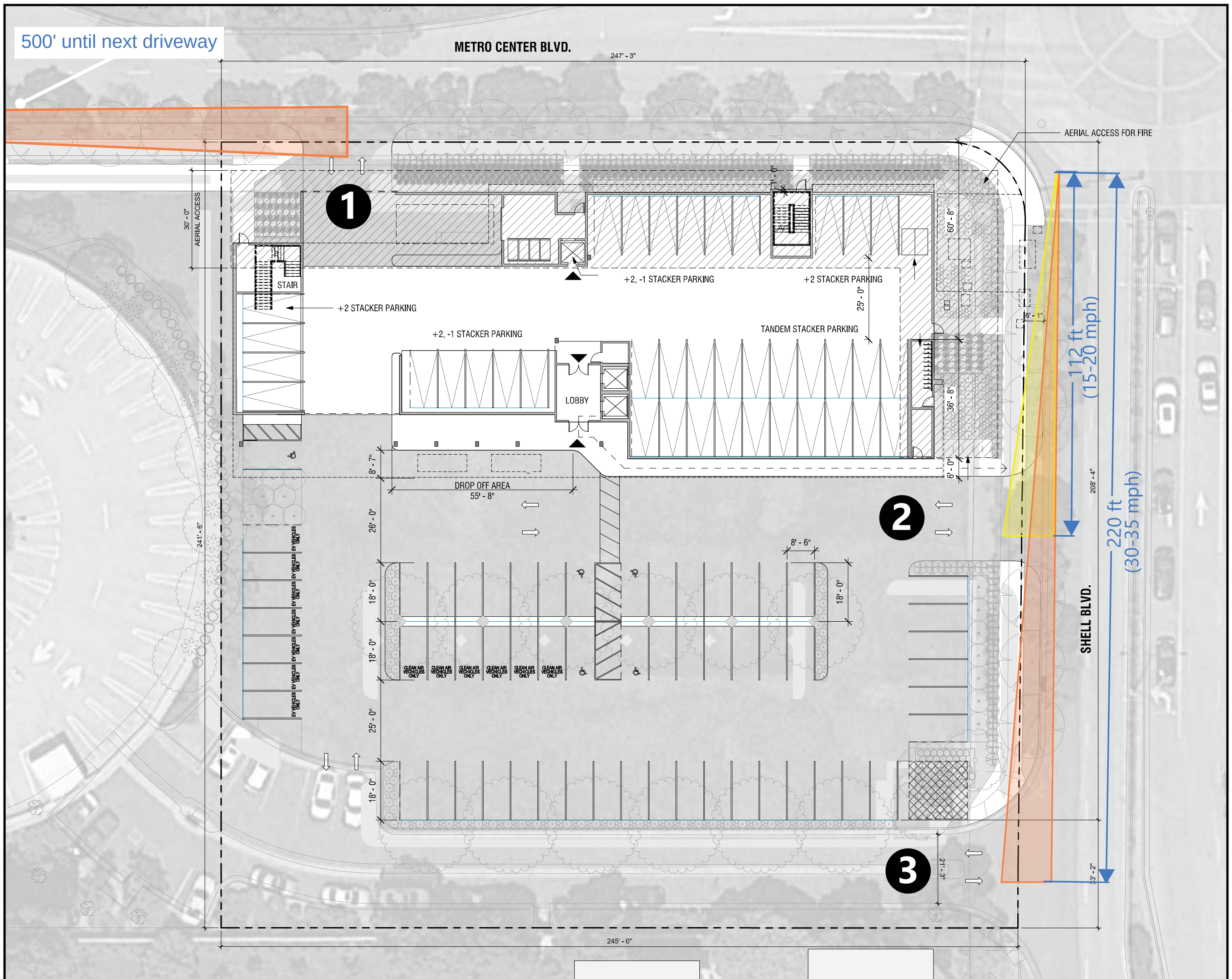
VMT = vehicle miles traveled
[a] Bay Area service population is total population + employment; Project service population is total guests + employees + visitors.
Source: Fehr & Peers, 2019.

VMT per capita, and as such the project's impact to regional VMT is anticipated to be less than significant.[10] Beyond the project's generated VMT, the project is also expected to have an effect on regional VMT. There is currently a relatively high demand for hotel land use in and around Foster City and somewhat limited supply. By adding more hotel rooms closer to desired destinations, guests can stay closer and travel fewer miles during their stay.

(3) Hazards (Criterion 3)

The proposed project design does not create any new or worsen any existing geometric design features that cause hazards. The project provides two right-in right-out driveways off adjacent roadways (Metro Center Boulevard and Shell Boulevard) but does not change the geometry of any of the adjacent roadways. As shown on Figure V.C-8, sight distance at the proposed driveways is expected to be adequate for drivers exiting the site and pedestrians crossing the driveways. Any future vegetation located in the sight triangles shown on Figure V.C-8 should be maintained so as not to restrict drivers sight distance when exiting the driveways. The project does not include any uses that are incompatible with the surrounding land use or the existing roadway system. Therefore, the project is expected not to result in a substantial increase to hazards, and impacts to hazards are anticipated to be less than significant.

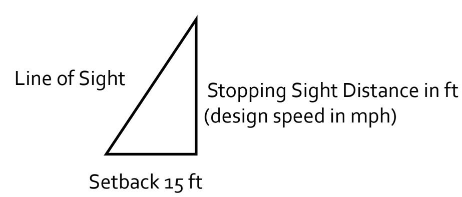
[10] The OPR Technical Guidance indicates that a reasonable threshold may be a VMT per capita of 15 percent below the regional VMT per capita. If the project's impact determination were to use the OPR threshold instead of the more conservative ARB threshold, the regional threshold would be 21.5 VMT per capita. Therefore, the project's expected VMT per capita of 20.8 would be below the OPR threshold of 21.5 VMT.

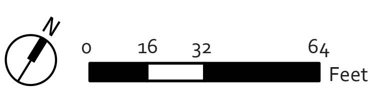


1 Sufficient sight distance for 40 miles per hour design speed (posted speed limit plus 5 mph).

2 Sufficient sight distance for 15-20 miles per hour design speed for vehicles turning from Metro Center Blvd. to Shell Blvd. Sufficient sight distance for 30-35 miles per hour design speed for vehicles traveling through from the Costco driveway onto Shell Blvd.

3 Sufficient sight distance for 30-35 miles per hour design speed for vehicles turning from Metro Center Blvd. to Shell Blvd. Sufficient sight distance for 40 miles per hour design speed (posted speed limit plus 5 mph) for vehicles traveling through from the Costco driveway onto Shell Blvd.





Source: Fehr and Peers, 2020.

Figure V.C-8
Project Driveway Sight Distance

(4) Emergency Access (Criterion 4)

Vehicle trips generated by the project would represent a very small percentage of overall daily and peak hour traffic on roadways and freeways in Foster City. During the PM peak hour, the project generates 85 vehicle trips which are distributed to study intersections. Project-added vehicle trips represent less than two percent of entering volumes at study intersections during thePM peak hour. The project does not include features that would alter emergency vehicle access routes or roadway facilities; fire and police vehicles would continue to have access to all facilities around the entire city. Upon construction, emergency vehicles would have full access to the project site. Therefore, the project is expected not to result in inadequate emergency access, and impacts to emergency vehicle access are anticipated to be less than significant.

f. Cumulative Conditions and Impact Analysis

This section presents a summary of the Cumulative (2040) Conditions. It includes a description of projects and transportation network changes that are assumed to be include under future Cumulative Conditions and the methodologies used to calculate future year volumes. It also presents the impacts associated with transportation that would results from the project for Cumulative Plus Project Conditions. Cumulative No Project Conditions form the baseline against which the Cumulative Plus Project scenario is compared.

(1) Cumulative Projects

The Cumulative (2040) No Project Conditions include construction of reasonably foreseeable development projects in the area. Table V.C-8 summarizes the projects in Foster City that are considered reasonable and foreseeable and which are included under Cumulative Conditions.

(2) Cumulative Transportation Network Changes

Figure 3.6 of the City of Foster City General Plan includes future roadway improvements that are assumed to be needed to accommodate future proposed development and background growth. Of the improvements included in General Plan Figure 3.6, several improvements have already been constructed and are therefore included under Existing Conditions. One of the planned roadway improvements identified in the General Plan is no longer under consideration by the City. In addition to the improvements identified in the General Plan, Fehr & Peers reviewed a compilation of Public Works Roadway Improvements dated August 2014. Upon consultation with City staff, all of the improvements identified in the package have either already been completed or are no longer being considered for construction. Table V.C-9 summarizes all of the future roadway improvements included under Cumulative Conditions.

(3) Cumulative Volumes

Cumulative (2040) No Project volumes include traffic estimates from the cumulative development projects summarized in Table V.C-8 as well as additional background growth associated with probable future development. Cumulative No Project volumes are based on trip generation for future development projects and distribution patterns included in the Foster City Multi-Project Traffic Analysis and as described in the Pilgrim Triton Master Plan Proposed Amendment to Phase C TIA. Cumulative No Project volumes are based on Cumulative Plus Project volumes reported in the Pilgrim Triton TIA with some adjustments to reflect changes to traffic patterns that have occurred since that report was submitted (e.g., left-turn restrictions along East Hillsdale Boulevard and the resulting rerouting of traffic in the PM peak hour). Cumulative Plus Project volumes represent Cumulative No Project volumes plus project trips as described above in Section 3.b.(3), Project Trip Distribution and Assignment. Cumulative No Project and Cumulative Plus Project peak-hour intersection turning movement volumes are summarized in Figure V.C-9 and Figure V.C-10, respectively.

TABLE V.C-8 CUMULATIVE DEVELOPMENT

Project	Proposed Land Use[a]
Pilgrim Triton	332 DUs 10 KSF Retail 35 KSF Office
Gilead Campus Master Plan	1,044 KSF Office
Foster Square	152 Senior DUs 90 Assisted Living DUs 30 KSF Retail
Lincoln Centre	388 KSF Office 166 KSF Lab
Charter Square School	600 Students[b]
Chess Hatch Master Plan	800 KSF Office[c]

[a] DU = Dwelling Unit; KSF = thousand square feet.
[b] Project replaces 58 KSF retail.
[c] Project replaces 190 KSF office.
Source: Foster City Pilgrim Triton Master Plan Proposed Amendment to Phase C TIA, 2018.

TABLE V.C-9 CUMULATIVE ROADWAY IMPROVEMENTS

Intersection	Geometry Changes
Foster City Boulevard / Chess Drive	Construct northbound right-turn lane
	Construct second westbound through lane
	Lengthen northbound left-turn lane
	Lengthen westbound left-turn lane

Source: Foster City General Plan Figure 3.6, 2016.

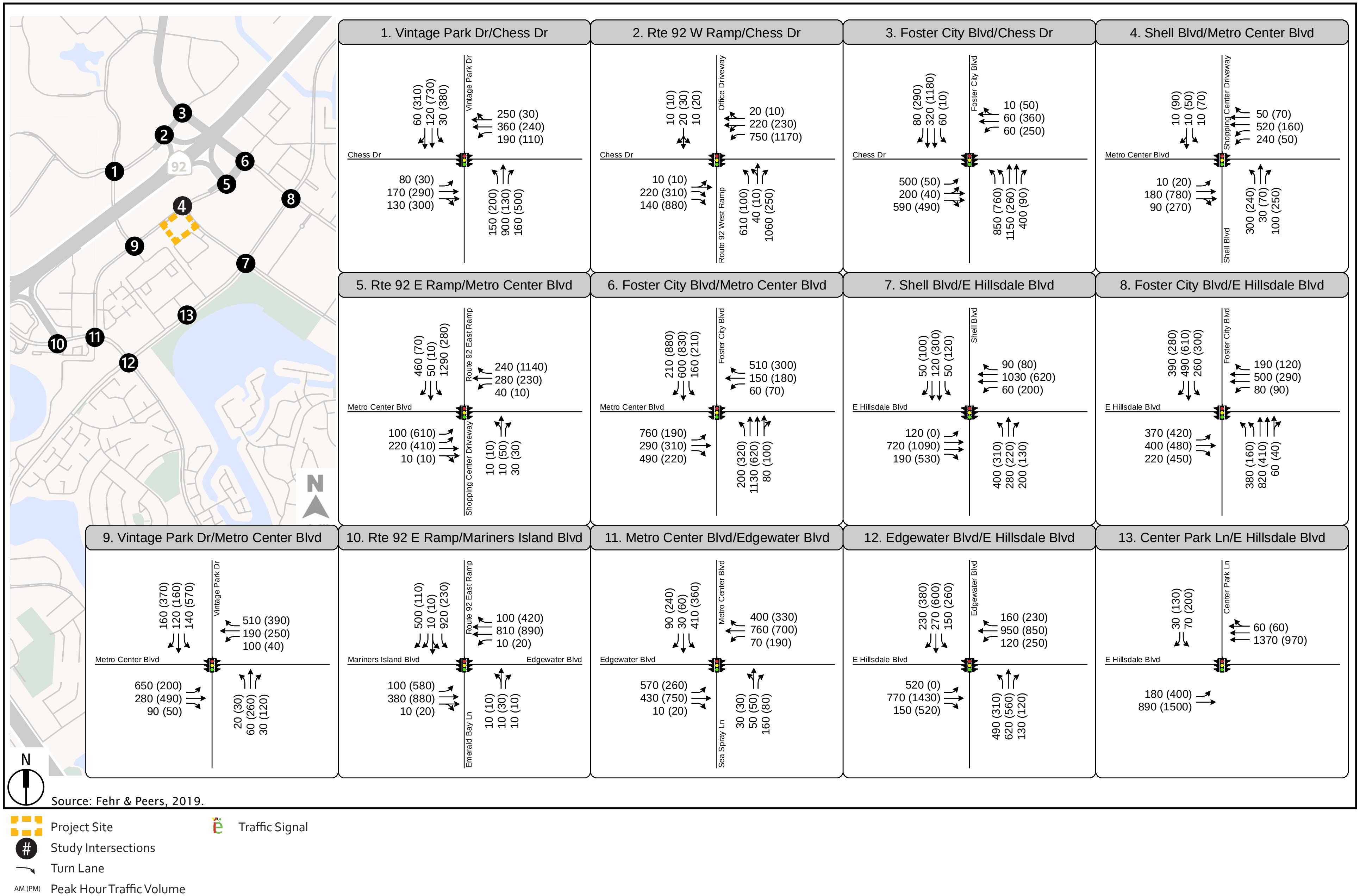


Figure V.C-8

Cumulative No Project Peak Hour Intersection Turning Movement Volumes

New Hotel in Metro Center GDP Area Project EIR

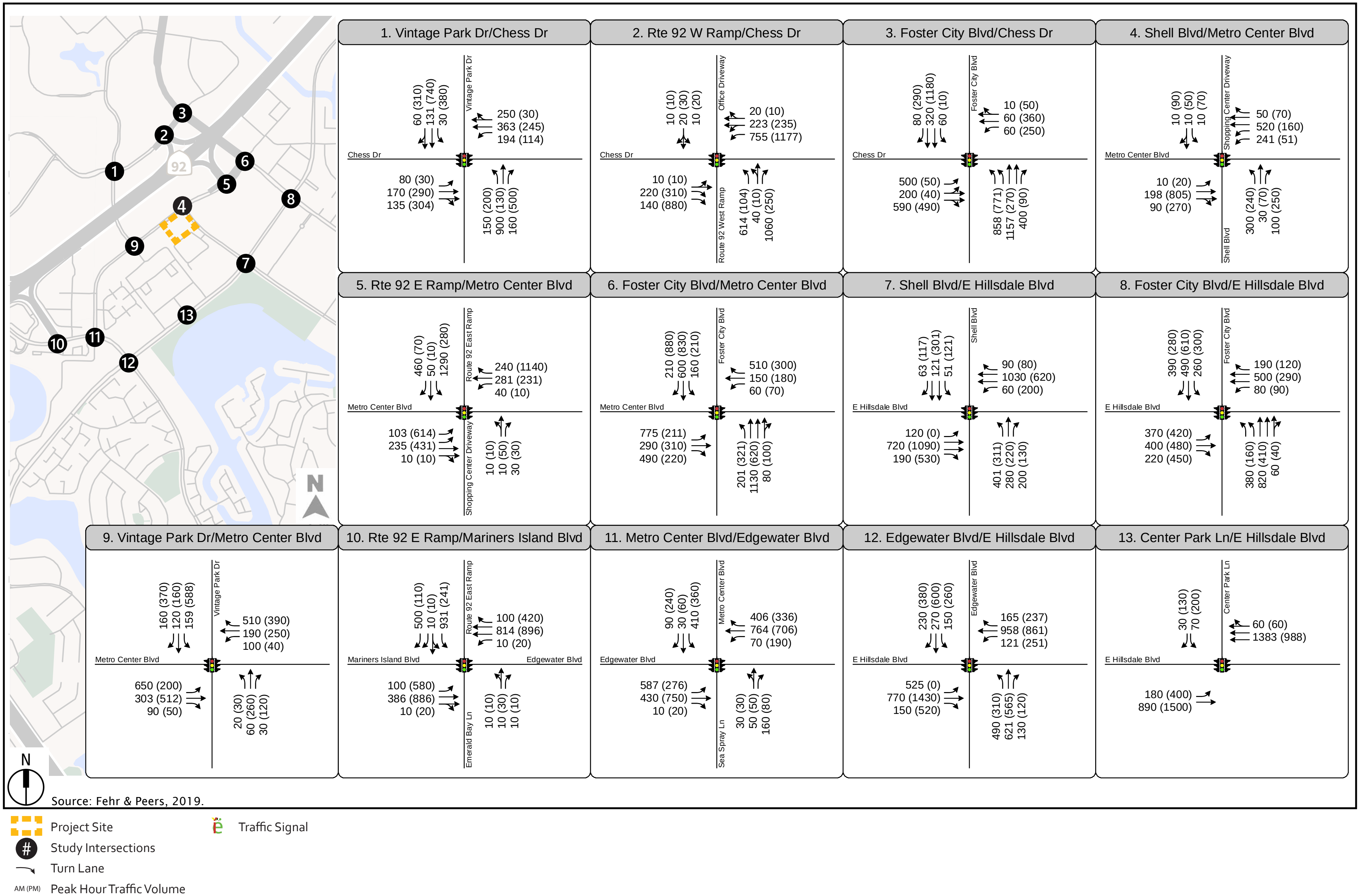


Figure V.C-9

Cumulative Plus Project Peak Hour Intersection Turning Movement Volumes

New Hotel in Metro Center GDP Area Project EIR

(4) Cumulative Analysis and Findings

Relatively few land use or transportation changes are proposed for the area immediately surrounding the project site. The proposed project, in combination with cumulative projects, is not expected to contribute considerably to significant cumulative transportation impacts. Land use projects such as the Pilgrim Triton development or the intersection improvements to Foster City Boulevard / Chess would contribute to changing traffic patterns and operations surrounding the project site under future 2040 cumulative conditions. However, the addition of project vehicles to the surrounding roadway network would not substantially contribute to changing conditions related to the transportation topics discussed below.

Circulation System Consistency (Criterion 1)

Transit Facilities

Although traffic volumes would increase somewhat under cumulative conditions because of the cumulative projects, they would not include features that would disrupt existing or planned transit routes or facilities. They would not cause disruptions to existing or planned transit service or transit stops. The project, in combination with other cumulative projects would not conflict with any adopted transit system plans, guidelines, policies, or standards. As such, there would be no cumulative impacts to transit.

Roadway Facilities

This section presents a summary of the intersection and freeway conditions under the Cumulative (2040) Conditions. Cumulative No Project Conditions form the baseline against which the Cumulative With Project scenario is compared.

Intersection Operations

With the addition of project-generated trips, all intersections would operate at the same level of service as under Cumulative No Project Conditions. As shown in Appendix B, most intersections would continue to operate at an acceptable level of service with project-added trips during the peak hours. During the AM peak hour, four study intersections would continue to operate at unacceptable LOS E or F with the addition of project trips. During the PM peak hour, five intersections would continue to operate at unacceptable LOS E or F with the addition of project trips. However, average delay would not increase by four or more seconds with the addition of project trips at any intersection already operating unacceptably, except for intersection 2 during the AM peak hour. The project would add 4.2 seconds of average delay to the intersection of Chess Drive and the SR-92 WB Ramps during the AM peak hour. However, Foster City General Plan Land Use and Circulation Policy LUC-F-1 states that it will be necessary to accept LOS E or F at this location. Therefore, intersection operations under Cumulative Plus Project Conditions are anticipated to be consistent with standards set forth in the General Plan.

Freeway Analysis

Cumulative (2040) traffic volumes for US 101 and SR-92 were forecast based on the C/CAG travel demand model and ABAG Plan Bay Area projections, per the Pilgrim Triton TIA (2018). As shown in Appendix B, the freeway mainline segments operate at the same levels of service under Cumulative Plus Project Conditions compared to Cumulative No Project Conditions. The project-added trips represent much less than 1 percent of any one segment's capacity. Therefore, freeway operations under Cumulative Plus Project Conditions are anticipated to be consistent with standards set forth in the General Plan.

Pedestrian and Bicycle Facilities

Although traffic volumes would increase somewhat under cumulative conditions because of the cumulative projects, this would not create new hazards or interfere with accessibility for people walking or biking around the project site. The project, in combination with other cumulative projects would not conflict with any adopted bicycle or pedestrian plans or policies. As such, there would be no cumulative impacts to pedestrian or bicycle facilities.

Vehicle Miles Traveled (Criterion 2)

There are no roadway capacity-enhancing projects adjacent to the project site that would encourage higher levels of VMT under cumulative conditions. The project's 2040 VMT per capita is anticipated to be more than 16.8 percent below the regional average and, as such, would not have a cumulative VMT impact.

Hazards (Criterion 3)

There are no land use or transportation changes proposed adjacent to the proposed project. Therefore, the project, in combination with other cumulative projects would not create geometric design features that cause hazards. The project does not include any uses that are incompatible with the surrounding land uses designated by the General Plan. As such, there would be no cumulative impacts to hazards.

Emergency Access (Criterion 4)

There are no cumulative projects that would restrict or inhibit emergency access to the project site. As such, there would be no cumulative impact on emergency access within the study area.

D. AIR QUALITY

This section describes the existing air quality conditions in the project vicinity; discusses the federal, State, and local regulations and policies pertinent to air quality; and analyzes the impact of implementation of the project on the existing conditions. The potential impacts assessed include increases in criteria air pollutant and toxic air contaminant (TAC) emissions during both the construction and operational phases of the project. The analysis in this section was prepared in accordance with the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines (CEQA Guidelines)[1] and the City's Environmental Review Guidelines,[2] and identifies mitigation measures and/or the City's Standard Conditions of Approval (SCOAs) that would reduce potential impacts, as appropriate.

1. Setting

The project is located in the City of Foster City, which is situated within the San Francisco Bay Area Air Basin (SFBAAB). Some air basins have natural characteristics that limit the ability of natural processes to either dilute or transport air pollutants. The major determinants of air pollution transport and dilution are climatic and topographic factors such as wind, atmospheric stability, terrain that influences air movement, and sunshine. Wind and terrain can combine to transport pollutants away from upwind areas, while solar energy can chemically transform pollutants in the air to create secondary photochemical pollutants such as ozone. The following discussion provides an overview of the environmental setting with regard to air quality in the SFBAAB.

a. Regional Climate, Meteorology, and Topography

The San Francisco Bay Area (Bay Area) has a Mediterranean climate characterized by wet winters and dry summers. During the summer, a high-pressure cell centered over the northeastern Pacific Ocean results in stable meteorological conditions and a steady northwesterly wind flow that keep storms from affecting the California coast. During the winter, the Pacific high-pressure cell weakens, resulting in increased precipitation and the occurrence of storms. The highest air pollutant concentrations in the Bay Area generally occur during inversions, when a surface layer of cooler air becomes trapped beneath a layer of warmer air. An inversion reduces the amount of vertical mixing and dilution of air pollutants in the cooler air near the surface.

[1] Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

[2] City of Foster City/Estero Municipal Improvement District, 2007. Environmental Review Guidelines, October.

The City of Foster City is located within the peninsula region of the SFBAAB, which extends from northwest of San Jose to the Golden Gate. The Santa Cruz Mountains traverse the center of the peninsula, with elevations exceeding 2,000 feet at the southern end and decreasing to 500 feet in South San Francisco. Coastal towns experience a high incidence of cool, foggy weather in the summer. Cities in the southeastern peninsula experience warmer temperatures and fewer foggy days because the marine layer is blocked by the ridgeline to the west. In the City of Foster City, the average maximum summer temperature is about 80 degrees Fahrenheit and the average minimum winter temperature is about 40 degrees Fahrenheit. The City receives primarily northwest and northerly winds due to the orientation of the Bay and San Francisco Peninsula. In the City, inversions may frequently occur in the summer during morning and afternoon hours, and in the winter during morning hours. The City has some terrain barriers as the City is inland and somewhat sheltered, which limits lateral dilution of pollutants.[3]

b. Air Pollutants of Concern

The California Air Resources Board (CARB) and United States Environmental Protection Agency (EPA) focus on the following air pollutants as regional indicators of ambient air quality:

- Ozone
- suspended particulate matter—both respirable (PM_{10}) and fine ($PM_{2.5}$)
- nitrogen dioxide (NO_2)
- carbon monoxide (CO)
- sulfur dioxide (SO_2)
- lead

Because these are the most prevalent air pollutants known to be harmful to human health based on extensive criteria documents, they are referred to as "criteria air pollutants." In the SFBAAB, the primary criteria air pollutants of concern are ground-level ozone formed through reactions of oxides of nitrogen (NO_x) and reactive organic gases (ROG), PM_{10}, and $PM_{2.5}$. The BAAQMD operates a network of air monitoring stations throughout the SFBAAB to monitor air pollutants such as ozone, PM_{10}, and $PM_{2.5}$. Table V.D-1 presents a five-year summary for the period from 2014 to 2018 of the highest annual concentrations of ozone and $PM_{2.5}$ measured at the Redwood City monitoring station. The Redwood City monitoring station, located at 897 Barron Avenue in Redwood City, approximately 6.5 miles from the project site, is the closest monitoring station to the project. The nearest station where PM_{10} levels are measured is the San Francisco monitoring station at 10 Arkansas Street in San Francisco, approximately 16 miles north of the project site.

[3] City of Foster City, 2016. Foster City General Plan. Chapter 8, Conservation Element, Adopted February 1, 2016.

TABLE V.D-1 AIR QUALITY TRENDS

Pollutant	Standard	2014	2015	2016	2017	2018
Ozone (O_3)	Max 1-hour Concentration (ppm)	0.086	0.086	0.075	0.115	0.067
	Days > CAAQS (0.09 ppm)	0	0	0	2	0
	Max 8-hour Concentration (ppm)	0.066	0.071	0.061	0.087	0.050
	Days > CAAQS (0.070 ppm)	0	1	0	2	0
	Days > NAAQS (0.070 ppm)	0	1	0	2	0
Particulate Matter (PM_{10})	Max 24-hour Concentration ($\mu g/m^3$)	35.9	47.0	35.7	77.0	43.0
	Days > CAAQS (50 $\mu g/m^3$)	0	NV	NV	24.6	NV
	Days > NAAQS (150 $\mu g/m^3$)	0	0	0	0	0
	Annual Arithmetic Mean ($\mu g/m^3$)	16.8	9.8	8.8	22.1	10.0
Particulate Matter ($PM_{2.5}$)	Max 24-hour Concentration ($\mu g/m^3$)	35.0	34.6	19.5	60.8	120.9
	Days > NAAQS (35 $\mu g/m^3$)	0	0	0	6.3	13.7
	Annual Arithmetic Mean ($\mu g/m^3$)	7.1	5.7	8.3	9.1	10.6

Notes: CAAQS = California ambient air quality standards; $\mu g/m^3$ = micrograms per cubic meter; NAAQS = National ambient air quality standards; ppm = parts per million; NV = no value due to insufficient data.
State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. When the measured state and national concentrations varied due to different sample methods, the highest concentration was reported in the summary table.
Source: CARB 2019. iADAM: Air Quality Data Statistics; Trend Summaries. Available at: https://www.arb.ca.gov/adam/trends/trends1.php, accessed November 7, 2019.

Table V.D-1 also compares measured pollutant concentrations with applicable State and federal ambient air quality standards, which are discussed further under the Regulatory Setting, below. In addition to criteria air pollutants, local emissions of TACs, such as diesel particulate matter (DPM), are a concern for nearby receptors. The primary air pollutants of concern are discussed further below.

(1) Carbon Monoxide

CO is a colorless, odorless gas produced by the incomplete combustion of fuels. The primary source of CO in the SFBAAB is motor vehicles. CO impacts are generally localized as concentrations disperse rapidly into the atmosphere; however, high CO concentrations can be a concern in areas with heavy traffic congestion. CO concentrations tend to be highest during winter mornings when there is little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near highly congested transportation corridors and intersections. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death.

(2) Ozone

While ozone serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation, it can be harmful to the human respiratory system and to sensitive species of plants when it reaches elevated concentrations in the lower atmosphere. Ozone is not emitted directly into the environment but is formed in the atmosphere by chemical reactions between ROG and NO_x in the presence of sunlight. Ozone formation is greatest during periods of little or no wind, bright sunshine, and high temperatures. As a result, levels of ozone usually build up during the day and peak in the afternoon.

Sources of ROG and NO_x are vehicle tailpipe emissions; evaporation of solvents, paints, and fuels; and biogenic emissions.[4] Automobiles are the single largest source of ozone precursors in the SFBAAB. Short-term ozone exposure can reduce lung function in children, facilitate respiratory infections, and produce symptoms of respiratory distress. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. Ozone can also damage plants and trees and materials such as rubber and fabrics.

(3) Particulate Matter

PM_{10} and $PM_{2.5}$ consist of extremely small, suspended particles or droplets that are 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen, forest fires, and windblown dust, are naturally occurring. In populated areas, however, most particulate matter is caused by road dust, combustion by-products, abrasion of tires and brakes, and construction activities. Particulate matter can also be formed in the atmosphere by condensation of SO_2 and ROG.

Particulate matter exposure can affect breathing, aggravate existing respiratory and cardiovascular disease, alter the body's defense systems against foreign materials, and damage lung tissue, contributing to cancer and premature death. Individuals with chronic obstructive pulmonary or cardiovascular disease, asthmatics, the elderly, and children are most sensitive to the effects of particulate matter.

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[4] Biogenic sources include volatile organic compounds, which include ROG, from the decomposition of vegetative matter and certain plants, such as oak and pine trees.

(4) Toxic Air Contaminants

TACs include a diverse group of air pollutants that can adversely affect human health. Unlike criteria air pollutants, which generally affect regional air quality, TAC emissions are evaluated based on estimations of localized concentrations and risk assessments. The adverse health effects a person may experience following exposure to any chemical depend on several factors, including the amount (dose), duration, chemical form, and any simultaneous exposure to other chemicals.

For risk assessment purposes, TACs are separated into carcinogens and non-carcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per 1 million exposed individuals over a lifetime of exposure. Non-carcinogenic substances are generally assumed to have a safe threshold below which health impacts would not occur. Acute and chronic exposure to non-carcinogens is expressed as a hazard index (HI), which is the sum of expected exposure levels divided by the corresponding acceptable exposure levels.

In the SFBAAB, adverse air quality impacts on public health from TACs are predominantly from DPM. DPM and $PM_{2.5}$ generated from diesel-powered engines are a complex mixture of soot, ash particulates, metallic abrasion particles, volatile organic compounds, and other components that can penetrate deeply into the lungs and contribute to a range of health problems. In 1998, the CARB identified DPM from diesel-powered engines as a TAC based on its potential to cause cancer and other adverse health effects.[5] While diesel exhaust is a complex mixture that includes hundreds of individual constituents, DPM is used as a surrogate measure of exposure, under California regulatory guidelines, for the mixture of chemicals that make up diesel exhaust as a whole. More than 90 percent of DPM is less than 1 micron in diameter and is thus a subset of PM_{10} and $PM_{2.5}$.[6] The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the region.

c. Existing Sources and Levels of Local Air Pollution.

In the Bay Area, stationary and mobile sources are the primary contributors of TACs and $PM_{2.5}$ emissions to local air pollution. In an effort to promote healthy infill development from an air quality perspective, the BAAQMD has prepared guidance entitled Planning Healthy Places.[7] The

[5] California Air Resources Board (CARB), 1998. Initial Statement of Reasons for Rulemaking; Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, June.

[6] California Air Resources Board (CARB), 2016. Overview: Diesel Exhaust and Health. Available at: https://www.arb.ca.gov/research/diesel/diesel-health.htm, accessed January 13, 2017. Last updated April 12, 2016.

[7] Bay Area Air Quality Management District (BAAQMD), 2016. Planning Healthy Places; A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning, May.

purpose of this guidance document is to encourage local governments to address and minimize potential local air pollution issues early in the land-use planning process, and to provide technical tools to assist them in doing so. Based on a screening-level cumulative analysis of mobile and stationary sources in the Bay Area, the BAAQMD mapped localized areas of elevated air pollution that: 1) exceed an excess cancer risk of 100 in a million; 2) exceed $PM_{2.5}$ concentrations of 0.8 micrograms per cubic meter; or 3) are located within 500 feet of a freeway, 175 feet of a major roadway (with more than 30,000 annual average daily vehicle trips), or 500 feet of a ferry terminal. According to the BAAQMD, elevated levels of $PM_{2.5}$ and/or TAC pollution do not currently extend across the project site.[8]

d. Existing Sensitive Receptors

Sensitive receptors are individuals who are more susceptible to air-quality-related health problems than the general public, such as children, the elderly, and people with pre-existing serious health conditions affected by air quality. Sensitive land uses are places where sensitive receptors are most likely to spend their time, such as schools, daycare centers, convalescent homes, and hospitals. Residential areas are also considered sensitive to poor air quality because people in the United States spend approximately 70 percent of their time at home on average,[9] thereby increasing the duration of exposure to potential air contaminants. Existing sensitive land uses near the project site include single- and multi-family residential homes located adjacent to the project site at East Court Lane and a daycare center (Foster City KinderCare) located about 600 feet northeast from the project site at 1006 Metro Center Boulevard.

e. Existing Odors

Other air quality issues of concern in the SFBAAB include nuisance impacts from odors; objectionable odors may be associated with a variety of pollutants. Odors rarely have direct health impacts, but they can be very unpleasant and lead to anger and concern over possible health effects among the public. According to the BAAQMD, the following odor sources are of particular concern: wastewater treatment plants, oil refineries, asphalt plants, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations and metal smelters. None of these types of facilities are located in proximity to the project.

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[8] Bay Area Air Quality Management District (BAAQMD), 2019a. ArcGIS Planning Healthy Places. Available at: https://www.arcgis.com/home/webmap/viewer.html?webmap=9b240e706e6545e0996be9df227a5b8c&extent=-122.5158,37.5806,-122.0087,37.8427, accessed November 7, 2019.

[9] Klepeis, N., Nelson, W., Ott, W. et al., 2001.The National Human Activity Pattern Survey (NHAPS): a resouce for assessing exposure to environmental pollutants. J Expo Sci Environ Epidemiol 11, 231–252, July 26.

2. Regulatory Setting

This section discusses applicable regulatory provisions, including federal, State, and regional regulations and policies from the City of Foster City's General Plan and SCOAs.

a. Federal, State, and Regional Regulations

The US EPA is responsible for implementing the programs established under the federal Clean Air Act, such as establishing and reviewing the National Ambient Air Quality Standards (NAAQS) and judging the adequacy of State Implementation Plans to attain the NAAQS. A State Implementation Plan must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. If a state fails to enforce its implementation of approved regulations, or if the EPA determines that a State Implementation Plan is inadequate, the EPA is required to prepare and enforce a Federal Implementation Plan to promulgate comprehensive control measures for a given State Implementation Plan.

The CARB is responsible for establishing and reviewing the California Ambient Air Quality Standards (CAAQS), developing and managing the California State Implementation Plans, identifying TACs, and overseeing the activities of regional air quality management districts. In California, mobile emissions sources (e.g., construction equipment, trucks, and automobiles) are regulated by the CARB, and stationary emissions sources (e.g., industrial facilities) are regulated by the regional air quality management districts.

The CAAQS and NAAQS, which were developed for criteria air pollutants, are intended to incorporate an adequate margin of safety to protect the public health and welfare. California also has ambient air quality standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. To achieve CAAQSs, criteria air pollutant emissions are managed through control measures described in regional air quality plans as well as emission limitations placed on permitted stationary sources.

In accordance with the federal Clean Air Act and California Clean Air Act, areas in California are classified as either in attainment, maintenance (i.e., former nonattainment), or nonattainment of the NAAQS and CAAQS for each criteria air pollutant. To assess the regional attainment status, the BAAQMD collects ambient air quality data from over 30 monitoring sites within the SFBAAB. Based on current monitoring data, the SFBAAB is designated as a nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, and is designated an attainment or unclassified area for all other pollutants (see Table V.D-2).

TABLE V.D-2 AIR QUALITY STANDARDS AND ATTAINMENT STATUS

		CAAQS		NAAQS	
Pollutant	**Averaging Time**	**Concentration**	**Attainment Status**	**Concentration**	**Attainment Status**
Ozone	8-Hour	0.070 ppm	N	0.070 ppm	N
	1-Hour	0.09 ppm	N	Revoked in 2005	---
Carbon Monoxide (CO)	8-Hour	9.0 ppm	A	9 ppm	A
	1-Hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide (NO_2)	1-Hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	---	0.053 ppm	A
Sulfur Dioxide (SO_2)	24-Hour	0.04 ppm	A	0.14 ppm	A
	1-Hour	0.25 ppm	A	0.075 ppm	A
	Annual	---	---	0.030 ppm	A
Respirable Particulate Matter (PM_{10})	Annual	20 μg/m^3	N	---	---
	24-Hour	50 μg/m^3	N	150 μg/m^3	U
Fine Particulate Matter ($PM_{2.5}$)	Annual	12 μg/m^3	N	12 μg/m^3	U/A
	24-Hour	---	---	35 μg/m^3	N
Sulfates	24-Hour	25 μg/m^3	A	---	---
Lead	30-Day	1.5 μg/m^3	A	---	---
	Calendar Quarter	---	---	1.5 μg/m^3	A
	Rolling 3-Month	---	---	0.15 μg/m^3	A
Hydrogen Sulfide	1-Hour	0.03 ppm	U	---	---
Vinyl Chloride	24-Hour	0.010 ppm	U	---	---
Visibility Reducing Particles	8 Hour (10:00 to 18:00 PST)	---	U	---	---

Notes: A = Attainment; N = Nonattainment; U = Unclassified; "---" = not applicable; ppm = parts per million; μg/m^3 = micrograms per cubic meter; PST = Pacific Standard Time.
Source: Bay Area Air Quality Management District (BAAQMD), 2017. Air Quality Standards and Attainment Status. Available at: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status, accessed April 10, 2019. Last updated January 5, 2017.

Regulation of TACs, referred to as hazardous air pollutants (HAPs) under federal regulations, is achieved through federal, State, and local controls on individual sources. The air toxics provisions of the federal Clean Air Act require the EPA to identify HAPs that are known or suspected to cause cancer or other serious health effects to protect public health and welfare, and to establish

National Emission Standards for Hazardous Air Pollutants. California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act created California's program to identify and reduce exposure to TACs. To date, the CARB has identified over 21 TACs and adopted the EPA's list of 187 HAPs as TACs. The Hot Spots Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

b. Bay Area Air Quality Management District Responsibilities

The BAAQMD is primarily responsible for ensuring that the NAAQS and CAAQS are attained and maintained in the SFBAAB. The BAAQMD fulfills this responsibility by adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits, inspecting stationary sources of air pollutants, responding to citizen complaints, and monitoring ambient air quality and meteorological conditions. The BAAQMD also awards grants to reduce motor vehicle emissions and conducts public education campaigns and other activities associated with improving air quality within the SFBAAB.

The use of odorous compounds is subject to BAAQMD's Regulation 7, which places general limitations on odorous substances and specific emission limitations on certain odorous compounds. The regulation limits the "discharge of any odorous substance which causes the ambient air at or beyond the property line…to be odorous and to remain odorous after dilution with four parts of odor-free air." The BAAQMD must receive odor complaints from 10 or more people within a 90-day period in order for the limitations of this regulation to go into effect. If this criterion has been met, an odor violation can be issued by the BAAQMD if a test panel of people can detect an odor in samples collected periodically from the source.

The BAAQMD's CEQA Guidelines include thresholds of significance to assist lead agencies in evaluating and mitigating air quality impacts under CEQA. The BAAQMD's thresholds established levels at which emissions of ozone precursors (ROG and NO_X), PM_{10}, $PM_{2.5}$, local CO, TACs, and odors could cause significant air quality impacts. The scientific soundness of the thresholds is supported by substantial evidence presented in the BAAQMD's Revised Draft Options and Justification Report.[10] The BAAQMD's thresholds of significance are summarized in Table V.D-3.

[10] Bay Area Air Quality Management District (BAAQMD), 2009. Revised Draft Options and Justification Report; California Environmental Quality Act Thresholds of Significance, October.

TABLE V.D-3 BAAQMD PROJECT-LEVEL THRESHOLDS OF SIGNIFICANCE

Impact Analysis	Pollutant	Threshold of Significance
Regional Air Quality (Construction)	ROG	54 pounds/day (average daily emission)
	NO_x	54 pounds/day (average daily emission)
	Exhaust PM_{10}	82 pounds/day (average daily emission)
	Exhaust $PM_{2.5}$	54 pounds/day (average daily emission)
	Fugitive dust (PM_{10} and $PM_{2.5}$)	Best management practices
Regional Air Quality (Operation)	ROG	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	NO_x	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	Exhaust PM_{10}	82 pounds/day (average daily emission) 15 tons/year (maximum annual emission)
	Exhaust $PM_{2.5}$	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
Local Community Risks and Hazards (Operation and/or Construction)	Local CO	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)
	Exhaust $PM_{2.5}$ (project)	0.3 μg/m^3 (annual average)
	TACs (project)	Cancer risk increase > 10 in one million Chronic hazard index (HI) > 1.0
	Exhaust $PM_{2.5}$ (cumulative)	0.8 μg/m^3 (annual average)
	TACs (cumulative)	Cancer risk > 100 in one million Chronic hazard index > 10.0

Note: ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; μg/m^3 = micrograms per cubic meter; PPM = parts per million
Source: BAAQMD, 2017.

c. Bay Area Clean Air Plan

In accordance with the California Clean Air Act, the BAAQMD is required to prepare and update an air quality plan that outlines measures by which both stationary and mobile sources of pollutants can be controlled to achieve the NAAQS and CAAQS in areas designated as nonattainment. In April 2017, the BAAQMD adopted the 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 CAP).[11] The 2017 CAP includes 85 control measures to reduce ozone precursors, particulate matter, TACs, and greenhouse gases. The 2017 CAP was developed based on a multi-pollutant evaluation method that incorporates well-established studies and methods of quantifying the health benefits; air quality regulations; computer modeling and analysis of

[11] Bay Area Air Quality Management District (BAAQMD), 2010. Bay Area 2010 Clean Air Plan. Adopted September 15.

existing air quality monitoring data and emissions inventories; and traffic and population growth projections prepared by the Metropolitan Transportation Commission and the Association of Bay Area Governments, respectively.

d. Foster City

(1) Foster City General Plan

The adopted City of Foster City General Plan identifies the following policies and programs related to air quality within Chapter 8, Conservation Element (adopted in 2003) that are relevant to the proposed project:

Conservation Policies

Policy C-3: Air Quality. Reduce the impact of development on local air quality.

Conservation Programs

Program C-j: Air Quality Impacts. Review proposed projects for their potential to affect air quality conditions.
Responsibility: Community Development Department.
Timeline: During Plan Review

Program C-k: Air Pollution Sensitive Land Uses. To the extent feasible, separate air pollution sensitive land uses from sources of air pollution.
Responsibility: Community Development Department.
Timeline: During Plan Review

Program C-n: Coordination with Other Agencies in Air Quality Improvements. Coordinate review of large projects with local, regional and state agencies to improve air quality.
Responsibility: Community Development Department.
Timeline: During Plan Review

(2) Foster City Standard Conditions of Approval

The following SCOAs adopted by the City of Foster City require implementation of dust controls during project construction:

SCOA-9.12: The following controls shall be implemented at all construction sites within the project to control dust production and fugitive dust.

- Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing sensitive land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers to control dust;
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard;
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites;

- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites;
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;
- Blowing dust shall be reduced by timing construction activities so that paving and building construction begin as soon as possible after completion of grading, and by landscaping disturbed soils as soon as possible;
- Water trucks shall be present and in use at the construction site;
- All portions of the site subject to blowing dust shall be watered as often as deemed necessary by the City in order to insure proper control of blowing dust for the duration of the project;
- Watering on public streets shall not occur;
- All vehicle speeds on unpaved roads shall be limited to 15 mph;
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations (CCR). Clear signage shall be provided for construction workers at all access points;
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator;
- Streets will be cleaned by street sweepers or by hand as often as deemed necessary by the City Engineer;
- Watering associated with on-site construction activity shall take place between the hours of 8 a.m. and 7 p.m. and shall include at least one late-afternoon watering to minimize the effects of blowing dust;
- All public streets and medians soiled or littered due to this construction activity shall be cleaned and swept on a daily basis during the workweek to the satisfaction of the City; and
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section discusses potential impacts on air quality that would result from implementation of the proposed project. The section begins with the significance criteria, which establish the thresholds used to determine whether an impact is significant. The significance criteria, below, are based on Appendix G of the CEQA Guidelines, and are consistent with the City's Environmental Review Guidelines. The latter part of this section analyzes the impacts associated with the project and recommends SCOAs and/or mitigation measures to reduce significant impacts, if needed.

a. Significance Criteria

For the purposes of this Draft EIR and in accordance with Appendix G of the CEQA Guidelines, implementation of the proposed project would have a significant impact on air quality if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
3. Expose sensitive receptors to substantial pollutant concentrations; or
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The BAAQMD's project-level thresholds of significance, as listed in Table V.D-3, are used in this CEQA analysis for Criteria 2 and 3. The BAAQMD CEQA Guidelines does not provide quantitative thresholds of significance to evaluate a project's odor impacts under Criteria 4.

b. Analysis and Findings

The following discussion describes the impacts associated with air quality that would result from the project.

(1) Consistency with the Bay Area Clean Air Plan (Criterion 1)

Based on the BAAQMD's current CEQA Guidelines, the following criteria should be considered to determine if a project would conflict with or obstruct implementation of the 2017 CAP:

- Does the project include applicable control measures from the air quality plan?
- Does the project disrupt or hinder implementation of any air quality plan control measures?
- Does the project support the primary goals of the air quality plan?

The 2017 CAP includes control measures that aim to reduce air pollution and GHGs from stationary, area, and mobile sources. The control measures are organized into nine categories: stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants (e.g., methane, black carbon, and fluorinated gases). As described in Table V.D-4, the project would be consistent with applicable control measures from the 2017 CAP.

The primary goals of the 2017 CAP are the attainment of ambient air quality standards and reduction of population exposure to air pollutants for the protection of public health in the Bay Area. Because the project would not result in any significant and unavoidable air quality impacts

TABLE V.D-4 PROJECT CONSISTENCY WITH BAAQMD'S 2017 CAP

Control Measures	Proposed Project Consistency
Stationary Source	The stationary source measures, which are designed to reduce emissions from stationary sources, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD's Permit and Inspection programs. Operation of an emergency backup generator would be subject to the BAAQMD's permitting requirements for stationary sources. Therefore, the proposed project would be consistent with the stationary source control measures of the 2017 CAP.
Transportation	The transportation control measures are designed to reduce vehicle trips, use, miles traveled, idling, or traffic congestion for the purpose of reducing vehicle emissions. According to *Section V.C, Transportation*, the project would not generate a significant net increase in vehicle miles traveled. Therefore, the proposed project would be consistent with the transportation control measures in the 2017 CAP.
Energy	The energy control measures are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures primarily apply to electrical utility providers, the energy control measures of the 2017 CAP are not applicable to the proposed project. Electricity in the project vicinity is currently supplied by Pacific Gas and Electric Company (PG&E), which supplies over 85 percent of its electric power mix from a combination of renewable and greenhouse-gas free sources.[a]
Buildings	The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters, but has limited authority to regulate buildings themselves. Therefore, the building control measures focus on working with local governments that have authority over local building codes to facilitate adoption of best practices and policies to control GHG emissions. The proposed project would comply with the local building codes and indoor lighting systems would meet the minimum code efficiency requirements for Title-24 Building Energy Efficiency Standards, such as light emitting diode (LED) lighting. Therefore, the proposed project would be consistent with the buildings control measures of the 2017 CAP.
Agriculture	The agriculture control measures are designed to primarily reduce emissions of methane. Since the proposed project does not include any agricultural activities, the agriculture control measures of the 2017 CAP are not applicable to the proposed project.
Natural and Working Lands	The control measures for the natural and working lands sector focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to adopt ordinances that promote urban-tree plantings. Since the proposed project does not include the disturbance of any rangelands or wetlands, the natural and working lands control measures of the 2017 CAP are not applicable to the proposed project.
Waste Management	The waste management measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The proposed project would comply with local requirements for waste management (e.g., recycling). Therefore, the proposed project would be consistent with the waste management control measures of the 2017 CAP.

TABLE V.D-4 PROJECT CONSISTENCY WITH BAAQMD'S 2017 CAP

Control Measures	Proposed Project Consistency
Water	The water control measures to reduce emissions from the water sector will reduce emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly-owned treatment works, and promoting the use of biogas recovery systems. Since these measures primarily apply to publicly-owned treatment works (sewage treatment plant that is owned, and usually operated, by a government agency), the water control measures of the 2017 CAP are not applicable to the proposed project.
Super GHGs	The super-GHG control measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. The City of Foster City has adopted a Climate Action Plan that identifies strategies to reduce GHG emissions 15 percent below 2005 levels by 2020, 20 percent below 2005 by 2025, and 80 percent below 2005 levels by 2050. The proposed project would comply with the Climate Action Plan policies for GHG reductions. Therefore, the proposed project would be consistent with the super-GHG control measures of the 2017 CAP.

[a] Source: Pacific Gas and Electric (PG&E), 2019. Clean Energy Solutions. Available at: https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page, accessed November 7.

related to emissions, ambient concentrations, or public exposures (see discussions below), the project would support the primary goals of the 2017 CAP.

According to the BAAQMD's CEQA Guidelines, the project would not conflict with or obstruct implementation of the applicable air quality plan and the associated air quality impact would be less than significant.

(2) Emissions of Criteria Air Pollutants (Criterion 2)

The BAAQMD currently recommends using the most recent version of the California Emissions Estimator Model (CalEEMod version 2016.3.2) to estimate construction and operational emissions of criteria air pollutants and precursors for a proposed project. CalEEMod uses widely accepted models for emission estimates combined with appropriate default data for a variety of land use projects that can be used if site-specific information is not available. The default data (e.g., type and power of construction equipment) are supported by substantial evidence provided by regulatory agencies and a combination of statewide and regional surveys of existing land uses. The primary input data used to estimate emissions associated with construction and operation of the proposed project are summarized in Table V.D-5. A copy of the CalEEMod report for the proposed project, which summarizes the input parameters, assumptions, and findings, is provided in Appendix C.

TABLE V.D-5 PROJECT LAND-USE INPUT PARAMETERS

Project Development	CalEEMod Land-Use Type	Unit	Amount
Hotel	Hotel	Rooms	155[a]
Restaurant	High Turnover (Sit Down Restaurant)	1,000 square feet	2.5
Parking	Enclosed Parking with Elevator	104	Space

Note: These land use input parameters were used to evaluate emissions during both project construction and operation.
[a] During preparation of this Draft EIR, the project was revised to include 156 rooms after completion of the air quality analysis. However, the addition of one room would have a negligible effect on the results of the air quality analysis and would not change the significance findings.
Source: A copy of CalEEMod report is provided in Appendix C.

Criteria Air Pollutants from Construction

Project construction activities would generate criteria air pollutant emissions that could potentially affect regional air quality. Construction activities would include site preparation, grading, building construction, paving, and applications of architectural coatings. The primary pollutant emissions of concern during project construction would be ROG, NO_x, PM_{10}, and $PM_{2.5}$ from the exhaust of off-road construction equipment and on-road vehicles related to worker vehicles, vendor trucks, and haul trucks. In addition, fugitive ROG emissions would result from the application of architectural coatings and paving. Emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ during project construction were estimated using the CalEEMod input parameters summarized in Table V.D-5 and additional assumptions summarized in Table V.D-6.

TABLE V.D-6 CONSTRUCTION ASSUMPTIONS FOR CALEEMOD

CalEEMod Input Category	Construction Assumptions and Changes to Default Data
Construction Phase	Construction was assumed to start as early as June, 2020. Based on the size of a project, CalEEMod applies default assumptions regarding equipment usage and construction phase lengths. These default assumptions are based on a state-wide survey of construction projects. While the proposed project is about 1.36 acres in size, the hotel projects included in the construction survey were approximately 3 acres in size. Therefore, the default equipment usage and construction phase lengths for a 3-acre lot were used to estimate the emissions associated with construction of the proposed project. A drill rig for installing piles was added to the default construction equipment list.
Material Movement	It was assumed that up to approximately 13,000 cubic yards of soil would be excavated, hauled off-site, and then replaced with 13,000 cubic yards of imported fill material to support the proposed building foundations.

Note: Default CalEEMod data was used for all other parameters not described.
Source: A copy of the CalEEMod report is provided in Appendix C.

To analyze daily emission rates, the total emissions estimated during construction were averaged over the shortest expected duration of work days (26 months x 22 work days per month = 572 work days) and compared to the BAAQMD's thresholds of significance. As shown in Table V.D-7, the project's estimated emissions for ROG, NO_x, and exhaust PM_{10} and $PM_{2.5}$ during construction were below the thresholds of significance. As a result, the generation of ROG, NO_x, PM_{10}, and $PM_{2.5}$ emissions from the exhaust of off-road construction equipment and on-road vehicles and fugitive ROG emissions from the application of architectural coatings and paving would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment, and the impact on regional air quality would be less than significant.

TABLE V.D-7 ESTIMATED CONSTRUCTION EMISSIONS (POUNDS PER DAY)

Emissions Scenario	ROG	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Construction Emissions	2.6	11.0	0.5	0.5
Thresholds of Significance	54	54	82	54
Exceed Threshold?	**No**	**No**	**No**	**No**

Source: A copy of the CalEEMod report is provided in Appendix C.

The generation of fugitive dust PM_{10} and $PM_{2.5}$ emissions from soil disturbance activities could result in a cumulatively considerable net increase in regional PM_{10} and $PM_{2.5}$ concentrations. The City's SCOA 9.12 – Dust Control Measures, includes dust controls that apply to all construction projects. Neither the BAAQMD nor the City has a quantitative threshold of significance for fugitive dust PM_{10} and $PM_{2.5}$ emissions; however, the BAAQMD considers implementation of best management practices (BMPs) to control dust during construction sufficient to reduce potential impacts to a less-than-significant level. Implementation of dust control measures under SCOA 9.12 would satisfy the BAAQMD's requirement for BMPs during construction. Therefore, the increase in PM_{10} and $PM_{2.5}$ concentrations from dust generated during project construction activities would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment, and the impact on regional air quality would be less than significant.

Criteria Air Pollutants from Operation

Project operation would generate criteria air pollutant emissions that could potentially affect regional air quality. The primary pollutant emissions of concern during project operation would be ROG, NO_x, and exhaust PM_{10} and $PM_{2.5}$ from mobile sources, energy use, area sources (e.g., consumer products and architectural coatings), and stationary sources. Project emissions were estimated for 2022, which is the earliest expected year of operation. Since statewide vehicle emission standards are required to improve over time in accordance with the Pavley (Assembly Bill 1493) and Low-Emission Vehicle regulations (Title 13, California Code of Regulations, and Section 1961.2), estimating emissions for the earliest year of operation provides the maximum expected annual emissions. Emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ during project operation were estimated using the CalEEMod input parameters summarized in Table V.D-5 and additional assumptions summarized in Table V.D-8.

TABLE V.D-8 OPERATION ASSUMPTIONS FOR CALEEMOD

CalEEMod Input Category	Operation Assumptions and Changes to Default Data
Vehicle Trips	Daily trip rates for each type of land use were adjusted according to the project-focused transportation analysis from Fehr & Peers (see *Section V.C, Transportation*). These vehicle trip rates are considered conservative because they do not account for alternative modes of transportation, such as walking, biking, shuttle service, or public transit.
Stationary Sources	It was assumed that a 1,000-kilowatt emergency diesel generator would be required for the project. It was also assumed that the generator would be used for non-emergency operation up to 50 hours per year (for routine testing and maintenance).

Note: Default CalEEMod data was used for all other parameters not described.
Source: A copy of the CalEEMod report is provided in Appendix C.

The estimated maximum annual emissions and average daily emissions during the operational phase of the proposed project were compared to the BAAQMD's thresholds of significance in Table V.D-9. The estimated emissions for ROG, NO_x, and exhaust PM_{10} and $PM_{2.5}$ during operation were below the thresholds of significance. Therefore, the increase in ROG, NO_x, and exhaust PM_{10} and $PM_{2.5}$ concentrations from project operation would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment, and the impact on regional air quality would be less than significant.

TABLE V.D-9 ESTIMATED OPERATION EMISSIONS

	Maximum Annual Emissions (Tons)				Average Daily Emissions (Pounds)			
Emissions Scenario	**ROG**	**NO_x**	**Exhaust PM_{10}**	**Exhaust $PM_{2.5}$**	**ROG**	**NO_x**	**Exhaust PM_{10}**	**Exhaust $PM_{2.5}$**
Area	0.38	<0.01	<0.01	<0.01	2.07	<0.01	<0.01	<0.01
Energy	0.02	0.17	0.01	0.01	0.10	0.92	0.07	0.07
Mobile	0.35	1.67	0.01	0.01	1.94	9.14	0.06	0.06
Generator	0.06	0.25	0.01	0.01	0.30	1.35	0.04	0.04
Total Emissions	0.8	2.1	0.03	0.03	4.1	10.1	0.1	0.1
Thresholds of Significance	10	10	15	10	54	54	82	54
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Source: A copy of the CalEEMod report is provided in Appendix C.

(3) Exposure of Sensitive Receptors to Toxic Air Contaminants during Construction (Criterion 3)

Impact AIR-1: Construction and operation of the proposed project could expose sensitive receptors to substantial concentrations of TACs and $PM_{2.5}$. (S)

Project construction would generate DPM and $PM_{2.5}$ emissions, primarily from the exhaust of off-road diesel construction equipment. Similarly, project operations would generate DPM and $PM_{2.5}$ emissions from testing and maintenance of an emergency generator. The emissions of DPM and $PM_{2.5}$ from diesel exhaust during project construction and operation could pose a health risk to nearby sensitive receptors. The BAAQMD recommends evaluating the potential health risks to sensitive receptors within 1,000 feet of a proposed project that could be exposed to TACs, such as DPM, and $PM_{2.5}$.

Generation of Toxic Air Contaminants during Construction

The annual average concentrations of DPM and exhaust $PM_{2.5}$ concentrations during construction were estimated within 1,000 feet of the project using the EPA's Industrial Source Complex Short Term (ISCST3) air dispersion model. For this analysis, emissions of exhaust PM_{10} were used as a surrogate for DPM, which is a conservative assumption because exhaust PM_{10} includes DPM and coarse mode PM. Exhaust PM_{10} includes particulate matters less than 10 micron in diameter, while more than 90 percent of DPM is less than 1 micron in diameter. The input parameters and assumptions used for estimating emission rates of DPM and $PM_{2.5}$ from off-road diesel construction equipment are included in Appendix C.

The exhaust emissions from off-road equipment estimated by CalEEMod were represented in the ISCST3 model as a series of volume sources. The release height was assumed to be 5 meters to represent the mid-range of the expected plume rise from frequently used construction equipment. Dispersion of air pollutants from off-road construction equipment was modeled using the χ/Q ("chi over q") method, such that each source has a unit emission rate (e.g., 1 gram per second for volume sources). The annual average concentration profiles from the air dispersion model were then scaled according to the ratio between the unit emission rate and the actual emission rate from each source. Actual emission rates for off-road equipment were based on the actual hours of work and averaged over the entire duration of construction. Daily emissions from construction were assumed to primarily occur between 7:00 a.m. and 5:00 p.m. Monday through Friday.

A uniform grid of receptors spaced 10 meters apart with receptor heights of 1.8 meter (for ground-level receptors) was placed around the project site as a means of developing isopleths (i.e., concentration contours) that illustrate the dispersion pattern from the emissions sources.

The ISCST3 model input parameters included 3 years of BAAQMD meteorological data from the San Mateo weather station located about 1.3 miles northwest of the project site.

The air dispersion model was used to estimate annual average concentrations of DPM and $PM_{2.5}$ from project construction. Based on the results of the air dispersion model (Appendix C), potential off-site health risks were evaluated for the maximally exposed individual resident (MEIR) on the ground floor of a residential building adjacent to the south side of the project site, and the maximally exposed individual student (MEIS) at a daycare center located about 600 feet northeast of the project site. The locations of MEIR and MEIS are shown in Figure V.D-1.

In accordance with guidance from the BAAQMD[12] and the Office of Environmental Health Hazard Assessment,[13] a health risk assessment was conducted to calculate the incremental increase in cancer risk and chronic hazard index (HI) to sensitive receptors from DPM emissions during construction. Analysis of acute non-cancer health hazards from construction activity is not recommended by BAAQMD and a reference exposure level has not been approved by OEHHA and CARB. The annual average concentration of DPM at the MEIR and MEIS were used to conservatively assess potential health risks to all nearby sensitive receptors.

It was conservatively assumed that the MEIR and MEIS would be exposed to an annual average DPM concentration over the entire estimated duration of construction, which is about 2.2 years (26 months). At the MEIR location, the incremental increase in cancer risk from on-site DPM emissions during construction was assessed for a young child exposed to DPM starting from the third trimester of pregnancy. At the MEIS location, the incremental increase in cancer risk from on-site DPM emissions during construction was assessed for a pre-school child exposed to DPM starting at the age of 6 months. These exposure scenarios represent the most sensitive individuals who could be exposed to adverse air quality conditions in the vicinity of the project site. The input parameters and results of the health risk assessment are included in Appendix C.

Estimates of the health risks at the MEIR and MEIS from exposure to DPM and $PM_{2.5}$ concentrations during project construction are summarized and compared to the BAAQMD's thresholds of significance in Table V.D-10. At the MEIS, the estimated excess cancer risk and chronic HI for DPM and annual average $PM_{2.5}$ concentration from unmitigated construction emissions were below the thresholds of significance. At the MEIR, the estimated chronic HI for

[12] Bay Area Air Quality Management District (BAAQMD), 2012a. Recommended Methods for Screening and Modeling Local Risks and Hazards, May.

[13] Office of Environmental Health Hazard Assessment (OEHHA), 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, February.

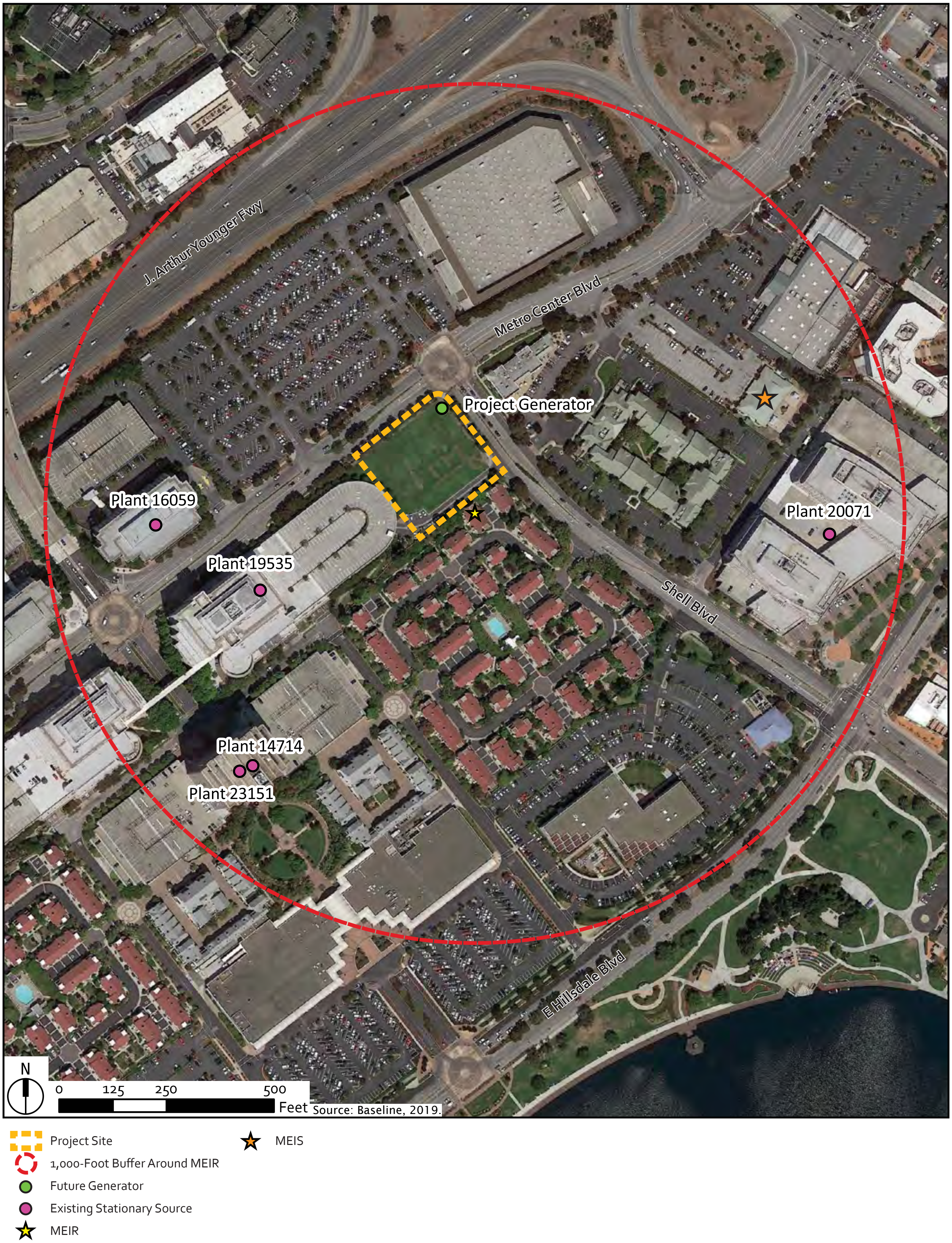

Figure V.D-1
Cumulative Sources of TACs and PM2.5 Emissions
New Hotel in Metro Center GDP Area Project EIR

TABLE V.D-10 HEALTH RISKS FROM CONSTRUCTION OF THE PROJECT

	Diesel Particulate Matter		Exhaust $PM_{2.5}$
Construction Scenario	Cancer Risk (per million)	Chronic Hazard Index	Annual Average Concentration ($\mu g/m^3$)
Construction Emissions (Unmitigated)			
Maximally Exposed Individual Resident	**58.1**	0.04	0.19
Maximally Exposed Individual Student	5.5	<0.01	0.01
Construction Emissions (Mitigated)			
Maximally Exposed Individual Resident	7.2	<0.01	0.02
Maximally Exposed Individual Student	0.7	<0.01	<0.01
Thresholds of Significance	10	1	0.3

Notes: $\mu g/m^3$ = micrograms per cubic meter
Bold and shaded text indicates exceedance of threshold.
Source: See Appendix C.

DPM and annual average $PM_{2.5}$ concentration from unmitigated construction emissions were below the thresholds of significance; however, the excess cancer risk exceeded the threshold of significance. As a result, the proposed project could have a potentially significant impact on existing sensitive receptors exposed to TACs from project construction.

Equipping all off-road diesel equipment with Tier 2 or higher engines and the most effective Verified Diesel Emission Control Strategies available for the engine type, such as Level III diesel particulate filters, would reduce the project DPM emissions and associated health risks by approximately 87 percent. Therefore, the project shall implement Mitigation Measure AIR-1 to control diesel exhaust during construction.

> <u>Mitigation Measure AIR-1</u>: During project construction, the contractor shall use off-road diesel equipment with Tier 2 or higher engines equipped with Level III diesel particulate filters certified by the California Air Resources Board. Contract specifications shall include this requirement prior to the start of construction. (LTS)

As shown in Table V.D-10, implementation of these exhaust control measures under Mitigation Measure AIR-1 would reduce the excess cancer risk at the MEIR below the threshold of significance. Therefore, implementation of Mitigation Measure AIR-1 would reduce the impact on existing sensitive receptors exposed to substantial concentrations of TACs and $PM_{2.5}$ from project construction to a less-than-significant level.

Local Carbon Monoxide Concentrations from Operation

The vehicle trips generated by operation of the proposed project could increase localized CO concentrations (also known as hotspots), which would affect sensitive receptors in the local community. The source of local CO concentrations is often associated with heavy traffic congestion, which most frequently occurs at signalized intersections of high-volume roadways. The BAAQMD's threshold of significance for local CO concentrations is the same as the 1- and 8-hour CAAQS of 20.0 and 9.0 parts per million, respectively, because these represent levels that are protective of public health.

The BAAQMD has developed conservative screening criteria that can be used to determine if a project would generate traffic congestion at intersections that could potentially cause or contribute to local CO levels above the CAAQS. According to the BAAQMD, a project would result in a less-than-significant impact related to localized CO concentrations if all of the following screening criteria are met:

- The project is consistent with an applicable Congestion Management Program (CMP) established by the County Congestion Management Agency for designated roads or highways, regional transportation plans, and local congestion management agency plans.
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The City/County Association of Governments (C/CAG) of San Mateo County serves as the County Congestion Management Agency. The C/CAG updates the County's CMP every two years to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions. The current CMP requires an Individual Large Development Analysis of any project that is expected to generate a net increase of 100 or more peak-period vehicle trips on the CMP network.[14] During weekdays, the project is expected to generate approximately 80 vehicle trips in the AM and PM peak hours. Therefore, this project would comply with the San Mateo County CMP.

[14] City/County Association of Goverments of San Mateo County, 2018. San Mateo County Congestion Management Program 2107, Final Draft, January.

The project would increase traffic volumes at the 13 study intersections up to about 5,100 vehicles per hour.[15] This number is well below the BAAQMD's screening criteria of 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited. Because the project would comply with (and would not exceed) the BAAQMD's screening criteria, local CO concentrations associated with operation of the project would have a less-than-significant impact on nearby sensitive receptors.

Generation of Toxic Air Contaminants During Operation

Project operations may include testing and maintenance of a 1,000-kilowatt emergency generator, which would generate DPM and $PM_{2.5}$ emissions. To operate an emergency generator, the project would be required to comply with the BAAQMD's permit requirements for a stationary source. In accordance with BAAQMD's Regulation 2-5, New Source Review of Toxic Air Contaminants, the BAAQMD does not issue permits for generators that would result in an excess cancer risk greater than 10 in 1 million or a chronic HI greater than 1.0.

Conservatively assuming the project's emergency generator would result in the BAAQMD's maximum permissible excess cancer risk of 10 in 1 million due to emissions of DPM, the BAAQMD's Risk and Hazards Emissions Screening Calculator (Beta Version 3.0) was used to back-calculate the equivalent screening-level health risks values for chronic HI and annual average $PM_{2.5}$ concentrations.[16] The calculator applies similar methods used to establish the emission threshold levels for TACs reported in the BAAQMD's Regulation 2-5 and includes the most recent health risk parameters recommended by OEHHA. Based on the emission rate for DPM (0.0071 pounds per day) that would result in a cancer risk of 10 in 1 million, the associated fraction of $PM_{2.5}$ emissions from an emergency generator were estimated using the CARB's speciation profiles.[17]

Health risks were estimated at the MEIR to represent the worst-case-exposure scenario for sensitive receptors in the project vicinity. The future generator was assumed to be located in the northeast portion of the project site near the existing electrical utilities that would remain in place adjacent to the proposed hotel. The health risk screening values from the project's emergency generator were then refined based on the shortest possible distance from the generator to the

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[15] Fehr & Peers, 2019. Excel spreadsheet for traffic volume provided to Baseline Environmental Consulting, November 7.

[16] Bay Area Air Quality Management District (BAAQMD), 2019b. BAAQMD Health Risk Calculator (Beta Version 3.0).

[17] California Air Resources Board (CARB), 2018. Speciation Profiles Used in ARB Modeling. PMPROF spreadsheet for particulate matter chemical profiles for source categories. Available at: https://www.arb.ca.gov/ei/speciate/speciate.htm#assnfrac, accessed August 25, 2019.

MEIR using the BAAQMD's Diesel Internal Combustion Engine Distance Multiplier Tool.[18] The supporting health risk calculations are included in Appendix C.

The conservative screening-level health risks to sensitive receptors associated with operation of the emergency generator are summarized and compared to the BAAQMD's thresholds of significance in Table V.D-11. The estimated excess cancer risk and chronic HI for DPM and the annual average $PM_{2.5}$ concentration from operation of the emergency generator were below the BAAQMD's thresholds of significance. Therefore, the project's impact on existing sensitive receptors exposed to substantial concentrations of TACs and $PM_{2.5}$ from operation of an emergency generator would be less than significant.

TABLE V.D-11 HEALTH RISKS AT MAXIMALLY EXPOSED INDIVIDUAL RECEPTOR (MEIR) DURING PROJECT OPERATION

		Diesel Particulate Matter		Exhaust $PM_{2.5}$
Emissions Scenario	**Distance to MEIR (Feet)**	**Cancer Risk (Per Million)**	**Chronic Hazard Index**	**Annual Average Concentration (µg/m³)**
Emergency Generator Testing	230	3.1	<0.01	<0.01
Thresholds of Significance	---	10	1.0	0.3
Exceed Threshold?	---	**No**	**No**	**No**

Note: µg/m³ = micrograms per cubic meter; "---" = not applicable.
Source: See Appendix C.

Cumulative TAC Emissions

In addition to a project's individual TAC emissions during construction and operation, the potential cumulative health risks to sensitive receptors from existing and reasonably foreseeable future sources of TACs were evaluated. Cumulative health risks were estimated at the MEIR for the proposed project to represent the worst-case-exposure scenario for sensitive receptors in the project vicinity.

The BAAQMD's online screening tools were used to provide conservative estimates of how much existing and foreseeable future TAC sources would contribute to cancer risk, HI, and $PM_{2.5}$ concentrations. The individual health risks associated with each source were summed to find the cumulative health risk at the MEIR. The supporting health risk calculations are included in Appendix C.

[18] Bay Area Air Quality Management District (BAAQMD), 2012. Diesel Internal Combustion Engine Distance Multiplier Tool, June 13.

Based on the BAAQMD's 2017 inventory of permitted stationary sources for TAC and $PM_{2.5}$ emissions,[19] five existing stationary sources are located within 1,000 feet of the MEIR (see Table V.D-12 and Figure V.D-1). Preliminary health risk screening values at the MEIR were determined using the BAAQMD Health Risk Calculator (Beta Version 3.0) and recent facility emissions data.[20] Based on review of the Pilgrim Triton Master Plan Project Phase C Water Supply Assessment[21] (which is a recent master plan document that includes a list of potential development projects in the area), there does not appear to be reasonably foreseeable future sources of TACs within 1,000 feet of the MEIR.

Preliminary health risk screening values at the MEIR from exposure to mobile sources of TACs were estimated based on the BAAQMD's Bay Area modeling of health risks from highways, railroad, and major roadways with an average annual daily traffic (AADT) volume greater than 30,000 vehicles per day.[22] There is one highway (State Route 92) and major roadway (E. Hillsdale Boulevard) located within 1,000 feet of the MEIR (see Table V.D-12 and Figure V.D-1). According to the BAAQMD's modeling of mobile sources, there are no railroad corridors located within 1,000 feet of the MEIR.

The BAAQMD also recommends using their Roadway Screening Analysis Calculator[23] to evaluate health risks from roadways with over 10,000 AADT. Based on a 2016 traffic analysis conducted for the Levee Protection Planning and Improvements Project,[24] there are two roadways with over 10,000 AADT within 1,000 feet of the MEIR: Metro Center Boulevard (10,966 AADT) and Shell Street (10,645 AADT) (see Table V.D-12 and Figure V.D-1). The health risk screening values at the MEIR from these two roadways were estimated using the BAAQMD's Roadway Screening Analysis Calculator and the cancer risks were adjusted using a factor of 1.374 to account for the most recent health risk parameters recommended by OEHHA.

Estimates of the cumulative health risks at the MEIR for the proposed project are summarized and compared to the cumulative thresholds of significance in Table V.D-12. For both the

[19] Bay Area Air Quality Management District (BAAQMD), 2019c. CSV file for 2017 permitted stationary sources provided by Areana Flores, BAAQMD, to Yilin Tian, Baseline Environmental Consulting, March 25.

[20] Bay Area Air Quality Management District (BAAQMD), 2019d. Stationary source emissions data provided to Baseline Environmental Consulting, August 30.

[21] Maddaus Water Management Inc., 2018. Pilgrim Triton Master Plan Project Phase C. Attachment B:Water Supply Assessment, June.

[22] Bay Area Air Quality Management District (BAAQMD), 2014. BAAQMD Planning Healthy Places Highway, Major Street, and Rail Health Risk Raster Files, 2014.

[23] Bay Area Air Quality Management District (BAAQMD), 2015. Roadway Screening Analysis Calculator, April 16.

[24] Schaaf & Wheeler Consulting Civil Engieers, 2016. Excel spreadsheed of of average annual daily traffic along various roadway segments in the City of Foster City provided to Baseline Environmental Consulting for the Levee Protection Planning and Improvements Project EIR.

TABLE V.D-12 CUMULATIVE HEALTH RISKS AT MAXIMALLY EXPOSED INDIVIDUAL RESIDENT (MEIR) DURING CONSTRUCTION AND OPERATIONS OF THE PROPOSED PROJECT

Source	Source Type	Method Ref	Cancer Risk (10^{-6})	Chronic HI	$PM_{2.5}$ ($\mu g/m^3$)
Project					
Off-Road Construction Equipment (unmitigated)	Diesel Exhaust		58.1	0.04	0.18
Off-Road Construction Equipment (Mitigated)	Diesel Exhaust		7.2	<0.01	0.02
Emergency Generator	Diesel Generator	1	3.1	<0.01	<0.01
Existing Stationary Sources					
Visa, Inc (Plant 19535)	Diesel Fire Pump Diesel Generator	1,2	4.96	<0.01	<0.01
Visa Land Development III (Plant 16059)	Diesel generator	1,2	0.47	<0.01	<0.01
Verizon Business (Plant 14714)	Diesel generator	1,2	0.2	<0.01	<0.01
Hudson Metro Center, LLC (Plant 23151)	Diesel Fire Pump Diesel Generator Boilers	1,2	0.61	<0.01	<0.01
Harvest Properties Parkside Towers (Plant 20071)	Diesel generator	1,2	0.26	<0.01	<0.01
Existing Mobile Sources					
Highway	Mobile	3	21.4	NA	0.36
Major Roadway	Mobile	3	2.3	NA	0.06
Metro Center Boulevard (10,966 AADT)	Mobile	4,5	1.71	NA	0.04
Shell Boulevard (10,645 AADT)	Mobile	4,5	2.16	NA	0.05
Cumulative Health Risks ***without*** mitigation			95	<0.1	0.7
Cumulative Health Risks ***with*** mitigation			44	<0.1	0.5
Thresholds of Significance			100	10.0	0.8
Exceed Thresholds with mitigation?			**No**	**No**	**No**

Notes: $\mu g/m^3$=micrograms per cubic meter; HI=hazard index; NA=not applicable; Ref=reference; AADT=annual average daily traffic
Health risk screening values derived using the following BAAQMD tools and methodologies:
1) BAAQMD's Risk and Hazards Emissions Screening Calculator (Beta Version 3.0).
2) BAAQMD's 2017 stationary source emissions data.
3) BAAQMD Planning Healthy Places Highway, Major Street, and Rail health risk raster files, 2014.
4) BAAQMD's Roadway Screening Analysis Calculator.
5) BAAQMD's recommended Office of Environmental Health Hazard Assessment cancer risk adjustment factor.
Source: See Appendix C.

unmitigated and mitigated project construction scenarios, the cumulative excess cancer risk, chronic HI, and annual average $PM_{2.5}$ concentration at the MEIR for the proposed project were below the BAAQMD's cumulative thresholds. Therefore, the cumulative impact on nearby sensitive receptors exposed to substantial concentrations of TACs and $PM_{2.5}$ from project construction and operation would be less than significant.

(4) Odors (Criterion 4)

As a hotel development, the project would not be expected to frequently generate significant odors for a substantial duration. Therefore, project impacts related to odors would be less than significant.

c. Cumulative Air Quality Impacts

The BAAQMD's thresholds of significance for criteria air pollutants were designed to represent levels above which a project's individual emissions would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. Since construction and operation of the proposed project would not exceed the BAAQMD's thresholds of significance for criteria pollutants (including ozone precursors), as presented in Table V.D-7 and V.D-9, the cumulative impacts on regional air quality would be less than significant.

The BAAQMD's thresholds of significance for CO, TACs, $PM_{2.5}$, and odors were also designed to determine if a project's contribution to local air pollution would be cumulatively considerable. Since emissions of CO, DPM, $PM_{2.5}$, and odors generated during construction and operation of the proposed project would not exceed the BAAQMD's cumulative thresholds of significance, as discussed in Section D.3, the cumulative impacts on local air quality would be less than significant.

E. GREENHOUSE GAS EMISSIONS

This section describes the existing conditions with respect to greenhouse gas (GHG) emissions in the vicinity of the project site; discusses the federal, State, and local regulations and policies pertinent to GHG emissions; assesses the potentially significant impacts to the environment as a result of GHG emissions generated by the project; and provides, where appropriate, mitigation measures and/or Standard Conditions of Approval (SCOAs) to address those impacts. The potential impacts assessed include increases in GHG emissions during both the construction and operational phases of the project.

The analysis in this section was prepared in accordance with the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines (CEQA Guidelines)[1] and the City's Environmental Review Guidelines.[2]

1. Setting

a. Climate Change and Greenhouse Gas Emissions

Climate change refers to change in the Earth's weather patterns, including the rise in temperature due to an increase in heat-trapping GHGs in the atmosphere. Existing GHGs allow about two-thirds of the visible and ultraviolet light from the sun to pass through the atmosphere and be absorbed by the Earth's surface. To balance the absorbed incoming energy, the surface radiates thermal energy back to space at longer wavelengths, primarily in the infrared part of the spectrum. Much of the thermal radiation emitted from the surface is absorbed by the GHGs in the atmosphere and is re-radiated in all directions. Because part of the re-radiation is back toward the surface and the lower atmosphere, global surface temperatures are elevated above what they would be in the absence of GHGs. This process of trapping heat in the lower atmosphere is known as the greenhouse effect.

An increase of GHGs in the atmosphere affects the energy balance of the Earth and results in a global warming trend. Increases in global average temperatures have been observed since the mid-20th century, and have been linked to observed increases in GHG emissions from anthropogenic sources. The primary GHG emissions of concern are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Other GHGs of concern include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6), but their contribution to climate change is less than 1 percent of the total by well-mixed GHGs (i.e., that have atmospheric

[1] Bay Area Air Quality Management District (BAAQMD), 2017a. California Environmental Quality Act Air Quality Guidelines, May.

[2] City of Foster City/Estero Municipal Improvement District, 2007. Environmental Review Guidelines, October.

lifetimes long enough to be homogeneously mixed in the troposphere).[3] Each GHG has a different global warming potential (GWP); for instance, CH_4 traps about 21 times more heat per molecule than does CO_2. Therefore, emissions of GHGs are reported in terms of metric tons of carbon dioxide equivalents (CO_2e), wherein each GHG is weighted by its GWP relative to CO_2.

Ice-core records of historical atmospheric CO_2 concentrations, which currently extend back about 800,000 years, indicate that CO_2 concentrations naturally fluctuate between glacial and interglacial periods. According to the Intergovernmental Panel on Climate Change (IPCC), over the past few hundred years the atmospheric concentrations of CO_2 have increased to unprecedented levels compared to previous fluctuations in CO_2 concentrations observed over the past 800,000 years due to anthropogenic sources. In 2011, concentrations of CO_2, CH_4, and N_2O exceeded the pre-industrial era (before 1750) by about 40, 150, and 20 percent, respectively.[4] The Earth's mean surface temperatures in 2018 were the fourth warmest since 1880, which was behind those of 2016, 2017, and 2015. The past five years from 2014 to 2018 are collectively the warmest years in the modern record.[5]

The global increases in CO_2 concentrations are due primarily to fossil fuel combustion and land use changes (e.g., deforestation). The dominant anthropogenic sources of CH_4 are ruminant livestock, fossil fuel extraction and use, rice paddy agriculture, and landfills, while the dominant anthropogenic sources of N_2O are ammonia for fertilizer and industry.[6] No emissions of HFCs, PFCs, and SF_6 are naturally occurring; they all originate from industrial processes such as semiconductor manufacturing, their use as refrigerants and other products, and electric power transmission and distribution.[7]

b. Existing Greenhouse Gas Emission and Projections

In 2017, the California Air Resources Board (CARB) estimated that transportation was responsible for about 40 percent of California's GHG emissions, followed by industrial sources and electrical power generation at about 21 percent and 15 percent, respectively.[8] In 2015, 85 million metric tons of CO_2e was emitted from anthropogenic sources within the San Francisco Bay Area Air

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[3] Intergovernmental Panel on Climate Change (IPCC), 2013. Climate Change 2013; the Physical Science Basis; Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

[4] Bay Area Air Quality Management District (BAAQMD), 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases, Base Year 2011, January.

[5] National Aeronautics and Space Administration (NASA), 2019. 2018 Fourth Warmest Year in Continued Warming Trend, According to NASA, NOAA. Available at: https://www.giss.nasa.gov/research/news/20190206, posted February 6.

[6] Intergovernmental Panel on Climate Change (IPCC), 2013, op. cit.

[7] Bay Area Air Quality Management District (BAAQMD), 2015, op. cit.

[8] California Air Resources Board (CARB), 2019a. California Greenhouse Gas Emissions for 2000 to 2017– Trends of Emissions and Other Indicators.

Basin (SFBAAB). Emissions of CO_2 dominate the GHG inventory in the SFBAAB, accounting for about 90 percent of the total CO_2e emissions reported.[9] The 2015 GHG emissions in the SFBAAB are summarized in Table V.E-1.

TABLE V.E-1 SAN FRANCISCO BAY AREA 2015 GHG EMISSIONS INVENTORY

Pollutant	Percent	CO_2e (MMT/Year)
CO_2	90	76.5
CH_4	4	3.4
N_2O	2	1.7
HFC, PFC, SF_6	4	3.4
Total	**100**	**85**

Note: MMT = million metric tons
Source: Bay Area Air Quality Management District (BAAQMD), 2017. Final 2017 Clean Air Plan, April 19.

For the City of Foster City, approximately 274,722 metric tons of CO_2e were emitted from anthropogenic sources in the baseline year of 2005,[10] as shown in Table V.E-2.[11] The greatest sources of GHG emissions in Foster City are transportation and building energy use.

TABLE V.E-2 CITY OF FOSTER CITY 2005 COMMUNITY GHG EMISSIONS BY SECTOR

Pollutant	Percent Contribution	CO_2e (MT/Year)
Residential Building Energy Use	16	44,594
Commercial Building Energy Use	23	62,674
Transportation – Local Roads	21	56,890
Transportation – State Highways	35	94,976
Transportation – Off-Road Equipment	4	11,435
Generated Waste	1	4,153
Total	**100**	**274,722**

Note: MT = metric tons
Source: City of Foster City, 2015. Foster City Climate Action Plan, September.

[9] Bay Area Air Quality Management District (BAAQMD), 2017b. Final 2017 Clean Air Plan, April 19.
[10] A baseline year is the year against which the progress of reducing GHG emissions is measured.
[11] City of Foster City, 2015. Foster City Climate Action Plan, September.

c. Effects of Greenhouse Gas Emissions

According to the BAAQMD, some of the potential effects of increased GHG emissions and associated climate change may include loss of snow pack (affecting water supply), more frequent extreme weather events, more large forest fires, more drought years, and sea level rise. In addition, climate change may increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health.[12]

In October 2018, the IPCC published a special report on potential long-term climate change impacts based on the projected increases in temperature due to global climate change. The IPCC report found that we are already seeing the consequences of global warming due to a 1-degree Celsius (°C) increase in pre-industrial levels, such as extreme weather, rising sea levels, and diminishing Arctic sea ice. Global warming is likely to reach 1.5°C above pre-industrial levels between 2030 and 2052 if it continues to increase at the current rate. Some of the impacts due to ongoing global warming could be avoided by limiting future global warming to 1.5°C compared to 2°C. For example, by limiting global warming to 1.5°C or lower, the likelihood of an Arctic Ocean free of sea ice in summer would be ten times lower compared to the likelihood under the scenario of 2°C increase. Beyond the 1.5°C threshold, there would be significant increases in the risk associated with long-lasting or irreversible changes, such as the loss of ecosystems. The IPCC states that in order to limit the global warming to 1.5°C, rapid transitions are needed in land, energy, industry, building, transport, and urban sectors to reach the goal of carbon neutrality by 2050, which means that the Earth's anthropogenic GHG emissions each year would be removed completely through carbon offsetting, sequestration, or other means.[13]

2. Regulatory Setting

a. Federal Regulations

The U.S. participates in the United Nations Framework Convention on Climate Change. In 1998 under the Clinton administration, the U.S. signed the Kyoto Protocol, which would have required reductions in GHGs; however, the protocol did not become binding in the U.S., as it was never ratified by Congress. Instead, the federal government chose voluntary and incentive-based programs to reduce emissions, and has established programs to promote climate technology and science. In 2002, the U.S. announced a strategy to reduce the GHG intensity of the American economy by 18 percent over a 10-year period from 2002 to 2012. In 2015, the U.S. submitted its

[12] Bay Area Air Quality Management District (BAAQMD), 2017b, op. cit.

[13] Intergovernmental Panel on Climate Change (IPCC), 2018. IPCC Press Release, Summary for Policymakers of IPCC Special Report on Global Warning of 1.5°C approved by governments, October 8.

"intended nationally determined contribution" to the framework convention, which targets to cut net GHG emissions by 26 to 28 percent below 2005 levels by 2025.

The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the federal Clean Air Act and the 1990 amendments to it. On April 2, 2007, the U.S. Supreme Court ruled that CO_2 is an air pollutant as defined under the Clean Air Act, and that the EPA has the authority to regulate emissions of GHGs.[14] The EPA made two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act, as follows:

- **Endangerment Finding:** The current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, they were a prerequisite for implementing GHG emissions standards for vehicles. In May 2010, EPA, in collaboration with the National Highway Traffic Safety Administration (NHTSA), finalized national GHG emission and fuel economy standards for light-duty vehicles for the model years 2012 to 2016. These standards were consistent with the standards adopted by California under the Pavley Regulations, described below.[15] In August 2012, EPA and NHTSA extended the national GHG emission and fuel economy standards for light-duty vehicles for the model years 2017 to 2025. Combined with the 2012 to 2016 standards, the regulation will result in vehicles emitting 50 percent less than 2010 levels in in 2025.[16]

In August 2016, EPA and NHTSA finalized national GHG emission and fuel economy standards for medium- and heavy-duty vehicles that would cover model years 2018 to 2027 for certain trailers and model years 2021 to 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks.

[14] Massachusetts, et al. v. U.S. Envtl. Prot. Agency, et al. (2007) 549 U.S. 497.

[15] U.S. Environmental Protection Agency (EPA), 2010. Regulatory Announcement: EPA and NHTSA Finalize Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks.

[16] U.S. Environmental Protection Agency (EPA), 2012. Regulatory Announcement: EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks, August.

b. State Regulations

(1) Pavley Regulations – Assembly Bill 1493

In 2002, the California Legislature adopted Assembly Bill (AB) 1493, referred to as the "Pavley regulations," which required CARB to develop and adopt regulations that achieve the maximum feasible and cost-effective reductions in GHG emissions from new passenger vehicles. To meet the requirements of AB 1493, the CARB approved amendments to the California Code of Regulations in 2004 that added GHG emissions standards to California's existing standards for motor vehicle emissions. In 2009, CARB adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. These regulations reduced GHG emissions from California passenger vehicles by 30 percent through 2016. Upon adoption of federal GHG standards by the EPA and NHTSA that preserved the benefits of the Pavley regulations, the Pavley regulations were revised to accept compliance with the federal standards as compliance with California's standards in the 2012 through 2016 model years. In September 2019, the EPA and NHTSA finalized the actions of withdrawing the 2013 California Clean Air Act Waiver and preempting the State's tailpipe GHG emissions standards by federal laws. California is currently in the process of filing a petition for the EPA to reconsider the published rule. At the time this EIR is prepared, the federal action is in effect, and CARB is administering the affected portions of the State program on a voluntary basis, including issuing certifications for GHG emissions and zero-emission vehicle programs.[17]

Current State regulations and voluntary programs governing GHG emission and fuel economy standards are described below.

(2) Advanced Clean Cars Program

On August 7, 2012, CARB adopted a set of regulations to control emissions from passenger vehicles, collectively called the Advanced Clean Cars Program. This program was developed in coordination with EPA and NHTSA in order to control the emission of smog-causing criteria pollutants and GHG emissions.[18] In California, the standards are promulgated as a single coordinated package of regulations governing standards for criteria pollutant and GHG emissions, and establishing a technology mandate for zero-emission vehicles. The criteria pollutant and GHG emissions standards are consistent with the current EPA and NHTSA standards described above, and are in effect an extension of the Pavley regulations beyond 2016.

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[17] California Air Resources Board (CARB), 2019b. California Air Resources Board Waiver Timeline. Available at: https://ww2.arb.ca.gov/resources/documents/carb-waiver-timeline, accessed December 19, 2019.

[18] California Air Resources Board (CARB), 2019c. Advanced Clean Cars Program: About. Available at: https://ww2.arb.ca.gov/index.php/our-work/programs/advanced-clean-cars-program/about, accessed April 15, 2019.

The zero-emission vehicle regulation is designed to achieve the State's long-term emission reduction goals by requiring auto manufacturers to offer for sale specific numbers of the very cleanest cars available.

(3) Renewable Portfolio Standard – Senate Bills 1078, 107, X1-2, 350, and 100

In 2002, under Senate Bill (SB) 1078, the State enacted the Renewable Portfolio Standard (RPS) program, which aims to increase the percentage of renewable energy in California's electricity mix to 20 percent of retail sales by 2017. The RPS timeline was accelerated in 2006 under SB 107 and expanded in 2011, 2015, and 2018 under SB X1-2, SB 350, and SB 100, respectively. The RPS program currently requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent by 2020 and to 60 percent by 2030. In addition, SB 100 sets a planning goal that 100 percent of total retail sales of electricity in California come from eligible renewable energy resources and zero-carbon resources by December 31, 2045.

(4) Executive Order S-3-05

In 2005, Governor Schwarzenegger issued Executive Order S-3-05, which states that California is vulnerable to the effects of climate change, including reduced snowpack in the Sierra Nevada Mountains, exacerbation of California's existing air quality problems, and sea level rise. To address these concerns, the executive order established the following statewide GHG emissions reduction targets:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

It should be noted that executive orders are legally binding only on State agencies and have no direct effect on local government or private actions.

(5) California Global Warming Solutions Act of 2006 – Assembly Bill 32

In 2006, Governor Schwarzenegger signed AB 32, the California Global Warming Solutions Act, which requires California to reduce statewide GHG emissions to 1990 levels by 2020. In December 2008, the CARB adopted the Scoping Plan, which outlines a statewide strategy to achieve AB 32 goals. In response to SB 375 (see below), the Association of Bay Area Governments has developed a Sustainable Communities Strategy (SCS) to integrate land use and transportation planning in the Bay Area to reduce future motor vehicle travel and decrease GHG emissions. In addition, the BAAQMD is implementing a wide range of programs that promote energy efficiency, reduce vehicle miles traveled (VMTs), and develop alternative sources of energy.

(6) Low-Carbon Fuel Standard – Executive Order S-1-07

In 2007, Governor Schwarzenegger issued Executive Order S-1-07 to enact a low-carbon fuel standard (LCFS). The LCFS calls for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. It also directed the CARB to determine whether this Low Carbon Fuel Standard could be adopted as a discrete early-action measure under AB 32. CARB adopted the Low Carbon Fuel Standard on April 23, 2009. The Low Carbon Fuel Standard was last amended January 4, 2019, in order to support the 2030 GHG emissions targets enacted through SB 32 (as discussed further below). The amended standard requires a 20-percent reduction in the carbon intensity of California's transportation fuels by 2030.

(7) California Environmental Quality Act and Senate Bill 97

In 2007, under SB 97, the State acknowledged that climate change is a prominent environmental issue requiring analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA. In 2009, the Natural Resources Agency adopted the State CEQA Guidelines amendments, which provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The amendments became effective in March 2010.

(8) Sustainable Communities Strategy – Senate Bill 375

In 2008, Governor Schwarzenegger signed SB 375, which aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations to reduce vehicle emissions and help California meet the GHG reduction goals established in AB 32. Under SB 375, metropolitan planning organizations are required to incorporate an SCS into their Regional Transportation Plan. The goal of the SCS is to reduce regional VMTs and associated GHG emissions through land use planning strategies, such as promoting compact, mixed-use commercial and residential development near public transportation hubs. In accordance with SB 375, the Metropolitan Transportation Commission has incorporated the SCS into their current Regional Transportation Plan, Plan Bay Area 2040.[19] SB 375 also provides incentives to developers through CEQA streamlining to encourage projects that are consistent with applicable regional plans, and which achieve GHG emissions reduction targets.

[19] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2017. Plan Bay Area 2040. Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2017–2040. Adopted July 26.

(9) Executive Order B-30-15 and Senate Bill 32

In 2015, Governor Brown issued Executive Order B-30-15, which set a statewide GHG emissions reduction target of 40 percent below 1990 levels by 2030. This target is in addition to the previous GHG emissions reduction targets established in Executive Order S-3-05 for 2010, 2020, and 2050. In September 2016, Governor Brown signed SB 32, which codifies the GHG emissions reduction target in Executive Order B-30-15.

As required by Executive Order B-30-15 and SB 32, CARB updated the Scoping Plan to identify measures to meet the 2030 target. The revised scoping plan was adopted December 14, 2017 and builds upon the initial scoping plan initiatives used for achieving 2020 targets, such as implementation of SCSs, LCFS, and RPS. Policies target building efficiency; renewable power investment; clean and renewable fuels; vehicle emissions; walkable/bikeable communities with transit; cleaner freight and goods movement; reducing pollutants from dairies, landfills, and refrigerants; and capping emission from transportation, industry, natural gas, and electricity sources.

(10) Senate Bill 743

SB 743 of 2013 changes the way that public agencies must evaluate the transportation impacts of projects under CEQA. The bill required revisions to the CEQA guidelines that would establish new criteria for determining the significance of a project's transportation impacts that will more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHG emissions.

As required under SB 743, the Governor's Office of Planning and Research (OPR) developed potential metrics to measure transportation impacts that may include, but are not limited to, VMT, VMT per capita, automobile trip generation rates, or automobile trips generated. The new metrics, which became effective on December 28, 2018, replace the use of delay and level of service (LOS) as the metric to analyze transportation impacts under CEQA. OPR also recommends different thresholds of significance for projects depending on the land use type. For example, OPR recommends that residential and office developments achieve at least a 15-percent reduction in VMT levels compared to existing conditions. Implementing these types of changes under SB 743 is expected to better align the transportation impact analysis and mitigation outcomes under CEQA with the State's goals to reduce GHG emissions.

(11) Warren-Alquist Act

The Warren-Alquist Act of 1975 is the legislation that created the California Energy Commission. The Act enables the California Energy Commission to formulate and adopt the nation's first-ever energy conservation standards for buildings constructed and appliances sold in California. The California Energy Commission was also directed to create a research and development program with a focus on fostering non-conventional energy sources.

(12) Title 24 Building Efficiency Standards

The State regulates energy consumption under Title 24 Building Standards Code, Part 6 of the California Code of Regulations (also known as the California Energy Code). The Title 24 Building Energy Efficiency Standards were developed by the California Energy Commission and apply to energy consumed for heating, cooling, ventilation, water heating, and lighting in new residential and nonresidential buildings. The Title 24 Building Energy Efficiency Standards are designed to reduce wasteful, uneconomic, inefficient, or unnecessary consumption of energy, and enhance outdoor and indoor environmental quality. The standards are updated every three years with the most recent iteration (2016) effective as of January 1, 2017, and the next version (2019) planned to go into effect on January 1, 2020.

(13) Title 24 California Green Building Standards Code

Title 24 Building Standards Code, Part 11 of the California Code of Regulations is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental quality.

c. Local Regulations

(1) Bay Area Air Quality Management District

The BAAQMD is the regional government agency that regulates sources of air pollution within the nine Bay Area counties. The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the SFBAAB. The climate protection program includes measures that promote energy efficiency, reduce VMTs, and develop alternative sources of energy, all of which assist in reducing emissions of GHGs and in reducing air pollutants that affect the health of residents. The BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

(2) BAAQMD 2017 Clean Air Plan

The BAAQMD and other air districts prepare clean air plans in accordance with the State and federal Clean Air Acts. In April 2017, the BAAQMD adopted the 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 CAP), which is a comprehensive plan to improve Bay Area air quality and protect public health through implementation of a control strategy designed to reduce emissions and ambient concentrations of harmful pollutants. The 2017 CAP also includes measures designed to reduce GHG emissions.

(3) Foster City Climate Action Plan

In February 2016, the City of Foster City adopted a Climate Action Plan that aims to satisfy the AB 32 GHG emission reduction goals. The Climate Action Plan includes all of the elements identified under CEQA Guidelines Section 15183.5(b)(1) and, therefore, can act as a tiering document for analyzing GHG emissions of future development pursuant to CEQA guidelines 15183.5(b)(2). The Climate Action Plan established the following GHG reduction targets: achieving 15-percent GHG emissions reduction below the baseline year (2005) levels by 2020, 20 percent below 2005 levels by 2025, and 80 percent below 2005 levels by 2050. Specifically, the Climate Action Plan complies with the provisions of CEQA Guidelines Section 15183.5(b)(1) by providing the following:

- A quantified inventory of GHG emissions;
- A level, equivalent to the State's AB 32 goals, below which activities subject to the plan will not make a cumulatively considerable contribution to GHG impacts;
- Analysis of GHG emissions associated with specific actions;
- Performance standards to achieve specified emissions goals; and
- Mechanisms to monitor the plan's progress.

The Climate Action Plan consists of goals, policies, and measures that would reduce GHG emissions from a wide range of sources and promote and increase sustainability within the City. The GHG reduction measures in the Climate Action Plan include:[20]

- **Energy (Community):** energy efficiency upgrades to residential and commercial buildings through code adoption, funding programs, and urban forestation programs.

[20] City of Foster City, 2015, op. cit.

- **Energy (Municipal):** energy efficiency upgrades and improvements by the City through revised building standards, solar systems, purchase of environmentally friendly materials, and leveraging of funds.
- **Transportation and Land Use (Community):** policies in the General Plan that reduce automobile trips through compact and more efficient land use patterns that promote a balanced mix of land uses, encourage alternative modes of transportation, and encourage use of hybrid and electric cars.
- **Transportation-Related Municipal Operations:** policies that promote energy efficiency in the City fleet and promote telecommuting and flexible work schedules to reduce vehicle trips.
- **Waste (Community):** waste diversion from landfills to reduce the generation of methane and other GHGs.
- **Energy and Water:** energy reduction in the heating and usage of water.
- **Education:** programs to increase awareness of conservation, sustainability, and the Climate Action Plan.

(4) Foster City Building Codes

The City of Foster City has adopted the following codes related to GHG emissions and energy use of buildings for future projects:

- 2019 California Building Code.
- 2019 California Green Building Standards Code (CALGreen Code).
- 2019 California Energy Code.

The City of Foster City's Municipal Code is current through Ordinance 631, which was enacted on December 16, 2019.

(5) General Plan

The following policies from the City of the City of Foster City General Plan would relate to GHG emissions and energy use of the project.

> *Policy LUC-E-6: Create Opportunities for Transit Access.* Create opportunities to improve transit and access to regional transit with new or modified development, as appropriate.
>
> *Policy LUC-F-2-a: Implementation of Traffic Reduction Programs.* As appropriate, require new non-residential developments to include a traffic reduction strategy with a variety of methods to reduce single-occupancy vehicles, provided programs exist.
>
> *Policy LUC-G-2: Preferred Parking/Electric Plug-In.* Encourage businesses, developers, and property managers to create preferred parking for electric and alternative fuel vehicles and study the installation of electric charging stations for plug-in vehicles.

Policy LUC-H-1-a: Green Building Guidelines and Incentives. The City will support the use of green building practices by:
a. Providing information, marketing, training, and technical assistance about green building practices;
b. Considering guidelines for green building practices in residential and commercial development; and
c. Implementing sustainable practices where feasible in public buildings and spaces

Policy LUC-H-5: Tree and Landscape Planting. Look for opportunities throughout the City to increase tree and landscape planting or enhance landscaped areas by promoting drought tolerant species that grow well in Foster City, pursuant to the Outdoor Water Conservation Ordinance and other landscaped related guidelines.

Policy C-b: Property Owner Water Saving Techniques. Encourage all property owners to implement the following conservation techniques: utilize drought tolerant plant materials, limit turf areas to 25% of landscaping, limit hours of the day for watering, retrofit with water-conserving fixtures, retrofit existing bathrooms and install new bathrooms with ultra low-flow toilets and water-conserving shower heads.

Policy C-d: Water Conservation Plan. Update the City's Water Conservation Plan. This plan describes water system deficiencies, and water supply and demand within the District service area.

Policy C-i: TSM Ordinance Enforcement. Enforce the City's Transportation Systems Management (TSM) Ordinance for existing and proposed businesses with more than 25 employees to promote use of SamTrans, vanpools, carpools and flextime working hours for employees.

Policy C-m: Reduction in Automobile Trips. Encourage Foster City residents and employees to consolidate and/or eliminate motor vehicle trips as often as possible.

(6) Foster City Standard Conditions of Approval

Foster City has adopted SCOAs for large new and redevelopment projects. The following SCOAs related to GHG emissions would apply to the proposed project.

SCOA 7.2. The applicant shall provide a letter describing the sustainable practices that are included in the project and referencing the sheets in the building permit drawings that demonstrate the inclusion of the sustainable practices, conforming to the "Sustainable Design Features" list dated received ___________, on file in the Community Development Department, for review and approval by the Community Development Director.

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section describes environmental impacts related to GHG emissions that could result from implementation of the project. The section begins with the significance criteria and establishes the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCOAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

Implementation of the project would have a significant impact related to GHG emissions if it would result in the following:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
2. Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of GHGs.

The BAAQMD has adopted and incorporated GHG thresholds of significance into their CEQA Guidelines[21] to assist lead agencies in evaluating and mitigating air quality impacts under CEQA. According to the BAAQMD, if a project, including stationary sources, is located in a community with an adopted qualified GHG Reduction Strategy, the project may be considered less than significant if it is consistent with the GHG Reduction Strategy. A project must demonstrate its consistency by identifying and implementing all applicable feasible measures and policies from the GHG Reduction Strategy in the project. The City of Foster City's Climate Action Plan is considered a qualified GHG Reduction Strategy. Therefore, the project's consistency with the Climate Action Plan is analyzed to evaluate the project's impact related to GHG emissions under Criteria 1 and 2.

b. Analysis and Findings

The following section discusses potential impacts related to GHG emissions associated with implementation of the proposed project.

(1) Greenhouse Gas Emissions (Criterion 1)

In February 2016, the City of Foster City adopted a Climate Action Plan to implement measures to reduce GHG emissions and to meet the AB 32 GHG emission-reduction goals. The Climate Action Plan identifies GHG emissions reduction measures for reducing the City of Foster City's GHG emissions 15 percent below 2005 levels by 2020, which is consistent with the statewide 2020 target under AB32. These GHG reductions measures, if implemented successfully, would also put the City on a trajectory to reduce GHG emissions 20 percent below 2005 levels by 2025. Therefore, a project consistent with the applicable measures in the Climate Action Plan will be supportive of the City of Foster City's GHG reduction targets.

[21] Bay Area Air Quality Management District (BAAQMD), 2017a, op. cit.

As shown in Table V.E-3, the proposed project would be consistent with local measures identified in the Climate Action Plan to reduce GHG emissions. Therefore, the GHG emissions generated by the project would have a less-than-significant impact on the environment.

TABLE V.E-3 PROJECT CONSISTENCY WITH THE CITY OF FOSTER CITY CLIMATE ACTION PLAN

Measures	Project Consistency
EC4: Adopt a Commercial Green Building Ordinance	The City of Foster City has not adopted a Commercial Green Building Ordinance. However, the City of Foster City has adopted the statewide California Green Building Standard for new constructions. Hence, the proposed project is subject to the 2019 California Green Building Standards and would be consistent with the Climate Action Plan.
EC8: Create a Requirement for Urban Forestation	The parking area of the proposed project would be shaded and screened by vegetation.
TL4: Encourage a Preferred Parking/Electric Plug-in Policy for Alternative Fuel Vehicles	The proposed project would include 7 parking spaces for electric vehicle (EV) and 6 parking spaces for clean-air vehicles in the hotel parking lot, as shown in Figure III-2.
EW2: Adopt a Water-wise Landscaping Ordinance and Outdoor Water Saving incentives	The City of Foster City Estero Municipal Improvement District has adopted an Outdoor Water Conservation in Landscaping Ordinance which offers incentives to reduce outdoor water usage. The proposed project is subject to the applicable outdoor water conservation in landscaping measures in the Ordinance.
EW3: Adopt an Ordinance and incentives for Indoor Water Savings	The City of Foster City has adopted an Indoor Water Use Efficiency Ordinance which specify various types of water appliances for new construction and applicable remodels. The proposed project is subject to the applicable indoor water use efficiency measures in the Ordinance.

Source: City of Foster City, 2015. Foster City Climate Action Plan, September

(2) Consistency with the City of Foster City's Climate Action Plan (Criterion 2)

As discussed above, the project's GHG emissions impact is considered less than significant because the project is consistent with the City of Foster City's Climate Action Plan.

c. Cumulative Greenhouse Gas Impacts

GHG impacts are, by their nature, cumulative impacts because one project by itself cannot significantly contribute to or cause significant environmental effects. The proposed project would not result in or contribute to any significant cumulative GHG impacts because it would be consistent with the City of Foster City's Climate Action Plan.

F. GEOLOGY AND SOILS

This section describes the soil, geologic, and seismic environment in the vicinity of the project site; discusses the State and local regulations pertinent to soils, geology, and seismicity; assesses the potential impacts related to soils, geology, and seismicity that could result from project implementation; and identifies the City's Standard Conditions of Approval (SCOAs) and develops mitigation measures, where appropriate, to address those impacts. The evaluation in this section is based on information obtained from a site-specific Geotechnical Investigation[1] and geologic reports and maps from the United States Geological Survey (USGS), California Geological Survey (CGS), City of Foster City (City), among others.

1. Setting

The existing soil, geologic, and seismic conditions at the project site and vicinity are discussed below.

a. Geologic Conditions

(1) Topography

The 1.36-acre project site is located in a relatively flat and urbanized area. The existing ground surface elevation of the project site is approximately 5 feet above sea level.[2] The majority of the project site is currently vegetated with turf grass.

(2) Geology

The project site is located within the Coast Ranges geomorphic province,[3] a relatively geologically young and seismically active region.[4,5] The Coast Ranges are composed of mountain ridges (ranging from approximately 2,000 to 4,000 feet, and occasionally 6,000 feet, in elevation above sea level) and valleys that trend northwest, approximately parallel to the San Andreas fault, from near the Oregon border to southern California. The only major break in the Coast Ranges is the depression containing the San Francisco Bay area within which the project site is located.

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[1] Romig Engineers, 2019. Geotechnical Investigation, August.

[2] Ibid.

[3] A geomorphic province is a naturally defined geologic region that displays a distinct combination of features based on geology, faults, topography, and climate. Eleven geomorphic provinces are recognized in California.

[4] California Geological Survey (CGS), 2002. California Geomorphic Provinces, Note 36.

[5] Norris, Robert M. and Robert W. Webb, 1976. Geology of California, 2nd Edition. J. Wiley & Sons, Inc.

(3) Existing Subsurface Conditions

The Geotechnical Investigation indicated that the site is underlain by 4 to 5 feet of artificial fill. The artificial fill was likely placed during land reclamation efforts between the late 1950s to late 1960s. The fill materials consist of medium dense to dense silty sand. The artificial fill is underlain by younger Bay Mud which consists of soft to firm clay of very high plasticity to a depth of about 57 feet. The Younger Bay Mud is underlain by the stratified layers of firm to very stiff sandy lean clay/sandy clay of moderate to high plasticity, firm to very stiff silty clay with interbeds of firm to stiff clayey silt, and medium dense sand and silty sand that extends to the maximum depth explored of approximately 120 feet.

Groundwater was encountered at approximately 4feet below grade at two boring locations and at 9 feet below grade at the other boring location. However, the Geotechnical Investigation estimated the stabilized ground water level to be as high as approximately 2 to 3 feet below grade based on experience at other sites in the project area.

b. Seismic, Soils, and Geologic Hazards

Seismic, soils, and geologic hazards include surface rupture, ground shaking, liquefaction, lateral spreading, landslides, settlement and differential settlement, and expansive and corrosive soils. Each of these hazards is discussed below.

(1) Surface Rupture

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. Surface rupture generally can be expected to occur along an active or potentially active fault trace. The project site is not located within an area mapped as subject to surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults cross the site.[6] The nearest Alquist-Priolo Earthquake Fault Zone is the San Andreas Fault, located about 5.1 miles southwest of the project site (Figure V.F-1).[7] The Geotechnical Investigation concluded that the likelihood of surface rupture from active faulting at the site is low.

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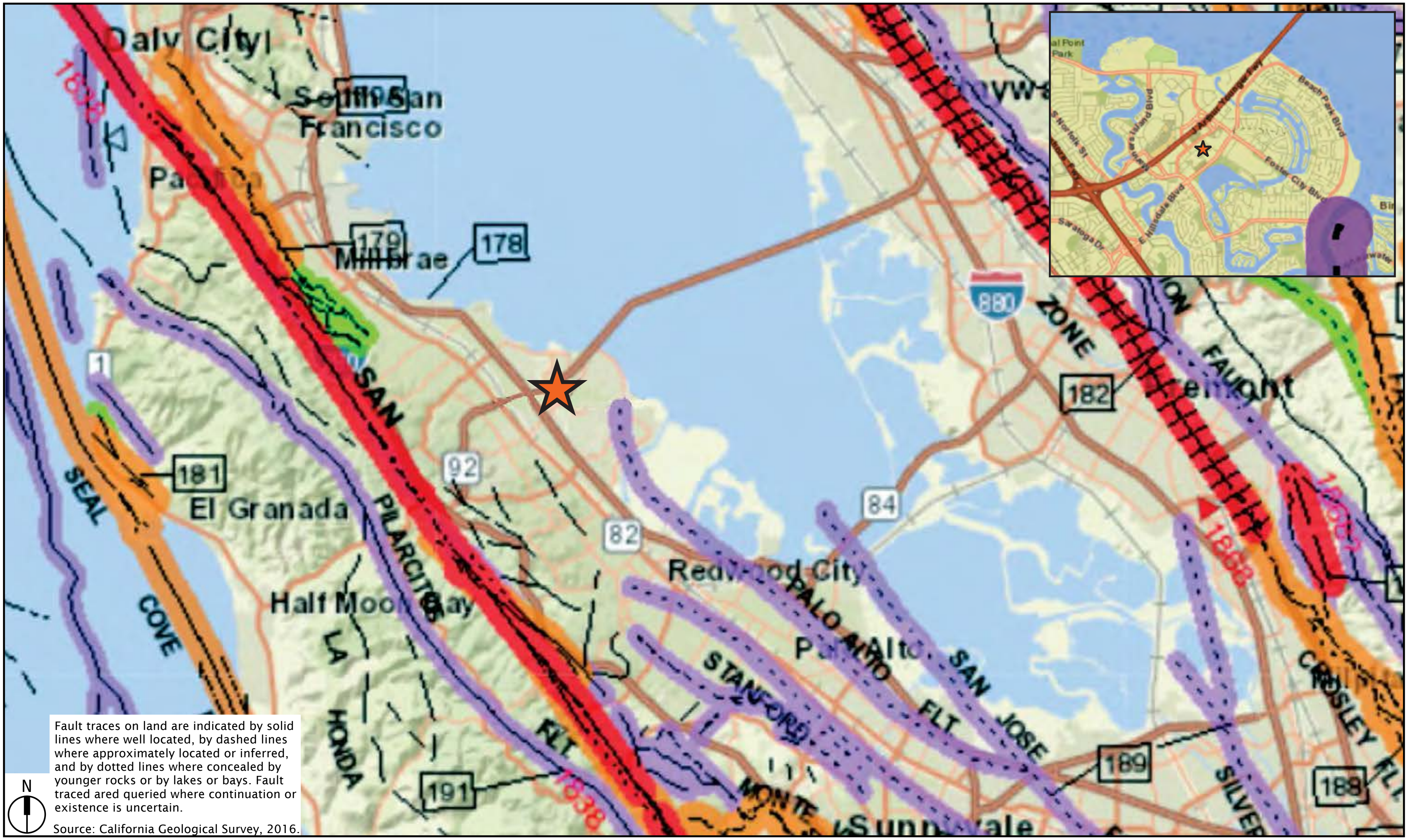
[6] California Geological Survey (CGS), n.d. Earthquake Zones of Required Investigation, San Mateo Quadrangle. Earthquake Fault Zones released July 1, 1974. Seismic Hazard Zones released January 11, 2018. Available at: http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm, accessed September 4, 2019.

[7] California Geological Survey (CGS), 2010. 2010 Fault Activity Map of California, Geologic Data Map No. 6. Available at: http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html, accessed September 4, 2019.



Project Site

Fault along which historic (last 200 years) displacement has occurred

Holocene fault displacement (during past 11,700 years) without historic record

Late Quaternary fault displacement (during past 700,000 years)

Quaternary fault (age undifferentiated)

Pre-Quaternary fault (older than 1.6 million years) or fault without recognized Quaternary displacement

Figure V.F-1

Fault Activity Map

(2) Ground Shaking

Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The magnitude of a seismic event is a measure of the energy released by an earthquake; it is assessed by seismographs that measure the amplitude of seismic waves. The intensity of an earthquake is a subjective measure of the perceptible effects of a seismic event at a given point. The Modified Mercalli Intensity Scale (MMI) is the most commonly used scale for measurement of the subjective effects of earthquake intensity (Table V.F-1). The MMI values range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from VI to XII can cause moderate to significant structural damage. As described above, the closest active fault to the project site is the San Andreas Fault.

The San Andreas Fault (all Northern segments) is considered capable of generating a Moment Magnitude (M_w)[8] 7.8 earthquake.[9] An earthquake of this magnitude on the Hayward Fault could generate violent (MMI IX) ground shaking at the project site.[10] The project site also has the potential to experience moderate (MMI VI) to very strong (MMI VIII) ground shaking generated by earthquakes on other regional faults including the San Gregorio Fault, Rodgers Creek Fault, Calaveras Fault, and Hayward Fault.[11]

The Geotechnical Investigation concluded that strong ground shaking would be expected several times during the life of the building, which is typical for sites throughout the Bay Area.

(3) Liquefaction and Lateral Spreading

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Because saturated soils are a necessary condition for liquefaction, soil layers in areas where

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[8] M_w, as opposed to Richter Magnitude, is now commonly used to characterize seismic events. M_w is determined from the physical size (area) of the rupture of the fault plane, the amount of horizontal and/or vertical displacement along the fault plane, and the resistance to rupture of the rock type along the fault.

[9] Association of Bay Area Governments (ABAG), 2013. Sam Mateo County Hazard Map. Available at: http://resilience.abag.ca.gov/earthquakes/sanmateo/, accessed September 4, 2019.

[10] Ibid.

[11] Ibid.

TABLE V.F-1 MODIFIED MERCALLI SCALE

I	Not felt except by a very few under especially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Board fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.

Source: California Geologic Survey, 2002. How Earthquakes and Their Effects are Measured, Note 32.

the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other "free" face, such as an excavation boundary or a creek bank. In a lateral spread failure, a layer of ground at the surface is carried on an underlying layer of liquefied material over a nearly flat surface toward a free face.[12] The lateral spreading hazard tends to mirror the liquefaction hazard for a site (when a free face is present).

The project site is located within a liquefaction hazard zone as designated on a map prepared by the CGS.[13] The Geotechnical Investigation performed a liquefaction analysis to evaluate the potential for earthquake-induced liquefaction of the soils at the site. Based on the results of the liquefaction analysis and project specifics, the Geotechnical Investigation estimated liquefaction-induced differential settlement of less than 0.25-inch over a horizontal distance of about 100 feet at the ground surface during the design level earthquake.

Because there are no open faces or steep creek banks in the immediate site area, the Geotechnical Investigation concluded that there is a low potential for lateral spreading to occur at the site as a result of an earthquake.

(4) Landslides

Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep) on slopes of varying steepness. Areas susceptible to landslides are characterized by steep slopes and downslope creep of surface materials. The project site, as well as surrounding areas, are relatively flat, and therefore are not subject to landslides or other slope stability hazards. In addition, the project site is not located within a landslide hazard zone as designated on a map prepared by the CGS.[14]

(5) Settlement, Differential Settlement, and Subsidence

Static settlement is the lowering of the land surface elevation as a result of loading (i.e., placing heavy loads, typically fill or structures), which often occurs with the development of a site. Differential (e.g., unequal) settlement could occur if buildings or other improvements are built on low-strength foundation materials (including imported non-engineered fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material and/or new engineered fill). Settlement can also occur when seismic ground shaking causes unsaturated, loose soil particles to rearrange into a denser configuration. This is referred to as dynamic densification.

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[12] Assocation of Bay Area Governments (ABAG), 2001.The REAL Dirt on Liquefaction, A Guide to the Liquefaction Hazard in Future Earthquakes Affecting the San Francisco Bay Area, February.

[13] California Geological Survey (CGS), n.d., op. cit.

[14] Ibid.

Static settlement and differential settlement generally occur slowly enough that its effects are not dangerous to inhabitants, but it can cause significant building damage over time.

According to the Geotechnical Investigation, the total amount of long-term static settlement is expected to be about 2.25 feet based on the thicknesses of fill and Bay Mud. About 70 percent of the total settlement has occurred to date (due to the historic placement of fill over compressible Bay Mud) with about 90 percent of the total settlement expected to occur within the next 15 years (without placement of additional loads). Any new loading (i.e., the type of loading associated with new development) would likely result in additional settlement at the ground surface.

Subsidence is the lowering of the land-surface elevation. The typical mechanism for subsidence is groundwater pumping that lowers the groundwater levels, and results in the subsequent consolidation of loose aquifer sediments. The primary hazards associated with subsidence are increased flooding hazards and damage to underground utilities as well as above-ground structures. Other effects of subsidence include changes in the gradients of stormwater and sanitary sewer drainage systems in which the flow is gravity-driven.

(6) Expansive Soils

Expansion and contraction of soil volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. Because of volume changes due to expansive soils, structural damage to buildings and infrastructure can occur if potentially expansive soils are not considered in project design and during construction.

The Geotechnical Investigation indicated that the surface and near surface fill soils at the project site have a low potential for expansion.

c. Paleontological Resources

Paleontological resources include fossilized remains or traces of organisms including plants, vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and marine coral), and microscopic plants and animals (microfossils), including their imprints, from a previous geological period. Collecting localities and the geologic formations containing those localities are also considered paleontological resources as they represent a limited, non-renewable resource and once destroyed, cannot be replaced. The Society of Vertebrate Paleontology (SVP) has established guidelines for the identification, assessment, and mitigation of adverse impacts on non-renewable paleontological resources. The SVP has helped define the value of paleontological resources and, in particular, states that significant paleontological resources are fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 years).[15]

The potential to disturb paleontological resources during project construction depends on the types of geologic units (and their fossil-bearing characteristics) that would be encountered. Due to their highly disturbed nature and recent placement, artificial fills are not considered paleontologically sensitive geologic units.

The dominant geologic unit at the project site that would be disturbed by construction is Young Bay Mud. The results of a search of identified paleontological localities collections database maintained by the University of California Museum of Paleontology did not identify any paleontological finds in Young Bay Mud near the project site.[16] While it is possible that the Young Bay Mud could preserve a variety of marine invertebrate fossils (mollusks, clams, foraminifera, microorganisms, etc.), such fossils exist in other Young Bay Mud deposits all around the Bay Area and would not be considered significant or unique. Therefore, the Young Bay Mud beneath the project site is considered to have low paleontological sensitivity.

The age and paleontological sensitivity of the stiffer clays that underlie the Young Bay Mud is not known. However, in much of the Bay Area, the Young Bay Mud is underlain by Older Bay Deposits (Undifferentiated), which are Pleistocene-age estuarine deposits that may contain fossils.[17]

2. Regulatory Setting

Federal, State, and local regulations and programs related to geology, seismicity, soils, building safety, and paleontological resources that are applicable to the project are described below.

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[15] Society of Vertebrate Paleontology (SVP), 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

[16] University of California Museum of Paleontology, 2019a. Collections Database, Locality Search. Available at https://ucmpdb.berkeley.edu/loc.html, accessed July 26.

[17] Helley, E.J. and LaJoie, K.R., 1979. Flatland deposits of the San Francisco Bay Region, California-their geology and engineering properties, and their importance to comprehensive planning., USGS Professional Paper 943.

a. Federal Regulations

(1) Federal National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP) was established by the U.S. Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law 95–124. In establishing NEHRP, Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs. The four basic NEHRP goals are:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems.
- Improve earthquake hazards identification and risk assessment methods, and their use.
- Improve the understanding of earthquakes and their effects.

Implementation of NEHRP priorities is accomplished primarily through original research, publications, and recommendations to assist and guide State, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

b. State Regulations

(1) California Alquist-Priolo Earthquake Fault Zoning Act

The California Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972, and its main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active earthquake faults. The Alquist-Priolo Earthquake Fault Zoning Act requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of known active faults and to issue appropriate maps. "Earthquake Fault Zones" were called "Special Studies Zones" prior to January 1, 1994. The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones. As mentioned above, the project site is not located within an area mapped as subject to surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults cross the project site.

(2) California Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code (PRC), Section 2690-2699.6) directs the Department of Conservation, California Geologic Survey to identify and map areas prone to liquefaction, earthquake-induced landslides and amplified ground shaking. The purpose of the Seismic Hazards Mapping Act is to minimize loss of life and property through the identification, evaluation and mitigation of seismic hazards. The Seismic Hazards Mapping Act was passed by the legislature following the 1989 Loma Prieta earthquake. As a result, CGS geologists gather existing geological, geophysical, and geotechnical data from numerous sources to produce the Seismic Hazard Zone Maps. They integrate and interpret this data regionally in order to evaluate the severity of the seismic hazards and designate as Zones of Required Investigation those areas prone to ground shaking, liquefaction, and earthquake-induced landslides. Cities and counties are then required to use the Seismic Hazard Zone Maps in their land use planning and building permit processes. The Seismic Hazards Mapping Act requires that site-specific geotechnical investigations be conducted within Zones of Required Investigation to identify and evaluate seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy. The California Geologic Survey has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, ground shaking, and landslides (primarily the Bay Area and the Los Angeles basin). The project site is located in an area identified as a liquefaction hazard zone.[18]

(3) California Building Standards Code

The 2016 California Building Code (CBC), which refers to Part 2 of the California Building Standards Code in Title 24 of the California Code of Regulations, is based on the 2015 International Building Code, and is the most current State building code. The 2016 CBC covers grading and other geotechnical issues, building specifications, and non-building structures. The City of Foster City Municipal Code amends the most current State building codes, as indicated in Municipal Code Chapter 15.04. The City's Building Division is responsible for reviewing plans, issuing building permits, and conducting field inspections. The design of the proposed project would be required to conform to the current CBC at the time of plan review, which would be the 2019 CBC (which goes into effect on January 1, 2020).

The CBC requires that a site-specific geotechnical investigation report be prepared by a licensed professional for proposed developments of one or more buildings greater than 4,000 square feet to evaluate geologic and seismic hazards. Buildings less than or equal to 4,000 square feet also are required to prepare a geologic engineering report, except for one-story, wood-frame and

[18] California Geological Survey (CGS), n.d., op. cit.

light-steel-frame buildings that are located outside of the Alquist-Priolo Earthquake Faults Zones. The purpose of the geotechnical investigation is to identify seismic and geologic conditions that require project mitigation, such as ground shaking, liquefaction, differential settlement, and expansive soils. Based on the conditions of the site, the building code requires specific design parameters to ensure construction of buildings that will resist collapse during an earthquake. These design parameters do not protect buildings from all earthquake shaking hazards but are designed to reduce hazards to a manageable level. Requirements for the geotechnical investigation are presented in Chapter 16 "Structural Design" and Chapter 18 "Soils and Foundation" of the 2016 CBC. Geotechnical Investigation reports for the proposed project will be reviewed by the City's Building Division prior to issuance of building permits.

c. Local Regulations

(1) General Plan

The Safety Element of the Foster City General Plan[19] contains the following safety goals, policies, and programs related to hazardous materials, fire, and emergency preparedness.

> ***Goal S-A: Strong infrastructure.*** *Preserve the quality of life by ensuring the City's infrastructure and municipal services are capable of withstanding reasonably foreseeable risks and hazards.*
>
> *Policy S-A-1: Protect the City's Infrastructure and Emergency Facilities from Seismic and Geologic Hazards.* The City will take measures to prevent damage to the City's infrastructure and emergency facilities resulting from seismic and geologic hazards.
>
> *Program S-A-1-a: Protect City's Infrastructure and Facilities.* The City will protect the City's infrastructure and facilities from damage due to seismic and geologic hazards through proper design and retrofitting older facilities to current standards.
>
> *Program S-A-1-g: Earthquake Resilient Pipelines.* Install specially engineered pipelines in areas subject to faulting, liquefaction or other earthquake hazard.
>
> ***Goal S-C: Long-term community resilience.*** *Ensure the long-term community resilience of the community by improving the resiliency to hazards, protecting the environment and planning for post-disaster recovery.*
>
> *Policy S-C-2: Strengthen Resilience of Structures.* Incorporate strengthening the resilience of structures into the ongoing development review process.
>
> *Program S-C-2-a: Use of Uniform Codes.* The City will adopt and enforce the most current uniform codes with additional local requirements as necessary tailored to Foster City.

[19] City of Foster City, 2016. Foster City Local Hazard Mitigation Plan & Safety Element. Adopted November 21.

Program S-C-2-b: Site Specific Geotechnical Analyses. The City will require site specific geotechnical and engineering reports for new structures.

(2) Municipal Code

Chapter 15.04 (Building Code) of the Foster City Municipal Code includes amendments to the 2016 CBC that may affect the proposed project. These changes are detailed under individual chapters beginning with 15.04.010 of the Foster City Municipal Code.

(3) Foster City Standard Condtions of Approval

The following SCOA related to geology and soils, which the City routinely includes as a condition of project approval, would apply to the project. The City is committed to requiring the project contractor(s) to implement these conditions and will require them as conditions to the contract approval.

SCOA 2.2. Three (3) sets of a site specific, design level, fault zone geotechnical report satisfactory to the Chief Building Official, including one electronic or pdf version, shall be submitted for review and approval to the Building Division and contain design recommendations for grading, footings, retaining walls, and provisions for anticipated differential settlement for each construction site within the project area . Specifically:

- Each investigation shall include an analysis of expected ground motions at the site identified faults. The analysis shall be in accordance with applicable City ordinances and policies, and consistent with the most recent version of the California Building Code, which requires structural design that can accommodate ground accelerations expected from identified faults. The analysis presented in the geotechnical investigation report shall provide recommendations to minimize seismic damage to structures from total and differential settlements and to protect steel and concrete (and any other material that may be placed in the subsurface) from long-term deterioration caused by contact with corrosive on-site soils. All design measures, recommendations, design criteria, and specifications set forth in the final geotechnical investigation report shall be implemented.
- The investigations shall determine final design parameters for the walls, foundations, foundation slabs, surrounding related improvements, and infrastructure (utilities, roadways, parking lots and sidewalks).
- The investigations shall be reviewed and approved by a registered geotechnical engineer. All recommendations by the project engineer, geotechnical engineer, shall be included in the final design, as approved by the City of Foster City.
- The geotechnical report shall include a map prepared by a land surveyor or civil engineer that shows all field work and location of the "No Build" zone. The map shall include a statement that the locations and limitations of the geologic features are accurate representations of said features as they exist on the ground, were placed on this map by the surveyor, the civil engineer or under their supervision, and are accurate to the best of their knowledge.
- The geotechnical report for the project shall include evaluation of fixtures, furnishings, and fasteners with the intent of minimizing collateral injuries to building occupants from falling fixtures or furnishings during the course of a violent seismic event. Recommendations that are applicable to foundation design, earthwork, and site preparation that were prepared prior to or during the projects design phase, shall be incorporated in the project.

- Final seismic considerations for the site shall be submitted to and approved by the Building Division prior to commencement of the project.
- If deemed necessary by the Chief Building Official, a peer review may be required for the geotechnical report. Personnel reviewing the geologic report shall approve the report, reject it, or withhold approval pending the submission by the applicant or subdivider of further geologic and engineering studies to more adequately define active fault traces.
- A licensed geotechnical engineer or their representatives shall be retained to provide geotechnical observation and testing during all earthwork and foundation construction activities. The geotechnical engineer shall be allowed to evaluate any conditions differing from those encountered during the geotechnical investigation and shall provide supplemental recommendations, as necessary. At the end of construction, the geotechnical engineer shall provide a letter regarding contractor compliance with project plans and specifications and with the recommendations of the final geotechnical investigation report and any supplemental recommendations issued during construction. The letter shall be submitted for review to the Building Division.
- The final geotechnical investigation report shall provide recommendations to minimize the potential damage to structures from total and differential settlement and to protect steel and concrete (and any other material that may be placed in the subsurface) from long-term deterioration caused by contact with corrosive on-site soils. All design measures, recommendations, design criteria, and specifications set forth in the final geotechnical investigation report shall be implemented.

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section analyzes the impacts related to geology and soils that would result from implementation of the proposed project. This section begins with the criteria of significance contained in Appendix G of the CEQA Guidelines that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCOAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

Implementation of the project would result in a significant geologic and seismic impacts if it would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: (1) rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; (2) strong seismic ground shaking; (3) seismic-related ground failure, including liquefaction; and (4) landslides.
2. Result in substantial soil erosion or the loss of topsoil.
3. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.

4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
5. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.
6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

In addition to the thresholds described in Appendix G of the CEQA Guidelines, the City's Environmental Review Guidelines[20] also contains a threshold of significance related to a project's potential impacts upon the Foster City levee system. This local threshold is discussed in the analysis and findings below.

b. Analysis and Findings

(1) Surface Rupture (Criterion 1.1)

Surface fault rupture occurs when the ground surface is broken due to fault movement during an earthquake. Fault rupture is generally expected to occur along known active fault traces. Areas susceptible to fault rupture are delineated by the CGS Alquist-Priolo Earthquake Fault Zones map and require specific geological investigations prior to development to reduce the threat to public health and safety and to minimize the loss of life and property posed by earthquake-induced ground failure. The project site is not located within or adjacent to an Alquist-Priolo Earthquake Fault Zone[21] or an active or potentially active fault (Figure V.F-1). Therefore, potential impacts related to surface fault rupture would be less than significant.

(2) Seismic Ground Shaking (Criterion 1.2)

The project site would be potentially subject to damage from seismic ground shaking. The Geotechnical Investigation indicated that the proposed project should be designed in accordance with the seismic design provisions presented in the 2016 California Building Code and in American Society of Civil Engineers (ASCE) Standard 7-10, Minimum Design Loads for Buildings and Other Structures*.* The proposed project would be required to conform with or exceed best standards for earthquake resistant construction in accordance with the current CBC at the time of plan review (which would be the 2019 CBC) and with the generally accepted standards of geotechnical practice for seismic design in Northern California. Compliance with the 2019 CBC

[20] City of Foster City/Estero Municipal Improvement District, 2007. Environmental Review Guidelines, October.
[21] California Geological Survey (CGS), n.d., op. cit.

and the Seismic Hazards Mapping Act would ensure that the proposed project would be designed and constructed in accordance with geotechnical recommendations to account for and withstand seismic and geologic hazards that could have adverse effects on the project, thereby minimizing exposure of people and structures to substantial risk of loss, injury, or death during a large regional earthquake. It is acknowledged that seismic hazards cannot be completely eliminated, even with site-specific geotechnical investigation/design and advanced building practices. However, the seismic design standards of the CBC are intended to prevent catastrophic building failure in the most severe earthquakes currently anticipated.

In addition, implementation of SCOA 2.2 would require a final design-level geotechnical investigation report to be prepared, which should be consistent with the most recent version of the CBC. This would require structural design to accommodate ground accelerations expected from identified faults.

Adherence to the requirements and guidelines of the current CBC and the final design-level geotechnical investigation as required by SCOA 2.2 would ensure that potential impacts related to seismic ground shaking would be less than significant.

(3) Seismic-Related Ground Failure, Including Liquefaction (Criterion 1.3)

The Geotechnical Investigation evaluated the potential for earthquake-induced liquefaction of the soils at the site. The analysis indicated that a majority of the total settlement that could occur at the ground surface as a result of liquefaction from the design-level earthquake would occur in soils located below a depth of 60 feet from the ground surface. Liquefaction-induced differential settlement of less than about 0.25-inch over a horizontal distance of about 100 feet is expected at the ground surface during the design level earthquake.

For structures supported by piles (per Geotechnical Investigation recommendations, piles are expected to extend well below the near surface liquefiable strata), the deeper saturated sands which are overlain with greater than 50 to 60 feet of overburden are not likely to be capable of liquefying due to the effective overburden pressure. Therefore, significant seismic settlement is not expected to impact pile-supported structures or impose significant down-drag loads on the piles.

For minor site improvements (i.e., surface and landscape improvements) that are not supported on piles, differential settlement may occur as a result of liquefaction caused by severe ground shaking during a major earthquake. However, because the actual loads and configuration of the surface and landscape improvements were not available when the Geotechnical Investigation was performed, the Geotechnical Investigation recommended further settlement analyses to be performed based on the actual loads, footing sizes, and sensitivity of the surface improvements to differential settlement.

Implementation of SCOA 2.2 would require a final design-level geotechnical investigation report to be prepared, which will provide recommendations to minimize seismic damage to structures from total and differential settlements.

Adherence to the requirements of the final design-level geotechnical investigation as required by SCOA 2.2 would ensure that potential impacts related to seismic-related ground failure would be less than significant.

The City's Environmental Review Guidelines state that "projects that have the potential to impact the structural integrity of the Foster City levee through construction or other secondary effects shall be considered to have the potential to cause a significant environmental impact." The Foster City levee system is located on the City's shoreline along the San Francisco Bay. The nearest portion of the levee system is approximately 3,500 feet north of the project site and ground disturbance and grading related to the project would be confined to the boundaries of the project site. Therefore, the project would have no impact upon the structural integrity of the Foster City levee.

(4) Landslides (Criterion 1.4)

The project site and surrounding areas are relatively flat and therefore no impacts related to landslides or other slope stability hazards would occur.

(5) Soil Erosion and Loss of Topsoil (Criterion 2)

Soil erosion, which is discussed in detail in *Section V.H, Hydrology and Water Quality*, could occur during project

grading and construction. As described in *Section V.H*, compliance with the State Water Resources Control Board's Construction General Permit, including preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP), would ensure that the proposed project would result in less than significant impacts related to erosion or loss of top soil during construction of the project. The Geotechnical Investigation recommended that all finished slopes and soil surfaces disturbed during construction be planted with erosion-resistant vegetation, which would reduce erosion potential during development of the project. During operation of the project, the project site would be covered with buildings, pavement surfaces, and landscaping, which would minimize post-development erosion. Therefore, the potential for the project to result in substantial erosion or loss of topsoil would be less than significant.

(6) Unstable Soil (Criterion 3)

The potential adverse impacts on the project site related to unstable soil include static and differential settlement, subsidence from dewatering, and corrosive soils.

Static and Differential Settlement

The Geotechnical Investigation indicated that static settlement at the ground surface of about 5 to 6 inches should be expected to occur within the next 15 years due to the new loading associated with the project.

The Geotechnical Investigation also indicated that differential settlement could occur 1) due to liquefaction; 2) between the surrounding areas of existing fill and the proposed buildings supported on pile installed per the Geotechnical Investigation recommendations; and 3) between adjacent piles.

The Geotechnical Investigation estimated a liquefaction-induced differential settlement of less than 0.25-inch over a horizontal distance of about 100 feet at the ground surface during the design level earthquake.

The Geotechnical Investigation does not provide an estimate of the differential settlement between the buildings and the surrounding areas of existing fill because the magnitude of structural loading on the parking deck and other surface improvements that may be sensitive to settlement are unknown.

Differential settlement between adjacent pile groups would depend on pile length, loading, and spacing. The 30-year individual pile settlement would be less than 1-inch to mobilize the allowable static capacity of the piles. The Geotechnical Investigation expected that differential settlement would be less than about 0.5- to 0.75-inch between adjacent columns. Post-construction settlement of a large group of piles under significant building loads may induce larger settlement under static conditions.

Since a majority of the structures would be supported on deep foundations extending well below the fill, the Geotechnical Investigation concluded that the likelihood of structural damage to the proposed buildings from dynamic densification is low. However, some dynamic densification could affect at-grade improvements supported on a shallow foundation system and could also affect flatwork and pavements supported on existing grades, particularly if portions of the fill consists of loose to medium dense sand or soft clays.

Due to the presence of compressible Bay Mud and anticipated high column loads of the proposed buildings, the Geotechnical Investigation recommended that the proposed hotel building and car parking deck to be supported on a driven or auger cast pile foundation system. The Geotechnical

Investigation included the following recommendations to address the static settlement and differential settlement:

- The building and car parking deck should be supported on a driven or auger cast pile foundation system. The piles will gain support in friction and will need to extend below the soft Bay Mud encountered to depths of about 57 feet and well into the stiffer underlying clays.
- The pile design will need to account for down-drag forces due to the ongoing consolidation settlement of the Bay Mud.
- If the long-term differential movement across the parking deck and surrounding grades will be similar, it may be possible to support the proposed parking deck on a shallow foundation. To help reduce differential settlement, this design may require replacing some of the existing fill with lightweight fill and use of a mat foundation for support. Once the magnitude of structural loading on the parking deck and other surface improvements that may be sensitive to settlement are known, a further determination regarding whether a shallow foundation support system is feasible shall be made.
- Support miscellaneous landscape improvements (low site retaining walls, privacy/sound walls, or other landscaping features) on conventional spread footings bearing on stiff onsite surface fill soils. The bottom of all footing excavations should be cleaned of loose material. A geotechnical representative should observe the excavations to confirm that they are founded in suitable materials and have been properly cleaned. Lateral loads will be resisted by friction between the bottom of the footings and the supporting subgrade. As an alternative, it may be possible to support flagpole type site improvements such as lighting poles, permanent fencing, and sound walls also may be supported on a drilled pier foundation bearing in stiff fill soil above the compressible Bay Mud.
- The differential settlement should be considered during the design of entrance slabs or ramps that will not be supported on deep foundations and for underground utilities that connect to the pile supported structures.
- Final grading and foundation plans shall be reviewed and the foundation design and building settlement criteria shall be finalized once building loads are available.

Subsidence

Due to the shallow groundwater present on the project site (2 to 3 feet below grade), groundwater dewatering would likely be required to maintain dry workable conditions for any substantial excavations. The Geotechnical Investigation included the following recommendations to address subsidence from dewatering:

- Make provisions for dewatering and maintaining sidewall stability during placement and compaction of pipe bedding and backfill.
- Excavations that extend below groundwater will require flatter inclinations or temporary shoring.
- A preconstruction survey should be performed to document existing conditions prior to construction, with intermittent monitoring of the structures during construction.

Implementation of SCOA 2.2 would require a final design-level geotechnical investigation report to be prepared, which shall provide recommendations to minimize the potential for damage to off-site structures from total and differential settlement. All recommendations by the project engineer and the geotechnical engineer shall be included in the final design, which will also involve recommendations to address potential subsidence.

Adherence to the requirements of the final design-level geotechnical investigation as required by SCOA 2.2 would ensure that potential impacts related to unstable soils would be less than significant.

(7) Expansive Soils (Criterion 4)

The Geotechnical Investigation indicated that the surface and near surface fill soil at the project site have a low potential for expansion. However, the Geotechnical Investigation still recommended that the upper 6 inches of the surface soil be scarified, moisture conditioned, and compacted at a moisture content above the laboratory optimum. Fill materials placed at the project site during construction would be required to meet geotechnical recommendations for fill, which would ensure that fill materials would not be expansive. Specifically, non-expansive fill should consist of imported soil with a Plasticity Index no greater than 15, preferably Class 2 aggregate base. Exterior flatwork should be underlain by a layer of such non-expansive fill per Geotechnical Investigation recommendations. Therefore, potential impacts of the proposed project related to expansive soils would be less than significant.

(8) Soils Incapable of Supporting Wastewater Disposal Systems (Criterion 5)

The project would not involve the use of septic tanks or alternative waste water disposal systems, therefore no impact would occur.

(9) Paleontoligical Resources (Criterion 6)

The project would involve excavation to depths that extend below the Young Bay Mud (which extends to depths of about 57 feet below the ground surface) and into the stiffer underlying clays.

The artificial fill and Young Bay Mud units underneath the project site are not considered paleontologically sensitive. The age and sensitivity of the stiffer underlying clays are not known for certain. However, in much of the Bay Area, Young Bay Mud is underlain by Pleistocene alluvium and/or older Bay Mud[22] and may contain fossils. The results of a search of identified Pleistocene age paleontological localities collections database maintained by the University of California Museum of Paleontology identified fossil plants, vertebrates, and invertebrates with locality names that are not in the vicinity of the project site. However, the results also identified some invertebrates and microfossils that do not have a specified locality name and therefore, could be located in the project vicinity.[23] Therefore, the stiffer underlying clays could be paleontologically sensitive. However, the project would not involve substantial excavation that would disturb the stiffer underlying clays (i.e., only driven or drilled pile tips would extend into this unit). Since the dominant geologic units at the project site that would be disturbed by construction (artificial fill and Young Bay Mud) are not considered paleontologically sensitive, the potential impacts on paleontological resources would be less than significant.

c. Cumulative Geology and Soils Impacts

This section evaluates cumulative impacts on geology and soils. Cumulative geology and soils impacts are analyzed for the project site and its immediate vicinity. Impacts related to geologic hazards are generally site-specific rather than cumulative in nature, because each project area has unique geologic considerations that would be subject to uniform site development and construction standards. Therefore, the potential for impacts is limited to the project site and adjacent sites. Impacts associated with potential geologic hazards related to soil or other conditions occur at individual building sites. These effects are site-specific and impacts would not be compounded by additional development. Therefore, the project would not make a considerable contribution to a cumulative impact relating to geology and soils.

[22] Helley, E.J. and LaJoie, K.R., 1979. Flatland deposits of the San Francisco Bay Region, California-their geology and engineering properties, and their importance to comprehensive planning., USGS Professional Paper 943.
[23] University of California Museum of Paleontology, 2019b. Collections Database, Locality Search. Available at https://ucmpdb.berkeley.edu/loc.html, accessed September 11.

G. HAZARDS AND HAZARDOUS MATERIALS

This section describes the environmental setting with regards to hazards and hazardous materials[1] at the project site; discusses the relevant federal, State, and regional regulatory considerations; evaluates the potential impacts of the project related to hazards and hazardous materials (during both the construction phase and following project completion); describes required Standard Conditions of Approval (SCOAs), and provides SCOAs and/or mitigation measures, where appropriate, to address the identified significant impacts. The evaluation in this section is based on a review of available information included with the project application and other published materials.

1. Setting

This section describes the historic and existing conditions related to hazards and hazardous materials at the project site.

a. Historical and Current Land Uses

Aerial photographs from 1943 and 1956 indicate that the project site was undeveloped and was surrounded by undeveloped areas and wetlands. A 1965 aerial photograph indicates that the project site and surrounding vicinity had been reclaimed through placement of artificial fill materials in the Bay and wetlands. A 1982 aerial photograph indicates that the project site was still undeveloped. A 1993 aerial photograph shows a building adjacent to the project site and that the project site was developed as a parking lot. The project site has been covered with turf grass since December 2003.[2]

b. Subsurface Conditions

No information about the source and quality of the artificial fill underlying the site is available. However, fill materials in the vicinity of the project site have been found to be contaminated with

[1] The California Health and Safety Code defines a hazardous material as, "...any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety, or to the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, radioactive materials, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment" (California Health and Safety Code Section 25501).

[2] Engeo Incorporated, 2008a. Phase One Environmental Site Assessment, Village Square Development, Foster City, California, Draft Report, March 31.

asphaltic materials, phenol, and polynuclear aromatic hydrocarbons.[3,4] Based on this information, fill materials underlying the project site may be impacted with hazardous materials.

c. Regulatory Agency Database Review

Based on review of the GeoTracker[5] and Envirostor[6] databases, there are no sites with known hazardous materials releases at or adjacent to the project site.

2. Regulatory Setting

The following subsections provides the federal, State, regional, and local regulatory framework for hazardous materials and worker health and safety requirements.

a. Federal Agencies and Regulations

(1) Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials and hazardous waste. The federal regulations are primarily codified in Title 40 of the Code of Federal Regulations (CFR). The legislation includes the Resource Conservation and Recovery Act (RCRA) of 1976; the Toxic Substances Control Act of 1976 (TSCA); the Comprehensive Environmental Response, Compensation, and Liability Act of 1980; and the Superfund Amendments and Reauthorization Acts of 1986.. The U.S. EPA provides oversight for site investigation and remediation projects, and has developed protocols for sampling, testing, and evaluation of solid wastes.

(2) Occupational Safety and Health Administration

Worker health and safety is regulated at the federal level by the Occupational Safety and Health Administration (OSHA). The Federal Occupational Safety and Health Act of 1970 authorizes states to establish their own safety and health programs with OSHA approval. Workers at hazardous waste sites (or workers who may be exposed to hazardous wastes that might be

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[3] EnviroMatrix, 1996. Preliminary Subsurface Assessment, Building 500 – Stock Room No. 7, July 15.

[4] Engeo Incorporated, 2008b. Phase Two Environmental Site Assessment, Village Square Development, Foster City, California, October 9.

[5] State Water Board, 2019. Geotracker Map of Foster City, Available at: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=foster+city, accessed August 12.

[6] Department of Toxic Substances Control (DTSC), 2019. Envirostor Map of Foster City. Available at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=FOSTER+CITY, accessed August 12.

encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations. Additional regulations have been developed for construction workers potentially exposed to lead and asbestos.

(3) Department of Transportation

In 1990 and 1994, the federal Hazardous Material Transportation Act was amended to improve the protection of life, property, and the environment from the inherent risks of transporting hazardous materials in all major modes of commerce. The United States Department of Transportation (DOT) developed hazardous materials regulations, which govern the classification, packaging, communication, transportation, and handling of hazardous materials, as well as employee training and incident reporting. The transportation of hazardous materials is subject to both RCRA and DOT regulations. The California Highway Patrol (CHP), California Department of Transportation (Caltrans), and the Department of Toxic Substances Control (DTSC) are responsible for enforcing federal and State regulations pertaining to the transportation of hazardous materials.

b. State Agencies and Regulations

(1) Department of Toxic Substances Control

In California, the DTSC is authorized by the EPA to enforce and implement federal hazardous materials laws and regulations. State of California regulations pertaining to hazardous materials are as stringent as, or more stringent than, the federal requirements. Most state hazardous materials regulations are contained in Title 22 of the California Code of Regulations (CCR). The DTSC generally acts as the lead agency for soil and groundwater cleanup projects that have the potential to affect public health and establishes cleanup levels for subsurface contamination that are equal to, or more restrictive than, federal levels. The DTSC has also developed land disposal restrictions and treatment standards for hazardous wastes in California.

(2) State Water Resources Control Board

The State Water Resources Control Board (State Water Board) enforces regulations on how to implement UST programs. It also allocates monies to eligible parties that request reimbursement of funds to clean up soil and groundwater pollution from UST leaks. The State Water Board also enforces the Porter-Cologne Water Quality Act—which regulates point and non-point sources of surface and groundwater pollution— through its nine regional boards, including the San Francisco Bay Regional Water Board (Regional Water Board), described below.

(3) California Air Resources Board

The California Air Resources Board (CARB) is responsible for coordination and oversight of State and local air pollution control programs in California, including implementation of the California Clean Air Act of 1988. The CARB developed State air quality standards and is responsible for monitoring air quality in conjunction with the local air districts.

c. Regional and Local Agencies, Regulations, and Policies

(1) San Francisco Bay Regional Water Quality Control Board

The Regional Water Board provides for protection of State waters in accordance with the Porter-Cologne Water Quality Act of 1969. The Regional Water Board can act as lead agency to provide oversight of sites where the quality of groundwater or surface waters is threatened and has the authority to require investigations and remedial actions. The Regional Water Board also developed Environmental Screening Levels (ESLs)[7] for residential and non-residential land uses to help expedite the preparation of environmental risk assessments at sites where contaminated soil and groundwater have been identified.

(2) Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) has primary responsibility for control of air pollution from sources other than motor vehicles and consumer products (which are the responsibility of the EPA and the CARB). The BAAQMD is responsible for preparing attainment plans for nonattainment criteria pollutants, control of stationary air pollutant sources, and issuance of permits for activities that include asbestos demolition and renovation activities (District Regulation 11, Rule 2).

(3) San Mateo County Environmental Health Division

The San Mateo County Environmental Health Division (SMCEHD) is the primary agency responsible for local enforcement of State and federal laws pertaining to hazardous materials management, including in Foster City. SMCEHD is a Certified Unified Program Agency; it is responsible for the Hazardous Materials Business Plan Program; the Hazardous Waste Generator Program; Tiered Permitting Program; Underground Storage Tank Program; California Accidental Release Prevention Program; Aboveground Petroleum Storage Tank Program; and Electronic Reporting.[8]

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[7] San Francisco Bay Regional Water Board, 2019. Environmental Screening Levels, January 24.
[8] San Mateo County, 2019. Certified Unified Program Agency. Available at: https://www.smchealth.org/hazardous-materials-cupa, accessed August 12.

(4) Foster City General Plan

The Safety Element of the Foster City General Plan[9] contains the following safety goals, policies, and programs related to hazardous materials, fire, and emergency preparedness.

Goal S-B: Emergency Response. *Maintain an effective emergency response program that anticipates the potential for disasters and ensures the ability to respond promptly, efficiently and effectively, to provide continuity of services during and after an emergency.*

Policy S-B-1: Emergency Response. The City will prepare to respond to emergencies through the City's Emergency Operations Plan, training, and other measures.

Program S-B-1-a: Emergency Response. The City will prepare to respond to emergencies through use of established procedures, programs of on-going training, periodic exercises of the City's Emergency Operations Plan, and mutual aid agreements.

Program S-B-1-b: Emergency Plan. The City will maintain the City's Emergency Operations Plan indicating responsibilities and procedures for responding to an emergency.

Policy S-B-2: Emergency Preparedness. The City will plan for and provide facilities and materials anticipated to be needed to respond to emergencies.

Goal S-C: Emergency Response. *Long-term community resilience. Ensure the long-term community resilience of the community by improving the resiliency to hazards, protecting the environment and planning for post-disaster recovery.*

Policy S-C-4: Minimize Loss of Life, Injuries, and Property Damage Due to Fires. The City will minimize loss of life, injuries, and property damage due to fires through review of development proposals, public education, and maintenance of well-trained fire suppression personnel.

Program S-C-4-a: Development Review for Fire Safety. The City will review proposals for new and modified buildings to ensure that fire safety provisions are included as required by the most current uniform codes and local regulations.

Program S-C-4-c: Fire Sprinklers. Require fire sprinklers in all new or substantially remodeled housing, regardless of distance from a fire station.

Policy S-C-5: Hazardous Materials. The City will protect the community from unreasonable risks associated with hazardous materials.

Program S-C-5-a: Hazardous Materials. The City will continue to enforce applicable codes related to hazardous materials.

[9] City of Foster City, 2016. Foster City Local Hazard Mitigation Plan & Safety Element. Adopted November 21.

(5) Emergency Evacuation Plans

According to the Safety Element of the Foster City General Plan, evacuation routes can include a roadway, waterway, or trail that will allow the orderly removal of people and possessions from an area endangered due to floods, hazardous materials, spills, or other emergency. However, evacuation by water is not likely to be useful in Foster City. The use of any particular evacuation route would depend on the type and location of a specific emergency, which, if any, routes had sustained damage, and many other factors. Selection of evacuation routes in an emergency would be under the purview of law enforcement and/or the City's Emergency Services Director, usually the City Manager.

(6) Foster City Standard Conditions of Approval

The following SCOAs related to hazards and hazardous materials, which the City routinely includes as conditions of project approval, would apply to the project. The City is committed to requiring the project contractor(s) to implement these conditions and will require them as conditions to the contract approval.

SCOA 1.22. The applicant shall prepare a project-specific Construction Risk Management Plan (CRMP) to protect construction workers, the general public, and the environment from subsurface hazardous materials previously identified and to address the possibility of encountering unknown contamination or hazards in the subsurface. The CRMP shall:

1. Provide procedures for evaluating, handling, storing, testing and disposing of soil and groundwater during project excavation and dewatering activities, respectively;
2. Require the preparation of a project specific Health and Safety Plan that identifies hazardous materials present, describes required health and safety provisions and training for all workers potentially exposed to hazardous materials in accordance with state and federal worker safety regulations, and designates the personnel responsible for Health and Safety Plan implementation;
3. Require the preparation of a contingency plan that shall be applied should previously unknown hazardous materials be encountered during construction activities. The contingency plan shall be developed by the contractor(s), with the approval of the City and/or appropriate regulatory agency, prior to demolition or issuance of the first building permit. The contingency plan shall include provisions that require collection of soil and/or groundwater samples in the newly discovered affected area by a qualified environmental professional prior to further work, as appropriate. The samples shall be submitted for laboratory analysis by a state-certified laboratory under chain-of-custody procedures. The analytical methods shall be selected by the environmental professional. The analytical results of the sampling shall be reviewed by the qualified environmental professional and submitted to the appropriate regulatory agency, if appropriate. The environmental professional shall provide recommendations, as applicable, regarding soil/waste management, worker health and safety training, and regulatory agency notifications, in accordance with local, state, and federal requirements. Work shall not resume in the area(s) affected until these recommendations have been implemented under the oversight of the City of regulatory agency, as appropriate; and
4. Designate personnel responsible for implementation of the CRMP. The CRMP shall be submitted to the Fire Department for review and approval prior to construction activities.

SCOA 1.23. The contractor(s) shall designate storage areas suitable for material delivery, storage, and waste collection. These locations must be as far away from catch basins, gutters, drainage courses, and water bodies as possible. All hazardous materials and wastes used or generated during project site development activities shall be labeled and stored in accordance with applicable local, state, and federal regulations. In addition, an accurate up-to-date inventory, including Material Safety Data Sheets, shall be maintained on-site to assist emergency response personnel in the event of a hazardous materials incident.

All maintenance and fueling of vehicles and equipment shall be performed in a designated, bermed area, or over a drip pan that will not allow run-off of spills. Vehicles and equipment shall be regularly checked and have leaks repaired promptly at an off-site location. Secondary containment shall be used to catch leaks or spills any time that vehicle or equipment fluids are dispensed, changed, or poured.

SCOA 1.24. Emergency Preparedness and Response Procedures shall be developed by the contractor(s) for emergency notification in the event of an accidental spill or other hazardous materials emergency during project site preparation and development activities. These Procedures shall include evacuation procedures, spill containment procedures, required personal protective equipment, as appropriate, in responding to the emergency. The contractor(s) shall submit these procedures to the City prior to demolition or development activities.

SCOA 9.22. If the presence of hazardous materials is found on site, site remediation may be required by the applicable state or local regulatory agencies. Specific remedies would depend on the extent and magnitude of contamination and requirements of the regulatory agency(ies). Under the direction of the regulatory agency(ies) and the City, a Site Remediation Plan shall be prepared, as required, by the applicant. The Plan shall: 1) specify measures to be taken to protect workers and the public from exposure to the potential hazards and, 2) certify that the proposed remediation would protect the public health in accordance with local, state, and federal requirements, considering the land use proposed. Excavation and earthworking activities associated with the proposed project shall not proceed until the Site Remediation Plan has been reviewed and approved by the regulatory oversight agency and is on file with the City.

SCOA 9.23. Engineering fill brought on-site shall be demonstrated, by analytical testing, not to pose an unacceptable risk to human health or the environment. Threshold criteria for acceptance of engineered fill shall be selected based on screening levels and protocols developed by regulatory agencies for protection of human health and leaching to groundwater (e.g., Water Board ESLs). The engineered fill shall be characterized by representative sampling in accordance with U.S. EPA's SW-846 Test Methods, by a qualified environmental professional and demonstrated to meet the threshold criteria above. The results of the sampling and waste characterization shall be submitted by the contractor(s) to the City and SMCEHD prior to construction.

SCOA 9.24. The contractor shall prepare a Waste Disposal and Hazardous Materials Transportation Plan prior to construction activities where hazardous materials or materials requiring off-site disposal would be generated. The Plan shall include a description of analytical methods for characterizing wastes, handling methods required to minimize the potential for exposure, and shall establish procedures for the safe storage of contaminated materials, stockpiling of soils, and storage of dewatered groundwater. The required disposal method for contaminated materials (including any lead-based paint, asbestos, or other hazardous building materials requiring disposal, see SCOA 9.25, below), the approved disposal site, and specific routes used for transport of wastes to and from the project site shall be indicated. The Plan shall be prepared prior to demolition or development activities and submitted to the City. The Waste Disposal and

Hazardous Materials Transportation Plan may be prepared as an addendum to the Waste Management Plan required by Chapter 15.44 (Ordinance 523) of the Foster City Municipal Code.

SCOA 9.25. Hazardous materials and wastes generated during demolition activities, such as fluorescent light tubes, mercury switches, lead based paint, asbestos containing materials, and PCB wastes, and subsurface hazardous building materials generated during grading and trenching activities, such as asbestos-cement piping, shall be managed and disposed of in accordance with the applicable universal waste and hazardous waste regulations. Federal and state construction worker health and safety regulations shall apply to the removal of hazardous building materials and demolition activities, and any required worker health and safety procedures shall be incorporated into the contractor's specifications for the project. The disposition of hazardous building material wastes shall also be considered in the preparation of the Waste Management Plan required pursuant to the City's Ordinance 523. Documentation of the surveys and abatement activities shall be provided to the City prior to the demolition of structures located at the project site.

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section describes the impacts related to hazardous materials that could result from implementation of the project. The first part of this section outlines the criteria of significance contained in Appendix G of the CEQA Guidelines, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies Standard Conditions of Approval (SCOAs) and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

Implementation of the project would result in a significant hazard and hazardous materials impact on the environment if it would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school
4. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area

6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

In addition to the thresholds described in Appendix G of the CEQA Guidelines, the City's Environmental Review Guidelines[10] also contains a threshold of significance related to a project's potential impacts related to the usage, placement, storage, or transport of hazardous materials. The City's threshold is functionally equivalent to criteria (1) and (2) above and is addressed in the analysis and findings for those two criteria.

b. Analysis and Findings

(1) Routine Transport, Use, and Disposal of Hazardous Matterials

Operation of the project would result in less-than-significant impacts related to the routine transport, use, or disposal of hazardous materials, as the proposed hotel would involve only small quantities of commercially available hazardous materials for routine maintenance (e.g., paint and cleaning supplies).

During project construction, hazardous materials (e.g., fuel, oils, solvents, paints) would be routinely transported, stored, and used at the project site. Use of hazardous materials during construction may pose health and safety hazards to construction workers if the materials are improperly handled.

The routine handling and use of hazardous materials by construction workers would be performed in accordance with OSHA regulations, which include training requirements for construction workers and a requirement that hazardous materials are accompanied by manufacturer's Safety Data Sheets (SDSs). Cal/OSHA regulations include requirements for protective clothing, training, and limits on exposure to hazardous materials. Compliance with these existing regulations would ensure that construction workers are protected from exposure to hazardous materials that may be used on site.

Because the project would result in disturbance of soil on more than 1 acre of land, management of soil and hazardous materials during construction activities would be subject to the requirements of the Stormwater Construction General Permit (described in detail under *Section V.H, Hydrology and Water Quality*), which requires preparation and implementation of a

[10] City of Foster City/Estero Municipal Improvement District, 2007. Environmental Review Guidelines, October.

Stormwater Pollution Prevention Plan (SWPPP) that includes hazardous materials storage requirements. For example, construction site operators must store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).

Construction of the project would result in the generation of various waste materials that would require recycling and/or disposal, including some waste materials that may be classified as hazardous waste. Hazardous materials would be transported by a licensed hazardous waste hauler and disposed of at facilities that are permitted to accept such materials as required by the DOT, RCRA, and State regulations.

In addition to the regulations discussed above, SCOA 1.23 requires appropriate storage, handling, and disposal procedures for hazardous materials. SCOA 1.23, detailed in full above, requires the contractor(s) to designate storage areas suitable for material delivery, storage, and waste collection; all hazardous materials and wastes used or generated during project site development activities to be labeled and stored in accordance with applicable local, State, and federal regulations; and an accurate up-to-date inventory of hazardous materials, including SDSs, to be maintained on site to assist emergency response personnel in the event of a hazardous materials incident.

Compliance with existing regulations and SCOA 1.23, described above, would ensure that potential impacts from the routine transport, use, or disposal of hazardous materials during construction of the project would be less than significant. This finding also applies to significance thresholds defined in the City's Environmental Review Guidelines related to the project's potential impacts upon the health and safety of workers at and near the project site and nearby residents.

(2) Accidental Release of Hazardous Materials

An accidental release of hazardous materials (e.g., oils, fuels, solvents, and paints) during project construction could result in exposure of construction workers, the public, and/or the environment to hazardous materials.

As discussed under "Routine Transport, Use, and Disposal of Hazardous Materials" above, the transportation of hazardous materials is subject to both RCRA and DOT regulations. If a discharge or spill of hazardous materials occurs during transportation, the transporter is required to take appropriate immediate action to protect human health and the environment (e.g., notify local authorities and contain the spill), and is responsible for the discharge cleanup.

In addition, construction of the project would be subject to the requirements of the Construction General Permit, which require preparation and implementation of a SWPPP and best management practices (BMPs) to reduce the risk of spills or leaks from reaching the public or receiving waters, including procedures to address minor spills of hazardous materials. Measures to control spills, leakage, and dumping must be addressed through structural as well as nonstructural BMPs, as required by the Construction General Permit. For example, equipment and materials for cleanup of spills must be available on-site, and spills and leaks must be cleaned up immediately and disposed of properly. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Based on the historical land uses of the project site and the review of the GeoTracker and Envirostor databases, there are no recognized environmental conditions[11] at the project site relative to historic hazardous materials handling and/or releases. However, as discussed under the Setting section, fill materials impacted with hazardous materials could be present within the project site. Disturbance and reuse of soil potentially impacted with hazardous materials during construction could result in exposure of construction workers, the public, and/or the environment to hazardous materials. As required by SCOA 9.23, sampling and characterization of soil underneath the project site shall be performed by a qualified environmental professional and demonstrated to not pose an unacceptable risk to human health or the environment. The results of the sampling and waste characterization shall be submitted by the contractor(s) to the City and SMCEHD prior to construction.

In addition to compliance with the regulations and SCOA 9.23, discussed above, implementation of the following SCOAs would ensure that potential impacts from an accidental release of hazardous materials, including the potential impacts to those traveling along nearby public roads described in the City's Environmental Review Guidelines, would be less than significant.

SCOA 1.22. A CRMP shall be prepared to protect construction workers, the general public, and the environment from subsurface hazardous materials previously identified in addition to unknown contamination or hazards in the subsurface.

SCOA 1.23. The contractor(s) shall designate storage areas suitable for material delivery, storage, and waste collection.

SCOA 1.24. Emergency Preparedness and Response Procedures shall be developed by the contractor(s) for emergency notification in the event of an accidental spill or other hazardous materials emergency during project site preparation and development activities.

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[11] The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

SCOA 9.22. A Site Remediation Plan would be developed if necessary based on the presence of hazardous materials at the project site.

SCOA 9.24. The contractor shall prepare a Waste Disposal and Hazardous Materials Transportation Plan prior to construction activities.

SCOA 9.25. Hazardous materials and wastes generated during demolition, grading, and trenching activities, shall be removed, managed, and disposed of in accordance with applicable regulations.

(3) Hazardous Emissions near Schools

There are two schools located within 0.25-mile of the project site. Foster City KinderCare, a commercial daycare facility and preschool, is located at 1006 Metro Center Boulevard, approximately 600 feet east of the project site. Futures Academy is located at 1840 Gateway Drive, Suite 100, approximately 0.25-mile west of the project site. No other schools were identified within 0.25-mile of the project site. The project would not involve the handling of acutely hazardous materials. Compliance with existing regulations and SCOAs described under "Routine Transport, Use, and Disposal of Hazardous Materials" and "Accidental Release of Hazardous Materials" would prevent hazardous emissions during the construction of the project, and would thereby prevent a significant risk of sensitive receptor exposure to hazardous materials, substances, or waste. Therefore, the risks associated with emissions of hazardous materials within 0.25-mile of a school would be considered less than significant.

(4) Hazardous Materials Sites (Government Code Section 65962.5)

The project site is not included on any of the lists of hazardous materials release sites compiled pursuant to Government Code Section 65962.5, also known as the "Cortese List".[12] Therefore, the project would have no impact related to inclusion on a list of hazardous materials release sites compiled pursuant to Government Code Section 65962.5.

(5) Aviation Hazards

The project site is located approximately 3.3 miles north of the San Carlos Airport and approximately 6.7 miles southeast of the San Francisco International Airport (SFO).[13] The project site is located within Area A of the Airport Influence Area (AIA) Boundary of the San Carlos airport, where requirements for real estate disclosure are mandatory due to potential noise

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[12] California Environmental Protection Agency (CalEPA), 2019. Cortese List data Resources. Available at: https://calepa.ca.gov/sitecleanup/corteselist/, accessed August 13.

[13] Federal Aviation Administration (FAA), 2019. Airport Data and Contact Information. Effective July 18, 2019. Database searched for both public-use and private-use facilities in San Mateo County. Available at: http://www.faa.gov/airports/airport_safety/airportdata_5010/, accessed August 13, 2019.

issues. Formal review of projects for potential obstruction issues is limited to Area B of the AIA, within a 9,000-foot radius of San Carlos Airport.[14] Because the project is not located within AIA B of the San Carlos Airport, the project is not required to be reviewed for potential obstruction issues.

The project site is located within Area B of the AIA Boundary of SFO, where the land development proposals shall be reviewed by the Airport Land Use Commission.[15] This would ensure the project would not include any land uses that would cause a hazard to air navigation within the vicinity of SFO.[16] In addition, the building heights for the project (approximately 76 to 87 feet) are well below the maximum height of 210 feet at which structures can be considered compatible with operations of the SFO,[17] and therefore, the project would not be expected to interfere with aircraft, and would not pose a hazard to persons occupying structures. Therefore, potential aviation hazards for the project would be less than significant.

(6) Emergency Evacuation and Response

Construction of the project could require temporary closure of portions of streets adjacent to the project site. Traffic control requirements imposed by the City for the permitting of temporary closure of street areas would ensure that appropriate emergency access is maintained at all times during construction activities. The project would not permanently alter roadways in the vicinity of the project site. Therefore, the project would have a less-than-significant impact related to impeding or interfering with emergency response or evacuation plans.

(7) Wildfires

The project site is within a highly urbanized area and is not located near heavily vegetated areas or wildlands that could be susceptible to wildfire. The project site is located in a Local Responsibility Area and is not regarded as a Very High Fire Hazard Severity Zone as mapped by

[14] ESA, 2015. Final Comprehensive Airport Land Use Compatibility Plan for the Environs of San Carlos Airport, October. Available at: http://ccag.ca.gov/plansreportslibrary/airport-land-use/, accessed August 13, 2019.

[15] City/County Association of Governments of San Mateo County, 2012. Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport, November. Available at: http://ccag.ca.gov/plansreportslibrary/airport-land-use/, accessed August 13, 2019.

[16] Land uses that could cause a hazard to air navigation within SFO AIA B include: 1) sources of glare; 2) distracting lights that could be mistaken for airport identification lighting; 3) sources of dust, smoke, or water vapor; 4) sources of electrical interference; 5) sources of significant thermal plumes; and 6) any land use that would attract large concentrations of wildlife, particularly flocks of birds.

[17] City/County Association of Governments of San Mateo County, 2012, op. cit.

the California Department of Forestry and Fire Protection.[18] Therefore, the project would have a less-than-significant impact related to wildland fire hazards.

c. Cumulative Hazards and Hazardous Materials Impacts

For hazards and hazardous materials, the cumulative impact area considered is the project site and nearby vicinity. Impacts related to spills or releases of hazardous materials tend to occur during construction (when larger amounts of fuels and other chemicals are being handled) and are generally site-specific and/or have limited mobility, and therefore cumulatively considerable effects beyond the project site vicinity generally do not occur.

There are a total of eight cumulative projects that were considered in the evaluation of potential cumulative hazards and hazardous materials impact:

1. Lincoln Centre Life Sciences Research Campus
2. Gilead Integrated Corporate Master Plan
3. Pilgrim Triton Master Plan
4. Foster Square
5. Tidelands
6. Town Place Suites
7. Chess/Hatch Drive Offices
8. 1297 Chess Drive

Three of these cumulative projects are within about 0.25-mile of the project site and include 1) the 1297 Chess Drive project; 2) the Town Place Suites project; and 3) the Foster Square project. The construction of the 1297 Chess Drive project and Town Place Suites project is already complete and therefore, there would be no overlap of construction schedules that could result in cumulative impacts related to simultaneous releases of hazardous materials. The Foster Square project is estimated to complete construction by June 2020.[19] The earliest possible construction start date for the project is June 2020 and thus the project and the Foster Square project could be undergoing construction simultaneously, albeit for less than a month. Therefore, the Foster Square Project could contribute to a cumulative impact related to hazardous materials releases. However, both the project and the Foster Square project would be required to comply with existing hazardous materials regulations described in the Regulatory Setting section of this subchapter and the City's SCOAs to reduce the risk of these impacts. Therefore, the potential for

[18] Cal FIRE, 2008. San Mateo County Very High Fire Hazard Severity Zones in LRA as recommended by Cal FIRE, November 24.

[19] Brown, Suki, New Home Consultant, Foster Square Project, Lennar Homes, 2020. Personal communication with Urban Planning Partners, Inc., February 10.

impacts associated with improper handling of hazardous materials during routine transport, use, and disposal and accidents involving hazardous materials releases from the project to combine with impacts from the Foster Square project would not be cumulatively considerable.

The other five cumulative projects are all over 0.25-mile from the project site and the nearby schools (i.e., Futures Academy and the Foster City KinderCare). Due to the distances of these other five projects from the project site and nearby schools, occurrence of a cumulative effect associated with these sites would not occur.

H. HYDROLOGY AND WATER QUALITY

This section describes the existing hydrological setting at the project site, including runoff, drainage, and water quality characteristics; summarizes the federal, State, and local regulations related to hydrology and water quality; assesses the potentially significant impacts that could result from implementation of the project; describes required Standard Conditions of Approval (SCOAs), and provides SCOAs and/or mitigation measures, where appropriate, to reduce the identified impacts to a less-than-significant level.

The evaluation in this section is based on a review of information provided as part of the project application, as well as other published materials.

1. Setting

The following describes the existing hydrological setting at the project site and vicinity.

a. Climate

The climate of the project vicinity is characterized as Mediterranean, with cool wet winters and warm dry summers. The average annual high temperature between 1906 and 2012 was approximately 71 degrees Fahrenheit (ºF), and the average annual low temperature was approximately 47ºF.[1] The mean annual rainfall in the project site vicinity for the period between 1906 and 2012 was approximately 19 inches, and primarily occurred from November through April.[2] During the period of record, annual rainfall has varied from approximately 8 inches (1976) to approximately 43 inches (1983), with a highest one-day precipitation total of approximately 4.9 inches on October 13, 1962.[3]

b. Runoff and Drainage

The project site is relatively flat with the existing ground surface elevation of approximately 5 to 7 feet above the North American Vertical Datum of 1988 (NAVD88). The project site is located within the Seal Slough Watershed. Stormwater from the project site either infiltrates through the surface soils of the project site, or runs off into adjacent streets where it drains through the City's

[1] Western Regional Climate Center, 2019a. General Climate Summary Tables-Temperature, Redwood City, California. Available at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7339, accessed August 16.

[2] Ibid.

[3] Ibid.

storm drain systems into the Foster City Lagoon.[4] Stormwater that enters Foster City Lagoon flows by gravity to, or is pumped into, the Bay.[5]

c. Flooding

The project site is designated as "Area with Reduced Flood Risk due to Levee" Zone X on Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency (FEMA).[6] However, FEMA has found that 85 percent of the Foster City's levee system does not meet FEMA requirements to provide the protection from the 1-percent annual chance (aka 100-year) flood.[7] FEMA granted Foster City a temporary "seclusion mapping" designation in 2015 to remain classified as Zone X. To address the deficiencies of the levee, Foster City has embarked on the Foster City Levee Protection Improvements Project (Foster City Levee Project) to provide flood protection and retain FEMA accreditation for its existing levee system. The Foster City Levee Project has gone through CEQA review and the EIR was certified in May 2017. The Foster City Levee Project also has a funding source from the successful ballot initiative that passed in June 2018. According to the most recent schedule that was updated March 2019, construction of the Foster City Levee Project is anticipated to begin in 2020 and be completed in 2022. As of January 2020, the Foster City Levee Project had secured four necessary major permits from the U.S. Army Corp of Engineers, the State Lands Commission, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board), and the San Francisco Bay Conservation and Development Commission (BCDC). Once the Foster City Levee Project is completed, the levee is anticipated to provide the City protection from the 100-year flood.

In summary, the project site is not currently located within a FEMA-designated 100-year flood hazard zone but could be susceptible to inundation during a 100-year (or greater) storm due to the current levee deficiencies.

The Lower Crystal Springs Dam (LCSD) is located approximately 5.3 miles west of the project site. Foster City is located within the catastrophic dam failure inundation area of the LCSD.[8]

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[4] Oakland Museum of California, undated. Seal Slough Watershed. Available at: http://explore.museumca.org/creeks/1510-RescSeal.html, accessed August 16.

[5] City of Foster City, 2016. Foster City Local Hazard Mitigation Plan & Safety Element. Adopted November 21.

[6] Federal Emergency Management Agency (FEMA), 2019. Flood Insurance Rate Map (FIRM), San Mateo County, California and Incorporated Areas, Map Number 06081C0167G, revised April 5.

[7] City of Foster City, 2019a. Public Works, Levee System. Available at: https://www.fostercity.org/publicworks/page/levee-system, accessed August 20.

[8] City of Foster City, 2016, op. cit.

d. Coastal Hazards

A detailed description of coastal hazards, including sea level rise, seiche, tsunami, and extreme high tides is provided below.

(1) Sea Level Rise

According to the BCDC, sea level (including in the Bay) is rising and expected to continue to rise even with existing efforts to mitigate global warming through reduction of greenhouse gas emissions.[9] Rates of sea level rise may vary at specific locations, as local subsidence or uplift affects the relative change in sea level between land masses and the ocean. In the San Francisco Bay Area (Bay Area), the background rate of sea level rise is estimated at approximately 0.076 inches per year for the period of 1900 to 2008.[10] According to the Foster City Levee Protection Improvements Project, the current recommended sea level rise planning scenarios for Foster City in the year 2050 and 2100 are 1.25 and 3.83 feet, respectively. The Foster City Levee Project studied two scenarios: improving the levee to meet current FEMA requirements and address sea level rise for the year 2050, and FEMA requirements with sea level rise for the year 2100. Meeting the FEMA requirements would include additional "freeboard" which is the additional levee height above the 100-year flood elevation required to protect against flooding associated with wave action and the hydrological effect of urbanization of the watershed. With the implementation of the Foster City Levee Project, the levee would meet FEMA freeboard requirements and protect land within the City's jurisdictional boundaries, including the project site, against predicted future sea level rise.[11]

(2) Seiche

A seiche is the oscillation of a body of water. Seiches occur most frequently in enclosed or semi-enclosed basins such as lakes, bays, and harbors. These oscillations can be triggered in an otherwise still body of water by strong winds, changes in atmospheric pressure, earthquakes, tsunami, or tides. Triggering forces that set off a seiche are most effective if they operate at specific frequencies relative to the size of an enclosed basin. Coastal measurements of sea level often show seiches with amplitudes of a few centimeters and periods of a few minutes due to

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[9] San Francisco Bay Conservation and Development Commission (BCDC), 2011. Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline. Approved October 6.

[10] National Research Council of the National Academies, 2012. Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future, Chapter 4.

[11] Urban Planning Partners, Inc., 2016. Foster City Levee Protection Planning and Improvements Project, Draft Environmental Impact Report, November. Urban Planning Partners, Inc., 2017. Foster City Levee Protection Planning and Improvements Project, Responses to Comments Document, March. Together these two documents constitute the final EIR, which was certified in May 2017.

oscillations of the local harbor, estuary, or bay, superimposed on the normal tidal changes. To produce significant seiching, the forcing periods must be close to the natural period of the body of water or one of the overtones. Seiches are not considered a hazard in the Bay based on the natural oscillations of the Bay.[12]

(3) Tsunami

Tsunamis are long-period water waves caused by underwater seismic events, volcanic eruptions, or undersea landslides. Tsunamis affecting the San Francisco Bay region would originate west of the Bay in the Pacific Ocean. Areas that are highly susceptible to tsunami inundation tend to be low-lying coastal areas, such as tidal flats, marshlands, and former bay margins that have been artificially filled. Inundation or damage caused by a tsunami may disrupt highway traffic in those low-lying areas. Tsunamis entering the Bay through the relatively narrow Golden Gate would tend to dissipate, with the energy of the wave spreading out as the bay becomes wider and shallower.[13]

The California Emergency Management Agency, the California Geological Survey, and the Tsunami Research Center at the University of Southern California have produced tsunami inundation maps for areas along the California coastline, including Foster City. The project site is not designated as a tsunami inundation area according to the map for this area.[14]

(4) Extreme High Tides

Extreme high tides in the Bay result from the combined effects of astronomical high tides (related to the lunar cycle) and other factors such as winds, barometric pressure, ocean temperatures, and stormwater runoff. In California, the highest astronomical tides occur in the summer and winter, and therefore, extreme high tides are most likely to occur during these times. The 100-year stillwater high tide (an extreme high tide with a probability of occurrence every 100 years) elevation is approximately 10.4 feet referenced to the North American Vertical Datum of 1988 (NAVD) along the northern portion of the levee system, and approximately 10.2 feet NAVD along the eastern and southern portions of the levee system.[15] Approximately 4 percent of the City's

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[12] Borrero, J., L. Dengler, B. Uslu, and C. Synolakis, 2006. Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay, June 8. Report prepared for Marine Facilities Division of the California State Lands Commission.

[13] Ibid.

[14] California Emergency Management Agency (CEMA), 2009. Tsunami Inundation Map for Emergency Planning, San Mateo Quadrangle, June 15.

[15] Schaaf & Wheeler, 2015. City of Foster City Levee Protection Planning Study, July.

existing peripheral levee system would be overtopped by the 100-year stillwater high tide.[16] Therefore, the project site could be affected by 100-year stillwater high tide.

e. Surface Water and Groundwater Quality

The quality of surface water and groundwater in the vicinity of the project site is affected by past and current land uses (both at the site and within the watershed) and by the composition of geologic materials in the vicinity. The State Water Resources Control Board (State Water Board) and its nine regional water boards regulate water quality of surface water and groundwater bodies throughout California. In the Bay Area, including the project vicinity, the San Francisco Bay Regional Water Board is responsible for implementing the Water Quality Control Plan (Basin Plan).[17] The Basin Plan establishes beneficial water uses for waterways and water bodies within the region and is a master policy document for managing water quality in the region.

Foster City Lagoon is listed in the Basin Plan as providing the beneficial uses of estuarine habitat, wildlife habitat, water contact recreation, and noncontact water recreation. The Lower San Francisco Bay is listed as providing the beneficial uses of industrial service supply, commercial and sport fishing, shellfish harvesting, estuarine habitat, fish migration, preservation of rare and endangered species, fish spawning, wildlife habitat, water contact and noncontact recreation, and navigation.[18]

Under Section 303 (d) of the Clean Water Act (CWA) (described in the Regulatory Setting), states must present the U.S. Environmental Protection Agency (EPA) with a list of "impaired water bodies," defined as those water bodies that do not meet water quality standards, which in some cases results in the development of a total maximum daily load (TMDL) for the water body. On a broad level, the TMDL process leads to a "pollution budget" designed to restore the health of a polluted body of water. The TMDL process provides a quantitative assessment of the sources of pollution contributing to a violation of the water quality standards and identifies the pollutant load reductions or control actions needed to restore and protect the beneficial uses of the impaired waterbody. Foster City Lagoon is not listed as an impaired water body. Lower San Francisco Bay has been listed as an impaired water body due to impacts from pesticides (chlordane, dichlorodiphenyltrichloroethane [DDT], and dieldrin), dioxin compounds, furan

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[16] Ibid.

[17] San Francisco Bay Regional Water Board, 2017. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporating all amendments as of May 4.

[18] Ibid.

compounds, invasive species, mercury, polychlorinated biphenyls (PCBs), dioxin-like PCBs, and trash. TMDLs have been established for mercury and PCBs in Lower San Francisco Bay.[19]

The project site is in the Santa Clara Valley Groundwater Basin, San Mateo Plain Subbasin. The San Mateo Plain Subbasin is listed in the Basin Plan as providing existing beneficial uses of municipal and domestic water supply, industrial process water supply, and industrial service water supply, and providing potential beneficial uses of agricultural water supply.[20]

2. Regulatory Setting

This section provides a brief description of the regulations affecting water resources at the federal, State, and local level; and local policies and programs related to hydrology and water quality.

a. Federal

(1) Federal Clean Water Act of 1972

The Federal Clean Water Act (CWA) of 1972 is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It is administered by the U.S. EPA. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit. The U.S. EPA has delegated its authority to implement and enforce most of the applicable water quality provisions of this law to the individual states. In California, the provisions are enforced by nine regional water boards under the auspices of the State Water Board.

(2) National Pollutant Discharge Elimination System Permit Program

Under Section 402 of the CWA, the discharge of pollutants through a point source into waters of the United States is prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES program regulates the discharge of pollutants from municipal and industrial wastewater treatment plants and sewer collection systems, as well as stormwater discharges from industrial facilities, municipalities, and construction sites. In California, implementation and enforcement of the NPDES program is conducted through the State Water Board and the nine regional water boards. The regional

[19] State Water Board, 2017. Final 2014 and 2016 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report), Available at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml, accessed August 20, 2019.

[20] San Francisco Bay Regional Water Board, 2017, op. cit.

water boards set standard conditions for each permittee in their region, which includes effluent limitations and monitoring programs.

(3) Federal Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally-backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. FEMA manages the NFIP and creates FIRMs that designate 100-year flood hazard zones and delineate other flood hazard areas. A 100-year Flood Hazard Zone is the area that has a 1-in-100 (1-percent) chance of being flooded in any given year based on historical data and hydraulic modeling.

b. State Regulations

(1) Porter-Cologne Act and State Implementation of Clean Water Act Requirements

The Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Water Quality) was promulgated in 1969. It established the State Water Board and divided the State into nine hydrologic regions, each overseen by a regional water board. The State Water Board is the primary State agency responsible for protecting the quality of the State's surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine regional water boards. The Porter-Cologne Act also provides for the development and tri-annual review of Water Quality Control Plans that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Foster City lies within the jurisdiction of the San Francisco Bay Regional Water Board which enforces compliance with water quality objectives for beneficial uses of surface waters.

(2) Sustainable Groundwater Management Act Requirements

The Sustainable Groundwater Management Act (SGMA) was signed into law in September 2014 and requires local public agencies and Groundwater Sustainability Agencies in high- and medium-priority basins to develop and implement Groundwater Sustainability Plans (GSPs) or Alternatives to GSPs.[21] GSPs are detailed road maps for how groundwater basins will reach long-

[21] California Department of Water Resources (DWR), 2019a. Groundwater Sustainability Plans. Available at: https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainability-Plans, accessed August 20, 2019.

term sustainability. Existing Groundwater Management Plans (GWMPs), if completed, will continue to be in effect until GSPs are adopted in medium- and high-priority basins. The project site is located in the Santa Clara Valley, San Mateo Plain Subbasin, which is designated as a very-low-priority basin.[22] A GSP or GWMP has not yet been developed for the Santa Clara Valley, San Mateo Plain Subbasin.

(3) NPDES Construction General Plan

Construction projects disturbing more than 1 acre of land during construction are required to comply with the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002 (Construction General Permit).[23]

To obtain coverage under the Construction General Permit, the project applicant must provide, via electronic submittal, a Notice of Intent (NOI), a Stormwater Pollution Prevention Plan (SWPPP), and other documents required by Attachment B of the Construction General Permit. Activities subject to the Construction General Permit include clearing, grading, and ground disturbances such as grubbing and excavation. The permit also covers linear underground and overhead projects such as pipeline installations. Construction General Permit activities are regulated at the local level by the San Francisco Bay Regional Water Board.

The Construction General Permit uses a risk-based permitting approach and mandates certain requirements based on the project risk level (i.e., Level 1, Level 2, or Level 3). The project risk level is based on the risk of sediment discharge and the receiving water risk. The sediment discharge risk depends on the project location and season (e.g., wet-weather versus dry-weather activities). The receiving water risk depends on whether the project would discharge to a sediment-sensitive water body. The project risk level would be determined by the project applicant when the NOI is filed (and when further details on the timing of construction activity are known).

The Construction General Permit performance standard calls for dischargers to minimize or prevent pollutants in stormwater discharges (as well as authorized non-stormwater discharges) through the use of controls, structures, and best management practices (BMPs) that utilize Best Available Technology for treatment of toxic and nonconventional pollutants and Best Conventional Technology for treatment of conventional pollutants. A SWPPP must be prepared by a Qualified SWPPP Developer that meets the certification requirements in the Construction

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[22] California Department of Water Resources (DWR), 2019b. 2018 SGMA Basin Prioritization Dashboard. Available at: https://gis.water.ca.gov/app/bp2018-dashboard/p1/#, accessed August 20, 2019.

[23] State Water Board, 2009. Construction General Permit Fact Sheet. 2009-0009-DWQ amended by 2010-0014-DWQ & 2012-0006-DWQ.

General Permit. The purposes of the SWPPP are to (1) help identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges; and (2) describe and ensure implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity. The operation of BMPs must be overseen by a Qualified SWPPP Practitioner who meets the requirements outlined in the Construction General Permit.

The SWPPP must include a construction site monitoring program. Depending on the project risk level, the monitoring program could include visual observations of site discharges, water quality monitoring of site discharges (pH, turbidity, and non-visible pollutants, if applicable), and receiving water monitoring (pH, turbidity, suspended sediment concentration, and bioassessment).

(4) NPDES Municipal Regional Permit

Pursuant to Section 402 of the CWA and the Porter-Cologne Water Quality Control Act, municipal stormwater discharges in the City of Foster City are regulated under the California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit, Order No. R2-2015-0049, NPDES Permit No. CAS612008, adopted October 14, 2009 (MRP). The MRP is overseen by the San Francisco Bay Regional Water Board.[24] The City is part of the San Mateo Countywide Stormwater Pollution Prevention Program, which provides guidance and assistance to municipalities in San Mateo County to help them comply with requirements of the MRP.

MRP Provision C.3 addresses post-construction stormwater management requirements for regulated projects: new development and redevelopment projects that create or replace 10,000 square feet or more of impervious surface, and special land use categories[25] that create or replace 5,000 square feet or more of impervious surface. Provision C.3 requires regulated projects to implement Low Impact Development (LID) source control, site design, and stormwater treatment. LID employs principles such as preserving and recreating natural landscape features and minimizing impervious surfaces to create functional and appealing site drainage that treats stormwater as a resource, rather than a waste product. Practices used to adhere to these LID principles include measures such as rain barrels and cisterns, green roofs, permeable pavement, preserving undeveloped open space, and biotreatment through rain gardens, bioretention units, bioswales, and flow-through planter/tree boxes.

[24] San Francisco Bay Regional Water Board, 2015. San Francisco Bay Region Municipal Regional Stormwater NPDES Permit, Order No. R2-2015-0049, NPDES Permit No. CAS612008, November 19.

[25] Special land use categories include auto service facilities, retail gasoline outlets, restaurants, or stand-alone uncovered parking lots.

MRP Provision C.3.g pertains to hydromodification[26] management and contains the following requirements: (1) stormwater discharges shall not cause an increase in the erosion potential of the receiving stream over the existing condition; and (2) increases in runoff flow and volume shall be managed such that post-project runoff does not exceed estimated pre-project rates and durations, where such increased flow and/or volume is likely to cause increased potential for erosion of creek beds and banks, silt pollutant generation, or other adverse impacts on beneficial uses due to increased erosive force. The project site is not susceptible to hydromodification as the project site is in a low-gradient area.[27]

c. Local Regulations and Policies

(1) Foster City General Plan

The following goals, policies and programs from the Foster City General Plan Safety Element[28] related to hydrology and water quality pertain to the project.

Goal S-A: Strong Infrastructure. *Preserve the quality of life by ensuring the City's infrastructure and municipal services are capable of withstanding reasonably foreseeable risks and hazards.*

Policy S-A-2: Flood Protection. The City will maintain the City's levees and lagoon system for flood protection.

Program S-A-2-a: Levee Protection Planning and Improvements. Develop a plan to raise the City's levees in order to retain FEMA accreditation and protect the City against sea level rise.

Program S-A-2-b: Maintain Levees and Lagoon for Flood Protection. The City will maintain the City's levees and lagoon for flood protection pursuant to the "Operation and Maintenance Manual, Foster City Levees and Pump Station" and the "Lagoon Management Plan."

Goal S-C: Long-term Community Resilience. *Ensure the long-term community resilience of the community by improving the resiliency to hazards, protecting the environment and planning for post-disaster recovery.*

Policy S-C-1: Climate Change Adaptation Strategy. Prepare adaptation strategies that address sea level rise and other climate change induced events.

Program S-C-1-a: Incorporate Sea Level Rise Consideration into Planning Process. Incorporate consideration of sea level rise into the development review and infrastructure planning processes, including response strategies that increase resilience to mid-century sea level rise risks for both new and existing development.

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[26] Hydromodification is defined as the modification of a stream's hydrograph, caused in general by increases in runoff flow rate and duration that result when land is developed (e.g., made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion, loss of habitat, increased sediment transport and deposition, and increased flooding.

[27] San Francisco Bay Regional Water Board, 2015, op. cit.

[28] City of Foster City, 2016. Foster City Local Hazard Mitigation Plan & Safety Element. Adopted November 21.

Policy S-C-3: Flood Plain Regulations. The City will control development to minimize risks to persons and property within any special flood hazard area through flood plain regulations.

Program S-C-3-a: Flood Plain Regulations. The City will evaluate any proposed development within special flood hazard areas for conformance with the City's flood plain regulations as contained in Chapter 15.36 of the Foster City Municipal Code.

Program S-C-3-b: FEMA's National Flood Insurance Program. Participate in FEMA's National Flood Insurance Program for affected properties.

(2) Foster City Municipal Code

The following regulations from the Foster City Municipal Code related to hydrology and water quality pertain to the project.

Chapter 13.12 – Stormwater Management and Discharge Control. This chapter establishes requirements to (A) Eliminate non-stormwater discharges to the municipal separate storm sewer; (B) Control the discharge to municipal separate storm sewers from spills, dumping or disposal of materials other than stormwater; and (C) Reduce pollutants in stormwater discharges to the maximum extent practicable to protect and enhance the water quality of our watercourse, water bodies and wetlands in a manner pursuant to and consistent with the Clean Water Act.

Chapter 15.36 – Floodplain Management Regulations. This chapter establishes flood-damage prevention measures to promote the public health, safety, and general welfare, and to minimize losses due to flooding. This ordinance restricts or prohibits uses that are dangerous due to water or erosion hazards or result in damaging increases in erosion, flood heights, or velocities. Uses that are vulnerable to floods are required to be protected against flood damage at the time of initial construction. The ordinance also includes provisions for controlling alteration of natural floodplains, stream channels, and natural protective barriers, and development activities, such as filling, grading, and dredging. The construction of flood barriers, which unnaturally divert flood waters or increase flood hazards in other areas, is also restricted or prohibited.

Specifically, construction or development of properties in the Special Flood Hazard Area[29] are required to obtain a development permit. Chapter 15.36 of the Foster City Municipal Code also establishes permit review procedures, designates and identifies the duties of the floodplain

[29] A Special Flood Hazard Area refers to an area in the floodplain subject to a one percent or greater chance of flooding in any given year.

administrator (the director of community development), provides provisions for flood hazard reduction such as standards of construction, and identifies variance procedures.

(3) Standard Conditions of Approval

The following SCOAs related to hydrology and water quality, which the City routinely includes as conditions of project approval, would apply to the project. The City is committed to requiring the project contractor(s) to implement these conditions and will require them as conditions to the contract approval.

SCOA 1.13. Prior to issuance of a building permit, the plans shall demonstrate compliance with the San Mateo Countywide Water Pollution Prevention Program, (see www.flowstobay.org) including, but not limited to, submittal of checklists related to impervious surface and stormwater:

- 1.13.1. C.3 and C.6 Data Collection Form
- 1.13.2. Project Applicant Checklist for NPDES Permit Requirements
- 1.13.3. Stormwater Control Plan. A Stormwater Control Plan (SWCP) shall be required and approved by the City prior to issuance of the first building permit. Any improvements identified in the SWCP shall be constructed prior to first occupancy to the satisfaction of the Public Works Director/City Engineer.

SCOA 1.21. All stormwater improvements shall be constructed to the satisfaction of the Engineering Division.

SCOA 1.23. The contractor(s) shall designate storage areas suitable for material delivery, storage, and waste collection. These locations must be as far away from catch basins, gutters, drainage courses, and water bodies as possible. All hazardous materials and wastes used or generated during project site development activities shall be labeled and stored in accordance with applicable local, state, and federal regulations. In addition, an accurate up-to-date inventory, including Material Safety Data Sheets, shall be maintained on-site to assist emergency response personnel in the event of a hazardous materials incident.

All maintenance and fueling of vehicles and equipment shall be performed in a designated, bermed area, or over a drip pan that will not allow run-off of spills. Vehicles and equipment shall be regularly checked and have leaks repaired promptly at an off-site location. Secondary containment shall be used to catch leaks or spills any time that vehicle or equipment fluids are dispensed, changed, or poured.

SCOA 2.4. Prior to issuance of a building permit, the Construction Best Management Practices (BMPs) from the San Mateo Countywide Stormwater Pollution Prevention Program shall be included as notes on the building permit drawings.

SCOA 2.6. Prior to issuance of a building permit, any development involving one or more acres of total land area must obtain a General Permit from the State Water Resources Control Board. This permit requires the owner/developer to do the following:

a) Submit a Notice of Intent (NOI) to the State Water Resources Control Board prior to commencement of construction activity;

b) Copies of the NOI and the SWPPP must be submitted to the Engineering Division along with proof of compliance.

SCOA 2.7. The applicant shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential adverse impacts to surface water quality during the construction period. The SWPPP shall be prepared by a Qualified SWPPP Practitioner (QSP). The SWPPP shall include the minimum BMPs required for the identified Risk level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association Stormwater Best Management Handbook-Construction. The SWPPP shall be designed to address the following objectives:

1) All pollutants and their sources, including sources of sediment associated with construction activity are controlled;
2) Where not otherwise required to be under a Regional Water Board permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated;
3) Site Best Management Practices (BMPs) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology and Best Conventional Technology (BAT/BCT) standard; and
4) Stabilization BMPs installed to reduce or eliminate pollutants after construction are completed.
5) Best Management Practices (BMPs) shall be designed to mitigate construction-related pollutants and at a minimum, include the following:
   a. Practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP shall specify properly-designed centralized storage areas that keep these materials out of the rain.
   b. Reduce erosion of exposed soil which may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season because disturbed soil can be exposed to rainfall and storm runoff.
   c. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control (i.e. keeping sediment on the site). End-of-pipe sediment control measures (e.g. basins and traps) shall be used only as secondary measures. Ingress and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions.
6) The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and shall include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board requirements, monitoring shall be required during the construction period for pollutants that may be present in the runoff that are "not visually detectable in runoff."

To educate on-site personnel and maintain awareness of the importance of stormwater quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP.

A QSD shall be responsible for implementing BMPs at the site. The QSD shall also be responsible for performing all required monitoring, and BMP inspection, maintenance and repair activities. The developer shall retain an independent monitor to conduct weekly inspections and provide written monthly reports to the City of Foster City Public Works Department to ensure compliance with the SWPPP. Water Board personnel, who may make unannounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly prepared and implemented.

SCOA 2.8. The applicant shall fully comply with the C.3 provisions of the Municipal Regional Stormwater NPDES Permit (MRP). Responsibilities include, but are not limited to, designing Best Management Practices (BMPs) into the project features and operation to reduce potential impacts to surface water quality associated with operation of the project. These features shall be included in the design-level drainage plan and final development drawings. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development.

All Stormwater control measures outlined in the current San Mateo Countywide Water Pollution Prevention Program's C.3 Stormwater Technical Guidance manual shall be incorporated into the project design. Low Impact Development features, including rainwater harvesting and reuse, and passive, low-maintenance BMPs (e.g., grassy swales, porous pavements) are required under the MRP. Higher-maintenance MBP's may only be used if the development of at-grade treatment systems is not possible, or would not adequately treat runoff. Funding for long-term maintenance for all BMPs must be specified (as the City will not assume maintenance responsibilities for these features).The applicant shall establish a self-perpetuating drainage system maintenance program for the life of the project that includes annual inspections of any stormwater detention devices and drainage inlets. Any accumulation of sediment or other debris would need to be promptly removed. In addition, an annual report documenting the inspection and any remedial action conducted shall be submitted to the Public Works Development for review and approval.

The City of Foster City Public Works Department shall ensure that the SWPPP and drainage plan are prepared and are adequate prior to approval of the first building permit for the site.

SCOA 4.1. Site and civil drawings with all supporting data, including hydraulic calculations for sewer, water and stormwater. The plans shall be prepared by a registered civil engineer and be approved by the City Engineer.

SCOA 5.11. Prior to issuance of a building permit, the improvement plans shall include the design for a stormwater collection system generally as required and approved by the City.

SCOA 5.12. Storm Water System:

- 5.12.1. Prior to issuance of a building permit, the system shall be designed to be capable of handling a 25-year storm with the hydraulic grade line at least one foot below every grate, to the satisfaction of the Engineering Division. Drainage facilities shall be designed in accordance with accepted engineering principles and shall conform to the Foster City Drainage Design Criteria/Standards available on the City's website: https://www.fostercity.org/publicworks/page/city-standard-design-criteria
- 5.12.2. Calculations and plans showing hydraulic gradelines shall be submitted as part of the improvement plans package.
- 5.12.3. Items of construction shall include at least the following:

- surface and subsurface storm drain facilities;
- manholes with manhole frames and covers;
- catch basins and laterals;
- construct all catch basins as silt detention basins;
- And together with appurtenances, to any or all of the above.

SCOA 5.14. Prior to issuance of a building permit, a complete storm drainage study of the proposed development must be submitted showing the amount of runoff, and existing and proposed drainage structure capacities. This study shall be subject to review and approval by the Engineering Division. All needed improvements shall be installed by the applicants at applicants' sole cost. No overloading of the existing system will be permitted. A hydrology/hydraulic analysis shall be completed on the existing storm drain system to verify it is adequately sized to handle the run-off from the project. Storm drainage study/Hydraulic Analysis shall conform to the City's Drainage Design Criteria/Standards available on the City's website: https://www.fostercity.org/publicworks/page/city-standard-design-criteria.

SCOA 5.15. Prior to issuance of a building permit, should the City determine that the City's storm drain system or storm drain pumping capacity requires expansion or modification as a result of the applicants' development, the applicants shall pay for all necessary improvement costs. The timing and amount of payment shall be as determined by the City.

SCOA 8.13. The Developer shall submit a letter signed and stamped by the licensed landscape architect verifying that the plants that have been selected for the bioretention area/swale are drought tolerant, inundation tolerant, and require minimal maintenance consistent with the C.3/C.6 Checklist, as provided in Appendix A of the San Mateo County Wide Water Pollution Prevention Program's C.3 Stormwater Technical Guidance Handbook at www.flowstobay.org.

SCOA 10.13. Prior to final building inspection, the property owner shall submit a Maintenance Agreement for Stormwater Treatment Measures and Hydromodification Management Controls, including a Maintenance Plan pertinent to the type(s) of measures included in the project, pursuant to the San Mateo Countywide Water Pollution Prevention Program (www.flowstobay.org). Following review and approval by City staff, the property owner shall have the Maintenance Agreement recorded prior to building occupancy approval. The Maintenance Agreement shall be made a part of any CC&Rs recorded for the property and shall include the following statements:

- The property owner shall be responsible for conducting all servicing and maintenance as described and required by the approved Maintenance Plan(s). Maintenance of all site design and treatment control measures shall be the owner's responsibility.
- Site access shall be granted to representatives of the City, the San Mateo County Mosquito and Vector Control District, and the Water Board, at any time, for the sole purpose of performing operation and maintenance inspections of the installed stormwater treatment systems.

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section describes the impacts related to hydrology and water quality that could result from implementation of the project. The section begins with the criteria of significance that establish the thresholds for determining whether a project impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCOAs and/or mitigation measures to address these impacts, as needed.

a. Significance Criteria

Implementation of the project would result in a significant hydrology or water quality impact if it would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
   (i) result in substantial erosion or siltation on- or off-site;
   (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
   (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
   (iv) impede or redirect flood flows.
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

In addition to the thresholds described in Appendix G of the CEQA Guidelines, the City's Environmental Review Guidelines[30] also contains two thresholds of significance related to a project's potential impacts upon the Foster City Lagoon. These local thresholds are discussed below under Criterion 1.

[30] City of Foster City/Estero Municipal Improvement District, 2007. Environmental Review Guidelines, October.

b. Project Analysis

(1) Water Quality (Criterion 1)

Construction

The project would involve construction activities that would disturb over 1 acre of land and therefore would be required to comply with the Construction General Permit. On-site construction activities subject to the Construction General Permit would include clearing, grading, excavation, and stockpiling. The Construction General Permit also requires the development of a SWPPP by a certified Qualified SWPPP Developer. A SWPPP identifies all potential pollutants and their sources, including erosion, sediments and construction materials and includes a list of best management practices to reduce discharges of construction-related stormwater pollutants. A SWPPP includes a detailed description of controls to reduce pollutants and outlines maintenance and inspection procedures and is kept on-site for ongoing monitoring requirements. Typical sediment and erosion BMPs include protecting storm drain inlets, establishing and maintaining construction exits, and perimeter controls. A SWPPP also defines proper building material staging areas, identifies paint and concrete washout areas, outlines proper equipment/vehicle fueling and maintenance practices, controls equipment/vehicle washing and allowable non-stormwater discharges, and includes a spill prevention and response plan.

In addition, the project would be required to comply with SCOAs 1.23, 2.4, 2.6, and 2.7, or the equivalent SCOAs in the event that the list of SCOAs is updated or amended. SCOA 1.23 requires storage areas for material delivery, storage, and waste collection as far away from catch basins, gutters, drainage courses, and water bodies as possible, and requires labeling and storing all hazardous materials and wastes in accordance with applicable local, State, and federal regulations. SCOA 2.4 requires the construction BMPs from the San Mateo Countywide Stormwater Pollution Prevention Program to be included as notes on the building permit prior to issuance of a building permit. SCOA 2.6 requires the project applicant to submit evidence of compliance with Construction General Permit to the City's Engineering Division. SCOA 2.7 requires the SWPPP to include BMPs consistent with the most recent version of the California Stormwater Quality Association Stormwater Best Management Handbook-Construction.

Compliance with the requirements of the Construction General Permit and with the City's SCOAs would ensure that water quality impacts due to discharge of construction-related stormwater runoff would be less than significant.

During construction, dewatering may be performed. Dewatering effluent may have high turbidity. Turbid/contaminated groundwater could cause degradation of the receiving water quality if discharged directly to storm drains without treatment. As stated in the Construction

General Permit, non-stormwater discharges to receiving waters or the storm drain system have the potential to negatively impact water quality.

The discharge of dewatering effluent would be subject to permits from the Estero Municipal Improvement District or the San Francisco Bay Regional Water Board, depending on whether the dewatering effluent is discharged to the sanitary or storm sewer system, respectively. Any discharge or activity which may result in pollutants entering the City's storm sewer system would also be required to comply with the City's Green Infrastructure Plan[31] as codified by Foster City Municipal Code Section 13.12.110.B. Under existing State law, it is illegal to allow unpermitted non-stormwater discharges to receiving waters. The discharger must implement measures to control all non-stormwater discharges during construction, and from dewatering activities associated with construction. Discharging any pollutant-laden water that would cause or contribute to an exceedance of water quality standards is prohibited.[32]

In order to discharge the potentially contaminated dewatering effluent generated during construction activities on the project site to the storm drains (receiving water), the discharger could potentially prepare a Report of Waste Discharge, and if approved by the San Francisco Bay Regional Water Board, be issued site-specific Waste Discharge Requirements under the NPDES regulations. Site-specific Waste Discharge Requirements contain rigorous monitoring requirements and performance standards that, when implemented, ensure that receiving water quality is not substantially degraded.

If it is determined that the water is not suitable for discharge to the storm drain (receiving water) and it is not possible to obtain Waste Discharge Requirements, dewatering effluent may be discharged to the Estero Municipal Improvement District sanitary sewer system if special discharge criteria are met. These include, but are not limited to, application of treatment technologies or best management practices that will result in achieving compliance with the wastewater discharge limits. Discharges to the Estero Municipal Improvement District's facilities must occur under a Special Discharge Permit. The Estero Municipal Improvement District manages the water it accepts into its facilities so that it can ensure proper treatment of wastewater at the treatment facility prior to discharge.

If it is infeasible to acquire site-specific Waste Discharge Requirements or meet the Estero Municipal Improvement District Special Discharge Permit requirements, the construction contractor would be required to transport the dewatering effluent off-site for treatment and disposal.

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[31] City of Foster City, 2019b. Green Infrastructure Plan, August 19.
[32] State Water Board, 2009, op. cit.

Compliance with local and NPDES regulatory requirements governing non-stormwater discharges to the sanitary sewer system and stormwater system/receiving waters, respectively, would ensure that water quality impacts related to discharges of construction dewatering effluent would be less than significant.

Operation

Because the project would replace over 10,000 square feet of existing impervious surface area, the project would be required to comply with Provision C.3 of the Municipal Regional Permit.[33] Regulated projects are required to incorporate post-construction stormwater management measures to reduce stormwater pollution from all new and replaced impervious surfaces.

The project would be required to comply with SCOAs 1.13, 1.21, 2.8, 8.13, and 10.13. SCOA 1.13 requires the project applicant to submit a Stormwater Control Plan (SWCP) to demonstrate compliance with the San Mateo Countywide Water Pollution Prevention Program. SCOA 1.21 requires all stormwater improvements be constructed to the satisfaction of the Engineering Division. SCOA 2.8 requires the project to comply with Provision C.3 of the MRP. SCOA 8.13 requires specific plants for bioretention areas or swales that are drought tolerant, inundation tolerant, and require minimal maintenance. SCOA 10.13 requires a Maintenance Agreement for stormwater treatment measures and hydromodification management controls.

Compliance with the requirements of the Municipal Regional Permit and with the City's SCOAs would ensure that water quality impacts during operation of the project would be less than significant.

The City's Environmental Review Guidelines under item 5 state that "Projects that propose the placement of buildings, structures or materials, other than those commonly associated with residential properties (such as rip rap, bulkhead walls, docks, decks, bridges and patios), into or affecting the Lagoon shall be considered to have the potential to cause a significant adverse impact." Additionally, the Guidelines under item 7 state that "Projects that have the potential to impact the City's lagoon system in its functionality as the City storm drain system and storm drainage detention basin shall be considered to have a potentially significant environmental impact." The nearest portion of the Lagoon is approximately 3,100 feet west of the project site and both construction and operation related to the project would be confined to the boundaries of the project site. Therefore, the project would have no impact upon the Foster City Lagoon system.

[33] San Francisco Bay Regional Water Board, 2015, op. cit.

(2) Groundwater Supplies (Criterion 2)

Temporary dewatering from excavations could be necessary during construction. Construction-related dewatering would be temporary and limited to the area of excavations on the project site and would not substantially contribute to depletion of groundwater supplies.

The majority of the project site is currently covered by pervious (unpaved) surfaces. The project would result in an increase in impervious surfaces on the project site compared to the existing condition. However, the project site is underlain by Hydrologic Group C soils, which have moderately high runoff potential and water transmission through the soil is somewhat restricted.[34,35] Therefore, even under undeveloped conditions (i.e., no impervious cover), these soils would not allow substantial infiltration of precipitation and aquifer recharge to occur. Furthermore, groundwater on site will not be used during the construction or operation phases of the project. Therefore, the potential for the project to decrease groundwater supplies or interfere substantially with groundwater recharge would be less than significant.

(3) Erosion and Siltation (Criterion 3 (i))

Construction activities would involve excavation and grading, which would temporarily alter drainage patterns and expose soil to potential erosion. As described under the Water Quality (Criterion 1 above), compliance with the Construction General Permit and the City's SCOAs would ensure that erosion of exposed soil and sedimentation of receiving waters or the sewer system would be minimized to the extent feasible during construction of the project.

During operation of the project, the site and surrounding areas would be covered by buildings, pavement, and landscaped areas, with no ongoing soil exposure or disturbance that could result in erosion and siltation. Because the project site is in a low-gradient area and stormwater is conveyed from the project site to the Bay via underground storm drain pipes, stormwater runoff from the project site would not cause erosion in the downstream drainage courses. Therefore, the operation of the project would have a less-than-significant impact on erosion or siltation associated with changing drainage patterns.

[34] Natural Resources Conservation Service, 2019. Web Soil Survey, USDA Mapping Website. Available at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm, accessed August 21, 2019.

[35] Natural Resources Conservation Service, 2007. Part 630 Hydrology National Engineering Handbook, Chapter 7, Hydrologic Soil Groups, May.

(4) Flooding and Local Stormwater System Drainage Capacity (Criterion 3 (ii), (iii))

Implementation of the project would involve placement of new impervious surfaces on the project site. Without proper design, the placement of new impervious surfaces could result in increased runoff (i.e., in rate and amount) that could exceed the capacity of the existing storm drain systems and result in localized flooding.

The project would be required to comply with SCOAs 4.1, 5.11, 5.12, 5.14, and 5.15. SCOA 4.1 requires hydraulic calculations for stormwater prepared by a registered civil engineer and approved by the City Engineer. SCOA 5.11 requires a stormwater collection system to be approved by the City. SCOA 5.12 requires the stormwater system to be capable of handling a 25-year storm and the drainage facilities to be designed in accordance with accepted engineering principles and conform to the Foster City Drainage Design Criteria. SCOA 5.14 requires that a complete storm drainage study to be approved by the City's Engineering Division, which ensure no overloading of the existing system. This SCOA also requires a hydrology/hydraulic analysis to be completed to verify the existing off-site storm drainage system is adequately sized to handle the runoff from the project. SCOA 5.15 requires the applicant to pay for all necessary improvement costs if the City determines that the City's storm drain system or storm drain pumping capacity requires expansion or modification as a result of the applicant's proposed development.

Compliance with the City's SCOAs would ensure that the potential impacts related to on-site and off-site flooding and exceeding the local stormwater system drainage capacity as a result of changes in drainage patterns would be less than significant.

(5) Impede or Redirect Flood Flows (Criterion 3 (iv))

As discussed under the Setting section, the project site is not currently located within a FEMA-designated 100-year flood hazard zone, but could be susceptible to inundation during a 100-year (or greater) storm due to the current levee deficiencies.

If the project is constructed after the Foster City Levee Protection Improvements Project is built, the levee would provide protection from the 100-year flood, and no impacts related to exacerbation of flooding conditions would be expected. However, if the project is constructed before the completion of the Foster City Levee Project, the proposed building could be susceptible to inundation during a 100-year (or greater) storm and the following mitigation measure is necessary.

<u>Impact HYD-1</u>: The project could be susceptible to inundation during a 100-year (or greater) storm due to the current levee deficiencies and could impede or redirect flood flows. (S)

Mitigation Measure HYD-1: If the project would be constructed prior to substantial completion of the Foster City Levee Protection Improvements Project, the applicant shall submit plans and hydrological calculations to demonstrate that the new structures would not interfere with the flow of water or increase existing flooding conditions during a 100-year (or greater) flood event. The plans and hydrological calculations shall be submitted for City review and approval prior to the issuance of a grading permit. (LTS)

Dam failure could also result in downstream flooding. Foster City is located within the inundation area of the LCSD.[36] However, the LCSD is within jurisdiction of the State of California and the condition assessment rating is satisfactory, indicating no existing or potential dam safety deficiencies are recognized.[37] In addition, a risk evaluation from 2010 indicated that the potential for dam failure of an 8.3-magnitude earthquake at the LCSD would be low.[38] Furthermore, if a failure were to occur, water would flow down San Mateo Creek, spread out over portions of San Mateo, and flow into the Marina Lagoon without reaching Foster City. The City of San Mateo's Marina Lagoon Pump Station at the northern end of the Marina Lagoon is capable of moving 750,000 gallons of water per minute out of the lagoon and into San Francisco Bay. The Foster City Public Works Department estimates that a failure of the LCSD would result in a maximum flood height of about 2 feet at the county fairgrounds in the city of San Mateo, located approximately 1 mile west of the city. This flood height would be below the crest height (6 feet) of a levee along the Marina Lagoon in Foster City; it is therefore highly improbable that failure of the LCSD would cause inundation of Foster City.[39]

Compliance with Mitigation Measure HYD-1 would ensure that impacts associated with impeding or redirecting flood flows would be less than significant.

(6) Release of Pollutants during Project Inundation (Criterion 4)

As described in the Setting section above, the project site is not located in a seiche or a tsunami inundation area. However, the project site could be inundated by extreme high tides or as a result of sea level rise. In addition, if the project is constructed before the Foster City Levee Project, the proposed building could be susceptible to inundation during a 100-year (or greater) storm due to the current levee deficiencies.

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[36] City of Foster City, 2016. Foster City Local Hazard Mitigation Plan & Safety Element. Adopted November 21.

[37] State of California, California Natural Resources Agency, Department of Water Resources, Division of Safety of Dams, 2018. Dams Within Jurisdiction of the State of California, September.

[38] Foster City, 2016, op. cit.

[39] City of Foster City, 1995. General Plan, Chapter 7, Safety Element, adopted October.

During construction, the project would be required to comply with State and local regulations, as well as applicable SCOAs (SCOAs 1.23 and 9.25), which would ensure that hazardous materials used during construction are properly managed and stored to protect receiving water quality. Therefore, the potential for the release of pollutants during construction as a result of inundation by flood hazard, extreme high tides, or sea level rise would be less than significant.

During project operation, urban pollutants associated with the proposed land uses would include oils, fuels, and metals associated with motor vehicle traffic; fertilizers and pesticides used to maintain landscaped areas; and trash generated by new site occupants. The pollutants that flood waters would encounter on the project site would be similar to the urban pollutants found in the streets and buildings of the urban area surrounding the project site. Even without the occurrence of flooding, such pollutants are carried to the Bay by stormwater runoff from the project site and its vicinity during any storm large enough to generate overland flows and flows to storm drains. The levels of urban pollutants occurring on the project site would be minimized through compliance with the MRP requirements, as well as applicable SCOAs (SCOAs 1.13, 1.21, 2.8, 8.13, and 10.13). For these reasons, the potential for the release of pollutants from the project site to the Bay during inundation of the site by flood hazard, extreme high tides, or sea level rise would be less than significant.

(7) Conflict with Water Quality Control Plan or Groundwater Management Plan (Criterion 5)

There is currently no approved groundwater management plan for the Santa Clara Valley Groundwater Basin, San Mateo Plain Subbasin, and therefore the project would not conflict with a groundwater management plan. The Basin Plan, which is the Water Quality Control Plan that addresses water quality issues in the region, is the master policy document that establishes the water quality objectives and strategies needed to protect designated beneficial water uses in the San Francisco Bay region.[40] The State Water Board and San Francisco Bay Regional Water Board ensure compliance with (and initiate enforcement action when necessary) the water quality goals and objectives of the Basin Plan through the issuance of NPDES permits. As described above, the project's compliance with the Construction General Permit and Municipal Regional Permit requirements is additionally enforced through the implementation of the City's SCOAs. Compliance with these permits would ensure that the project would not have the potential to conflict with the Basin Plan. Therefore, this impact would be less than significant.

[40] San Francisco Bay Regional Water Board, 2017. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporating all amendments as of May 4.

c. Cumulative Hydrology and Water Quality Impacts

The geographic area of concern for cumulative hydrology and water quality impacts is the local watershed and the surrounding water bodies: the Lower San Francisco Bay and the Santa Clara Valley Groundwater Basin, San Mateo Plain Subbasin. There are eight cumulative projects that were considered in the evaluation of potential cumulative hydrology and water quality impacts, including:

1. Lincoln Centre Life Sciences Research Campus
2. Gilead Integrated Corporate Master Plan
3. Pilgrim Triton Master Plan
4. Foster Square
5. Tidelands
6. Town Place Suites
7. Chess/Hatch Drive Offices
8. 1297 Chess Drive

Seven of these projects are located in Foster City and one in San Mateo (Tidelands project). Hydrology and water quality cumulative impacts could occur during construction and/or operation of the projects (each are discussed below):

(1) Construction

Construction for Town Place Suites project and 1297 Chess Drive project were completed in 2017 and therefore would not contribute to cumulative water quality construction impacts. Stormwater discharged from past and existing projects within the project vicinity has contained pollutants that have contributed to impairment of the water quality of the Lower San Francisco Bay, which is a cumulative impact. Stormwater regulations have become progressively more stringent since the passing of the federal Clean Water Act, and current regulations now require new developments to manage and treat all significant sources of stormwater pollutants. Stormwater runoff from the project site would be treated in accordance with the Construction General Permit and City's SCOA stormwater management requirements. As such, no change in overall pollutant loads in stormwater runoff from the project site would occur. In addition, the Lower San Francisco Bay is not impaired for sediment (which is the main pollutant of concern during construction). Therefore, the project's contribution to the cumulative water quality degradation of the Lower San Francisco Bay would be less than cumulatively considerable during construction.

The project and cumulative projects would be required to comply with the Construction General Permit (except Town Place Suites project and 1297 Chess Drive project, which completed construction in 2017), and therefore construction of these projects would not conflict with the water quality objectives of the Basin Plan, and the cumulative impact would be less than significant.

(2) Operation

Similar to the discussion above, stormwater discharged from past and existing projects within the project vicinity has contained pollutants that have contributed to impairment of the water quality of the Lower San Francisco Bay, which is a cumulative impact. Stormwater runoff from the project site would be treated in accordance with the Municipal Regional Permit and City's SCOA stormwater management requirements. As such, no change in overall pollutant loads in stormwater runoff from the project site would occur. Therefore, the project's contribution to the cumulative water quality degradation of the Lower San Francisco Bay would be less than cumulatively considerable during operation.

The project and cumulative projects would be required to comply with the Municipal Regional Permit, and therefore construction and operation of these projects would not conflict with the water quality objectives of the Basin Plan, and the cumulative impact would be less than significant.

The project and nearby cumulative projects would alter existing drainage patterns. However, the project and cumulative projects would be subject to Provision C.3 of the Municipal Regional Permit, and therefore required to implement Low Impact Development source control, site design, and stormwater treatment to manage stormwater flows. Additionally, all projects within the City of Foster City would be required to comply with SCOA 5.14, which requires that a storm drainage study be prepared and approved by the City's Engineering Division, which would ensure no overloading of the existing system. This SCOA also requires a hydrology/hydraulic analysis to be completed to verify that the existing off-site storm drainage system is adequately sized to handle the runoff from the project. Compliance with the Provision C.3 of the Municipal Regional Permit and SCOA 5.14, would reduce the potential for a cumulative exceedance of stormwater drainage capacity and localized flooding from the development of the project and cumulative projects, to a less-then-significant level.

The project is not anticipated to substantially affect groundwater recharge and would not use groundwater during operation of the project. Therefore, the project would not have a cumulatively considerable impact related to impeding groundwater recharge or depletion of groundwater resources.

Historic urban development in Foster City, on the project site, and at nearby cumulative project sites could be inundated by flooding during extreme high tides and as a result of sea level rise. During a flooding event, pollutants stored outside could be inundated and released to flood waters, which would adversely affect water quality. During construction, the levels of urban pollutants occurring at the project site and cumulative project sites would be minimized through compliance with the SCOAs 1.23 and 9.25, which would ensure that hazardous materials used during construction are properly managed and stored to protect receiving water quality. During operation, the project would not store a substantial quantity of hazardous materials in locations that could be inundated because the potential use for the project is a hotel. In addition, if storage of hazardous materials exceeding specific quantities[41] occurs during operation of any cumulative projects, each facility storing the hazardous materials would be required to develop and implement a site-specific Hazardous Materials Business Plan, as enforced by San Mateo County Environmental Health Division. Therefore, the project's contribution to the potential cumulative impact would not be considerable and is considered less than significant.

[41] These quantities are 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet (at standard temperature and pressure) for compressed gases.

I. NOISE AND VIBRATION

This section describes the noise and vibration setting at the project site; defines noise and vibration terminology; summarizes the relevant State and local regulatory policies and guidance for evaluating noise and vibration; and assesses the potential noise and vibration impacts of project implementation.

1. Setting

The following discussion provides background information on noise and vibration and summarizes the existing noise environment.

a. Technical Background

(1) General Information on Noise

Noise is defined as unwanted sound that annoys or disturbs people and that can have an adverse psychological or physiological effect on human health. Sound is measured in units of decibels (dB) on a logarithmic scale. Decibels describe the purely physical intensity of sound based on changes in air pressure but cannot accurately describe sound as perceived by the human ear, which is only capable of hearing sound within a limited frequency range. Thus, to obtain a single number that better characterizes the noise level perceived by a human ear, a decibel scale called A-weighting (dBA) is typically used. On this scale, the low and high frequencies are given less weight than the middle frequencies. Decibels and other technical terms are defined in Table V.I-1. Typical A-weighted noise levels at specific distances are shown for different noise sources in Table V.I-2.

Noise attenuates with distance, but it attenuates more slowly in an unconfined space, such as outdoors over level ground. Noise levels at a known distance from point sources are reduced by 6 dBA for every doubling of that distance over hard surfaces (e.g., cement or asphalt) and by 7.5 dBA for every doubling of distance over soft surfaces (e.g., undeveloped or vegetative). Noise levels at a known distance from line sources (e.g., roads, highways, and railroads) are reduced by 3 dBA for every doubling of the distance over hard surfaces and 4.5 dBA for every doubling of distance over soft surfaces.[1] Greater decreases in noise levels can result from the presence of intervening structures, variations in terrain, or buffers.

[1] California Department of Transportation (Caltrans), 1998. Technical Noise Supplement: A Technical Supplement to the Traffic Noise Analysis Protocol.

TABLE V.I-1 DEFINITION OF ACOUSTICAL TERMS

Term	Definition
Decibel (dB)	A unit describing the amplitude of sound on a logarithmic scale. Sound described in decibels is usually referred to as sound or noise "level." This unit is not used in this analysis because it includes frequencies that the human ear cannot detect.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, in a manner similar to the frequency response of the human ear, and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Equivalent Noise Level (L_{eq})	The average A-weighted noise level during the measurement period. For this CEQA evaluation, L_{eq} refers to a 1-hour period unless otherwise stated.
Community Noise Equivalent Level (CNEL)	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels to sound levels during the evening from 7:00 to 10:00 p.m. and after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level (L_{dn})	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Vibration Decibel (VdB)	A unit describing the amplitude of vibration on a logarithmic scale.
Peak Particle Velocity (PPV)	The maximum instantaneous peak of a vibration signal.
Root Mean Square (RMS) Velocity	The average of the squared amplitude of a vibration signal.

Source: Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment. William Stout Publishers. Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

A typical method for determining a person's subjective reaction to a new noise is by comparing it to existing conditions. The following describes the general effects of noise on people:[2]

- A change of 1 dBA cannot typically be perceived except in carefully controlled laboratory experiments.
- A 3-dBA change is considered a just-perceivable difference.
- A minimum of 5-dBA change is required before any noticeable change in community response is expected.

[2] Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers.

TABLE V.I-2 TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

Noise Source (Distance in Feet)	A-Weighted Sound Level in Decibels (dBA)
Jet Aircraft (200)	112
Subway Train (30)	100
Truck/Bus (50)	85
Vacuum Cleaner (10)	70
Automobile (50)	65
Normal Conversation (3)	65
Whisper (3)	42

Source: Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment. William Stout Publishers.

A 10-dBA change is subjectively perceived as approximately a doubling or halving in loudness. Because sound pressure levels are based on a logarithmic scale, they cannot be simply added or subtracted. For instance, if one noise source emits a sound level of 90 dBA and a second source is placed beside the first and also emits a sound level of 90 dBA, the combined sound level is 93 dBA, not 180 dBA. When the difference between two noise levels is 10 dBA or more, the amount to be added to the higher noise level is zero. In such cases, no adjustment factor is needed because adding in the contribution of the lower noise source makes no perceivable difference in what people can hear or measure. For example, if one noise source generates a noise level of 95 dBA and another noise source is added that generates a noise level of 80 dBA, the higher noise source dominates, and the combined noise level will be 95 dBA.

(2) General Information on Groundborne Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment. Vibration amplitudes are usually expressed as either peak particle velocity (PPV) or as root-mean-square (RMS) velocity. PPV is defined as the maximum instantaneous peak of the vibration signal, while the RMS value can be considered an average value over a given time interval. PPV is appropriate for evaluating potential damage to buildings, but it is not suitable for evaluating human response to vibration because it takes the human body time to respond to vibration signals. The response of the human body to vibration is dependent on the average amplitude of a vibration. Thus, RMS is more appropriate for evaluating human response to vibration. PPV and RMS are normally described in units of inches per second (in/sec), and RMS is also often described in vibration decibels (VdB).

b. Local Noise Environment

(1) Noise-Sensitive Receptors

Noise-sensitive receptors are defined as land uses where noise-sensitive people may be present or where noise-sensitive activities may occur. As specified in the Foster City General Plan, noise-sensitive land uses include residential development, nursing homes, schools, wildlife sanctuaries, hospitals, and treatment centers.[3]

The nearest noise-sensitive receptors to the project site include: 1) residential units located approximately 13 feet south of the project site's southern property line; 2) a hotel (Courtyard by Marriott) located approximately 170 feet east of the project site[4]; and 3) a daycare center (Foster City KinderCare) located approximately 600 feet east of the project site.

(2) Vibration-Sensitive Receptors

The General Plan does not provide a definition for vibration-sensitive receptors. According to the Federal Transit Administration, vibration-sensitive receptors (receptors where people or activities could be disturbed by vibration) can be divided into four categories:

- **Special Buildings:** This category includes facilities that are very sensitive to vibration and noise, such as concert halls, TV and recording studios, and theaters;
- **Category 1, High Sensitivity:** This category includes buildings where vibration levels would interfere with operations within the building, such as buildings where vibration-sensitive research and manufacturing is conducted, hospitals with vibration-sensitive equipment, and universities conducting physical research operations;
- **Category 2, Residential:** This category includes all residential land uses and buildings where people normally sleep, and includes hotels and hospitals;

[3] City of Foster City, 1993. Foster City General Plan, Noise Element. Adopted May.

[4] The hotel is considered a noise-sensitive receptor because people may sleep in a hotel.

- **Category 3, Institutional:** This category includes institutions and offices that have vibration-sensitive equipment and have the potential for activity interference such as schools, churches, and doctors' offices.[5]

Based on these categories, the nearby residential units and the hotel are classified as Category 2 and the nearby daycare center is classified as Category 3 and therefore, are considered vibration-sensitive. No other categories of vibration-sensitive receptors have been identified in the vicinity of the project site.

In certain situations, extreme vibration can cause minor cosmetic or substantial building damage (particularly if older historic structures are located nearby). Historic buildings tend to be more susceptible to vibration (due to age and use of older construction techniques), depending on the condition of the buildings. No historic buildings are in the vicinity of the project site.[6] Other buildings that are sufficiently close to the project site such that they may potentially be affected during project construction include:

- An office building located 5 feet to the west of the project site.
- Several residential buildings to the south of the project site, with the closest two buildings located approximately 13 feet from the project site property line.

(3) Ambient Noise and Vibration Environment

The primary sources of noise in the vicinity of the project site are: (1) traffic on State Route 92 (SR-92), which runs east to west approximately 590 feet north of the project site; (2) traffic on Metro Center Boulevard, which runs east to west approximately 30 feet north of the project site; and (3) traffic on Shell Boulevard, which runs north to south approximately 40 feet east of the project site.[7] There are no sources of ambient vibration at the project site or its vicinity.

The Noise Element of the General Plan includes a noise contour map for 2010. According to the noise contours, ambient noise at the project site ranged from 68 to 70 dBA L_{dn} in the northern portion of the project site, and was less than 68 dBA L_{dn} in the southern portion of the project site in 2010.[8] Land use in the immediate vicinity (within 1,000 feet) of the project site has not changed

[5] Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

[6] Violet, Carla, Urban Planning Partners, Inc., 2019. Email communications with Lisa Luo, Baseline Environmental Consulting, August 30.

[7] Distances are measured from centerlines of the roadways.

[8] According to the noise contours for 2010, noise from SR-92 was 65 dBA L_{dn} at the project site; traffic noise from Metro Center Boulevard ranged from 57 to 65 dBA L_{dn} on the northern portion of the project site (within 145 feet from

significantly since 2010.[9] Since, based on the additive properties of noise, traffic volumes would need to nearly double in order to produce a perceivable increase noise levels, these noise estimates are still considered representative of the existing conditions.

2. Regulatory Setting

In California, noise is primarily regulated at the local level, through the implementation of general plan policies and local noise ordinances. The State provides guidance for the preparation of general plan noise elements. The purpose of a local general plan is to identify the general principles intended to guide land use and development, and the purpose of the ordinances is to specify the standards and requirements for implementing the principles of the general plan.

a. State Regulations

The California Noise Control Act and the applicable sections of the California Building Code are summarized below.

(1) California Noise Control Act

Sections 46000 to 46080 of the California Health and Safety Code codify the California Noise Control Act of 1973. This act established the Office of Noise Control under the California Department of Health Services. It requires that the Office of Noise Control adopt, in coordination with the Office of Planning and Research, guidelines for the preparation and content of noise elements for general plans. The most recent guidelines are contained in the California Office of Planning and Research's General Plan Guidelines.[10] The document provides land use compatibility guidelines for cities and counties to use in general plans to reduce conflicts between land use and noise.

(2) California Occupational Safety and Health Administration (Cal/OSHA) Regulations

The exposure of construction workers to noise is regulated by the California Occupational Safety and Health Administration (Cal/OSHA). Title 8, Subchapter 7, Group 15, Article 105 of the California Code of Regulations (Control of Noise Exposure) sets noise exposure limits for workers and requires employers who have workers who may be exposed to noise levels above these limits

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the centerline of Metro Center Boulevard) and was less than 57 dBA L_{dn} in the southern portion of the project site; traffic noise from Shell Boulevard was less than 65 dBA L_{dn} at the project site.

[9] Map showing location of the proposed project and vicinity. Google Earth, earth.google.com/web/.

[10] California Office of Planning and Research (OPR), 2017. State of California General Plan Guidelines.

to establish a hearing conservation program, make hearing protection available, and keep records of employee noise exposure measurements. The Cal/OSHA also requires backup warning alarms that activate immediately upon reverse movement on all vehicles that have a haulage capacity of 2.5 cubic yards or more (Title 8, California Code of Regulations). The backup alarms must be audible above the surrounding ambient noise level at a distance of 200 feet. In order to meet this requirement, backup alarms are often designed to generate sound as loud as 107 dBA L_{max} at 4 feet.[11]

(3) California Building Standards Code

The 2019 California Building Standards Code[12] specifies interior noise levels for both residential and nonresidential uses during operation. Specifically, it specifies that interior noise levels attributable to exterior sources shall not exceed 45 dBA L_{dn} in any habitable room (e.g., residential homes for living, sleeping, eating, or cooking).[13] The noise metric used (either L_{dn} or CNEL) shall be consistent with the noise element of the local general plan.[14] The 2019 California Building Standards Code also specifies that buildings containing non-residential uses (e.g., retail spaces and offices) that are exposed to exterior noise levels at or above 65 dBA L_{eq} or CNEL shall maintain interior noise level below 50 dBA L_{eq} in occupied areas during any hour of operation.[15] The buildings are required to comply with this interior sound level by either a prescriptive or performance method. A prescriptive method requires the use of building assemblies and components with appropriate Sound Transmission Class (STC) values and Outdoor-Indoor Sound Transmissions Class (OITC) values. A performance method requires an acoustical analysis documenting compliance with this interior sound level to be prepared by personnel approved by the architect or engineer of record before the building is built.

(4) State Noise Insulation Standards

In 1974, the State adopted Noise Insulation Standards (Title 25, State Administrative Code) for new hotels, motels, and dwellings other than single family detached dwellings. Those standards established 45 dBA (L_{dn}) as the maximum interior sound level (attributable to exterior sources) in any room. Where exterior sound levels are 60 dBA (L_{dn}) or above, acoustical analyses for projects

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[11] National Cooperative Highway Research Program (NCHRP), 1999. Mitigation of Nighttime Construction Noise, Vibrations, and Other Nuisances. NCHRP Synthesis 218.

[12] The design of the proposed project would be required to conform to the current CBC at the time of plan review, which would be the 2019 CBC (which goes into effect on January 1, 2020).

[13] Habitable space is a space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces.

[14] California Code of Regulations (CCR), Title 24, Part 2, Vol. 1, Section 1207.4.

[15] California Code of Regulations (CCR), Title 24, Part 11, Section 5.507.

are required to ensure that the structure has been designed to limit outside noise to the allowable interior levels.

b. Local Regulations

(1) Foster City General Plan

The Noise Element of the Foster City General Plan[16] establishes land use compatibility standards that are used to determine land use compatibility with the City's noise environment for both new and major redevelopment projects. The guidelines for transient lodging (e.g., hotels) are summarized in Table V.I-3 below.

TABLE V.I-3 COMMUNITY NOISE EXPOSURE (L_{DN}, DB) LEVELS

Compatibility	Transient Lodging
Normally Acceptable	<60
Conditionally Acceptable	65-75
Normally Unacceptable	75-80
Clearly Unacceptable	>80

Note:
"Normally acceptable" = Specified land use is satisfactory, based upon the assumption that any buildings
involved are of normal construction, without any special noise insulation requirements
"Conditionally Acceptable" = New construction or development should be undertaken only after a detailed analysis of noise reduction requirements Is made and needed noise insulation features included in the design.
"Normally unacceptable" = New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in design.
"Clearly unacceptable" = New construction or development clearly should not be undertaken.
Source: Foster City, 1993. Foster City General Plan, Noise Element. Adopted May.

As indicated in the Noise Element, Foster City also has adopted the maximum interior noise standards of 45 dBA L_{dn} for new hotels, which is consistent with Noise Insulation Standards (Title 25, State Administrative Code). Where exterior sound levels are 60 dBA (L_{dn}) or above, acoustical analyses for projects are required to ensure that the structure has been designed to limit the intrusion of outside noise so that the allowable interior levels can be achieved.

16 City of Foster City, 1993, op. cit.

The Noise Element of the Foster City General Plan contains the following goals, policies, and programs that are applicable to the proposed project:

Goal N-A: Assure that the Noise Impacts of New Development or Redevelopment of Property is Done in a Manner that is Compatible with Existing Land Uses. *Assure the appropriateness of new development with the noise environment of Foster City and establish mitigation measures for any changes in land use as are reasonably necessary to assure compatibility with the surrounding area.*

Policy N-1: Land Use Compatibility Standards. New development exposed to transportation noise sources must meet acceptable exterior noise level standards. The "normally acceptable" noise standards for new land uses are established in the Noise and Land Use Compatibility Guidelines (see Noise Element Background section) as modified below:

Policy N-3: Noise Contour Map. The City will review development proposals to assure consistency with noise standards by using the noise contours shown on map GP-15.

Policy N-5: Mitigating Impacts on Surrounding Uses. The City will require proposals to reduce noise impacts on adjacent properties through the following and other means, as appropriate:

a. Screen and control noise sources such as parking, outdoor activities and mechanical equipment.
b. Increase setbacks for noise sources from adjacent dwellings.
c. Wherever possible do not remove fences, walls or landscaping that serve as noise buffers, although design, safety and other impacts must be addressed.
d. Use soundproofing materials and double glazed windows.
e. Control hours of operation, including deliveries and trash pickup to minimize noise impacts.

Policy N-7: Compliance with State Noise Insulation Standards. The adopted Noise Element will serve as a guideline for compliance with the State's noise insulation standards. Recognizing the need to provide acceptable habitation environments, State law requires noise insulation of new multi-family dwellings constructed within the 60 dB L_{dn} noise exposure contours. It is a function of the Noise Element to provide noise contour information around all major sources in support of the sound transmission control standards (Chapter 2-35, Part 2, Title 24, California Administrative Code).

Policy N-8: Protecting Existing Residential Areas. Protect the noise environment in existing residential areas. In general, the city will require the evaluation of mitigation measures for projects that would cause the L_{dn} to increase by 3 dB or more, if the increase would result in an L_{dn} greater than 60 dB or if the L_{dn} already exceeds 60 dB. Projects with the potential to generate significant adverse community controversy must also be evaluated. Noise created by commercial or industrial sources associated with new projects, developments or new or existing activities conducted by existing developments or companies shall be controlled so as not to exceed the noise level standards set forth in "Noise and Land Use Compatibility Standards for Industrial and Commercial Noise Sources" table as measured at any affected residential land use.

Policy N-13 Noise Ordinance. The City will apply the quantitative noise ordinance standards (Chapter 17.68, General Performance Standards) throughout the City.

(2) Municipal Code

The City of Foster City has established regulations in the Noise Section (17.68.030) and the Vibration Section (17.68.040) of the Municipal Code. The following sections are applicable to the proposed project:

- 17.68.030(B). Noise Limits
  From 7:30 a.m. to 10:00 p.m., operational noise levels shall not exceed: 1) 60 dBA for any time duration greater than 3 minutes, or 65 dBA for any time duration less than 3 minutes at one or two family residential land use; 2) 65 dBA for any time duration greater than 3 minutes, or 70 dBA for any time duration less than 3 minutes at commercial (office) land use.

  From 10:00 p.m. to 7:30 a.m., operational noise levels shall not exceed: 1) 50 dBA for any time duration greater than 3 minutes, or 55 dBA for any time duration less than 3 minutes at one or two family residential land use; 2) 60 dBA for any time duration greater than 3 minutes, or 65 dBA for any time duration less than 3 minutes at commercial (office) land use.

- 17.68.030(E). Prohibited Acts

  (...)
  3. Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects prior to seven-thirty a.m. or after eight p.m. on weekdays and before nine a.m. or after eight p.m. on weekends and holidays in a residential district or within one hundred yards of a residential district;

  4. Permitting the operation of any tools, or equipment used in construction, repair, alteration, demolition or landscape maintenance prior to 7:30 a.m. or after 8:00 p.m. on weekdays and before 9:00 a.m. or after 8:00 p.m. on weekends and legal holidays, in a residential district or within 100 yards of a residential district, or during other hours such that the noise level from a single or multiple sources exceeds 100 dBA at the producer's property plane[17] unless prior City authorization is obtained, pursuant to Section 17.68.030(F)(7).

- 17.68.030(F). Exemptions
  (...)
  7. The operation of any tools or equipment used in construction, repair, alteration, demolition, or landscape maintenance between the hours of 7:30 a.m. and 8:00 p.m. on weekdays and between the hours of 9:00 a.m. and 8:00 p.m. on weekends and legal holidays in a residential district or within one hundred yards of a residential district is allowed, subject to the following: The noise level from a single or multiple source shall not exceed 100 dBA at

[17] "Property plane" means an imaginary vertical plane, including the property line, which determines the property boundaries in space.

the producer's property plane, unless prior authorization is obtained for such activities by the director of planning and development services. Such approvals may require special mitigation measures as determined by the director of planning and development services.

- 17.68.040. Vibration
  No vibration shall be permitted so as to cause a noticeable tremor, measurable without instruments at the lot line.

(3) Standard Conditions of Approval

Foster City has adopted SCOAs for large new and redevelopment projects. The following SCOAs related to noise would apply to the proposed project.

SCOA 1.12. Truck arrival and unloading operations shall be conducted in accordance with all applicable City Ordinance requirements. If noise associated with truck arrival or unloading operations becomes a problem, all future site lessees, operators and/or owners shall work with the City to develop a plan to minimize noise, including requiring an adjustment of truck arrival and/or unloading times.

SCOA 2.9. The construction contractor shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaints (e.g., beginning work too early, bad muffler) and institute reasonable measures warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

SCOA 7.1. Three (3) sets of an acoustical analysis, including one electronic or pdf version, shall be submitted, prepared by a licensed professional, specifying the manner in which interior noise levels will be reduced to the required Community Noise Equivalency Level (CNEL) per Title 24 of the California Administrative Code. The details of noise attenuation recommended in the report will be subject to the review and approval of the Chief Building Official.

SCOA 9.1. Construction activities shall be limited to the hours of 8 a.m. to 5 p.m. on weekdays unless deviations from this schedule are approved in advance by the City. Nonconstruction activities may take place between the hours of 7 a.m. and 8 a.m. on weekdays and 9 a.m. and 4 p.m. on Saturdays but must be limited to quiet activities and shall not include the use of engine-driven machinery. No actual construction activities may take place between 7 a.m. and 8 a.m., except when post-tension slab foundations are being poured, the concrete pumper may be set up but no concrete may be poured. Forklifts shall be allowed to operate onsite between the hours of 5 p.m. and 6:30 p.m. on weekdays. The Planning Commission reserves the right to rescind this condition and further restrict construction activities in the event that the public health, safety and welfare are not protected due to noise levels emanating from the construction project.

SCOA 9.2. In order to minimize construction noise impacts, all engine-driven construction vehicles, equipment and pneumatic tools shall be required to use effective intake and exhaust mufflers; equipment shall be properly adjusted and maintained; all construction equipment shall be equipped with mufflers in accordance with OSHA standards.

SCOA 9.10. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.

SCOA 9.11. The construction contractor shall locate equipment staging in areas that will create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.

SCOA 9.12. The following controls shall be implemented at all construction sites within the project to control dust production and fugitive dust.

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations (CCR). Clear signage shall be provided for construction workers at all access points.

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section analyzes impacts related to noise and vibration that could result from implementation of the proposed project. The section begins with the criteria of significance described in Appendix G of the CEQA Guidelines and establishes the thresholds for determining whether an impact is significant based on federal, State, and local regulations. The latter part of this section presents the impacts associated with the proposed project and identifies SCOAs and/or mitigation measures to address these impacts, as needed.

a. Significance Criteria

For the purposes of this Draft EIR and in accordance with Appendix G of the CEQA Guidelines and General Plan, the project would have a significant noise impact if it would:

1. Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
2. Result in generation of excessive groundborne vibration or groundborne noise levels;
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; or
4. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

b. Thresholds of Significance

To apply the significance criteria listed above, the analysis in this section uses the following significance thresholds, which are based on federal, State, and local regulations.

(1) Construction Noise Thresholds

Consistent with Municipal Code Section 17.68.030, construction noise at the project site would be considered significant if it would exceed 100 dBA at the producer's property plane. The property plane for the project site is considered as the project site boundary. This threshold applies to noise significance Criterion 1.

(2) Operational Noise Thresholds

Consistent with the General Plan Policy N-8, this analysis considers permanent increases in ambient noise levels as a result of project-generated traffic to be significant when project-generated traffic would result in a permanent increase of 3 dBA or more over existing ambient noise levels.

This analysis considers permanent increases in ambient noise levels as a result of other operational noise (such as the use of mechanical heating, ventilation, and air conditioning (HVAC) systems, and delivery and loading and unloading activities) to be significant when operational noise exceeds levels set forth in the Foster City Municipal Code, including the following restrictions:

From 7:30 a.m. to 10:00 p.m., operational noise levels shall not exceed: 1) 60 dBA for any time duration greater than 3 minutes, or 65 dBA for any time duration less than 3 minutes at one or two family residential land use; 2) 65 dBA for any time duration greater than 3 minutes, or 70 dBA for any time duration less than 3 minutes at commercial (office) land use.

From 10:00 p.m. to 7:30 a.m., operational noise levels shall not exceed: 1) 50 dBA for any time duration greater than 3 minutes, or 55 dBA for any time duration less than 3 minutes at one or two family residential land use; 2) 60 dBA for any time duration greater than 3 minutes, or 65 dBA for any time duration less than 3 minutes at commercial (office) land use. This threshold applies to noise significance Criterion 1.

(3) Vibration Thresholds

Consistent with guidance from the Federal Transit Administration (FTA), vibration impacts from the proposed project would be considered potentially significant if they would exceed the FTA's recommended vibration thresholds to prevent disturbance to people from "Occasional Events"[18]

[18] The same kind of vibration events are not expected to occur over 70 times per day (the "Frequent Events" disturbance criteria) because the types of equipment and their location on the project site would vary each day during

(see Table V.I-4) or damage to buildings (see Table V.I-5). Specifically, the following thresholds are used for this analysis: 75 VdB for disturbance at nearby residential units and the hotel; 78 VdB for disturbance at the daycare center; and 0.3 in/sec PPV at both the office building and nearby residential units for potential cosmetic damage. This threshold applies to significance Criterion 2.

TABLE V.I-4 VIBRATION CRITERIA TO PREVENT DISTURBANCE – RMS (VDB)

Land Use Category	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Buildings where vibration would interfere with interior operations	65	65	65
Residences and buildings where people normally sleep	72	75	80
Institutional land uses with primarily daytime use	75	78	83

[a] More than 70 vibration events of the same kind per day or vibration generated by a long freight train.
[b] Between 30 and 70 vibration events of the same kind per day.
[c] Fewer than 30 vibration events of the same kind per day.
Source: Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

TABLE V.I-5 VIBRATION CRITERIA TO PREVENT DAMAGE TO STRUCTURES – PPV (IN/SEC)

Building Category	Peak Particle Velocity
Reinforced-concrete, steel or timber (no plaster)	0.5
Engineered concrete and masonry (no plaster)	0.3
Non-engineered timber and masonry buildings	0.2
Buildings extremely susceptible to vibration damage	0.12

Source: Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

(4) Land Use Compatibility Thresholds

Exterior Noise

According to the values in Table V.I-3, new construction or development of transient lodging should not be undertaken if the exterior noise level is above 80 dBA L_{dn}. In this analysis, a significant land use compatibility impact would be identified if exterior noise would exceed 80 dBA L_{dn} at the project site.

construction. The "Occational Events" disturbance criteria are applied because these are more conservative than the "Infrequent Events" disturbance criteria.

Interior Noise

Consistent with the Noise Insulation Standards (Title 25, State Administrative Code) for new hotels, a noise level of 45 dBA L_{dn} is the maximum allowable interior sound level (attributable to exterior sources) in any room. Where exterior sound levels are 60 dBA (L_{dn}) or above, acoustical analyses for projects are required to ensure that the structure has been designed to limit outside noise to the allowable interior levels.

In this analysis, a significant land use compatibility impact would be identified if interior noise would exceed 45 dBA L_{dn} in the hotel due to the ambient exterior noise levels. This threshold applies to significance Criterion 4.

c. Analysis and Findings

The following discussion describes the impacts associated with noise and vibration that would result from the project.

(1) Substantial Temporary or Permanent Increase in Ambient Noise Levels (Criterion 1)

Construction Phase (Temporary)

The primary noise impacts from construction of the proposed project would occur from noise generated by the operation of heavy construction equipment on the project site. Secondary sources of noise during construction would include increased traffic flow from the transport of workers, equipment, and materials to the project site.

Noise from Heavy Construction Equipment

Construction of the proposed project would involve site preparation, grading, building construction, paving, and architectural coating. Construction is expected to occur over a period of approximately 26 months and would temporarily increase noise levels in the vicinity of the project site. Grading and foundation work, including the placement of piles, are typically the noisiest phases of construction and would occur during the first phases of construction. The later phases of construction include activities that are typically quieter and that occur within the building under construction, and the completed walls of the new building provide a barrier for noise between the construction activity and any nearby receptors.

The Geotechnical Investigation recommends a deep foundation system, such as pre-cast, pre-stressed (PCPS) driven concrete piles or auger-cast piles based on the evaluation of subsurface conditions.[19] PCPS requires piles to be forced into the ground with an impact pile-driving hammer while auger-cast piles utilize a drilled hole for the pile (i.e., no impact driving) and would be expected to generate less noise than PCPS during pile installation. This analysis conservatively assumes that piles would be installed with an impact pile driver.

Table V.I-6 shows typical noise levels associated with various types of construction equipment that may be used at the project site. To evaluate potential construction noise impacts associated with the proposed project, this analysis quantified the noise levels that would result from the simultaneous operation of the two noisiest pieces of equipment expected to be used during each construction phase (this is a standard analytical approach used in acoustical analysis to estimate construction noise levels).[20] Table V.I-6 also presents the buffer distance that would be required to reduce noise levels to below the 100-dBA threshold that is established by Foster City Municipal Code. Section 17.68.030 of the Municipal Code prohibits noise exceeding 100 dBA at the producer's property plane. The property plane for the project site is considered as the project site boundary. Based on the results of the noise calculation presented in Table V.I-6, noise levels would be less than the 100-dBA-threshold during the noisiest phase of construction when the noise generating source is 29 feet or more away from the receptor. Although most heavy construction equipment would operate in the middle of the project site and would generate noise levels at the property line of less than 100 dBA, nearby off-site receptors may be perceived as much louder when equipment operates closer to the property boundary. Site preparation, grading, and paving could also occur adjacent to the eastern and western boundary of the project site. Therefore, based on the values in Table V.I-6, noise levels generated from the construction activities would have the potential to exceed 100 dBA at the producer's property plane.

SCOA 2.9 specifies required measures to address and track construction noise complaints during construction by designating a noise disturbance coordinator. SCOA 9.1 provides limits on the days and hours of construction to avoid generating noise when it would be most objectionable to neighboring residences and occupants of the nearby existing hotel. SCOA 9.2 requires all engine-driven construction vehicles, equipment, and pneumatic tools to use effective intake and exhaust mufflers; to be properly adjusted and maintained; and to be equipped with mufflers in accordance with OSHA standards. SCOA 9.10 requires the greatest possible distance between the stationary construction equipment and the sensitive receptors near the project site. SCOA 9.11 requires the greatest possible distance between the staging areas and the sensitive receptors

[19] Romig Engineers, 2019. Geotechnical Investigation Hotel Building Metro Center Boulevard, August.

[20] Federal Transit Administration (FTA), 2018, op. cit.

TABLE V.I-6 TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT (DBA)

Phase	Equipment	Amount	Noise Level at 50 Feet	Two Noisiest Pieces of Equipment Combined at 50 Feet (dBA)	Required Buffer Distance (in Feet) from Source to Project Site Boundary to Avoid Exceedance of 100-dBA
Site Preparation	Rubber Tired Dozers	3	85	88	13
	Tractors/Loaders/Backhoes	4	84		
Grading	Excavators	1	85	95	29
	Graders	1	85		
	Rubber Tired Dozers	1	85		
	Tractors/Loaders/Backhoes	3	84		
	Pile Drivers (Impact)	1	95		
Building Construction	Cranes	1	85	88	13
	Forklifts	3	NA		
	Generator Sets	1	82		
	Tractors/Loaders/Backhoes	3	84		
	Welders	1	73		
Paving	Cement and Mortar Mixers	2	85	88	13
	Pavers	1	85		
	Paving Equipment	2	85		
	Rollers	2	85		
	Tractors/Loaders/Backhoes	1	84		
Architectural Coating	Air Compressors	1	80	80	5

Notes: The types of construction equipment are based on the California Emissions Estimator Model (CalEEMod) default equipment list (see *Section V.D, Air Quality* and Appendix C).
NA – Not available. Forklifts are not considered heavy construction equipment and therefore their noise levels are not available.
Source: U.S. Department of Transportation, 2006. FHWA Highway Construction Noise Handbook.

near the project site. SCOA 9.12 limits idling times to no longer than five minutes when not in use.

Implementation of the above SCOAs would reduce construction-period noise at the nearby sensitive receptors to the extent feasible. However, the amount of noise reduction that would result from implementation of the SCOAs is not practicably quantifiable, and the construction of the proposed project could still generate noise levels that conflict with the maximum noise limits at the producer's property plane established by Foster City Municipal Code regulations. As a result, the potential of the proposed project to generate noise levels that would exceed City regulations is considered significant.

Impact NOISE-1: The operation of the construction equipment on the project site could result in temporary noise in excess of standards established in the Foster City Municipal Code. (S)

Mitigation Measure NOISE-1: The project applicant shall comply with the following restrictions to reduce potential noise impacts. The contractor shall maintain the following distances from the project site boundary (i.e., noise-generating equipment shall not be operated within these "buffer areas") during different phases of construction: 5 feet for architectural coating; 13 feet for site preparation, building construction, and paving; 29 feet for grading. Should construction activities be required within these buffer areas, consistent with Municipal Code Section 17.68.030(F) – Exemptions, the project applicant shall obtain prior authorization from the director of planning and development services. The project applicant shall also comply with any special mitigation measures as determined by the Community Development Director (referred to as director of planning and development services in the ordinance), which could include but are not limited to the control measures in applicable SCOAs to reduce temporary construction noise impacts. The applicable SCOAs are SCOA 2.9, SCOA 9.1, SCOA 9.2, SCOA 9.10, and SCOA 9.11. Other special mitigation measures could include, but are not limited to the following:

- Electrical Power. Electrical power, rather than diesel equipment, shall be used to run compressors and similar power tools and to power temporary structures, such as construction trailers or caretaker facilities.
- Workers' Radios. All noise from workers' radios shall be controlled to a point that they are not audible at sensitive receptors near construction activity.
- Smart Back-up Alarms. Mobile construction equipment shall have smart back-up alarms that automatically adjust the sound level of the alarm in response to ambient noise levels.
- Sound Barrier. Construct or use temporary noise barriers, as needed, to shield noise from the noise-generating construction phases from adjacent residential units to the south of the project site to the extent feasible. To be most effective, the barriers shall block line of sight between noise-generating construction equipment and adjacent residential windows and shall be placed as close as possible to the noise source or the sensitive receptors. Examples of barriers include portable acoustically lined enclosure/housing for specific equipment (e.g., jackhammer and pneumatic-air tools, which generate the loudest noise), temporary noise barriers (e.g., solid plywood fences or portable panel systems, minimum 8 feet in height), and/or acoustical blankets, as feasible.

- Noise Monitoring. Monitor the effectiveness of noise attenuation measures by taking noise measurements at the project site boundary during grading and foundation work (which are typically the noisiest phases of construction). (LTS)

Mitigation Measure NOISE-1 is consistent with the requirements from Foster City Municipal Code and therefore would reduce the adverse impacts associated with construction noise to a less-than-significant level.

Noise from Increased Traffic Flow

During construction, secondary sources of noise would include increased traffic flow from the transport of workers, equipment, and materials to the project site. The project site is surrounded by major roadways and exposure to high traffic flow is an existing condition. Based on the additive properties of noise, traffic volumes would have to nearly double to result in a perceptible increase in ambient noise levels due to construction worker personal vehicle trips. The additional construction worker personal vehicle trips would not double traffic volumes and, therefore, would not generate a perceivable increase in existing noise levels.[21]

As a worst-case assumption, construction of the proposed project could generate up to 3,250 truck trips during site preparation over the course of a construction work week allowable by SCOA (five work days).[22] These truck trips could generate noise levels of up to approximately 65 dBA L_{eq} during site preparation.[23] As discussed above, the ambient noise levels would range from 68 to 70 dBA L_{dn} in the northern portion of the project site where the truck trips would be located. Increased truck trips during site preparation could increase ambient noise level by 2 dBA, which is below the 3-dBA level for a perceivable difference to occur. Therefore, impacts associated with construction noise from increased traffic flow would be less than significant.

[21] Numbers of worker personal vehicle trips are based on the California Emissions Model (CalEEMod) (see *Section V.D, Air Quality* and Appendix C). The project could generate up to four worker personal vehicle trips per day during construction.

[22] Numbers of truck trips and duration are based on the California Emissions Model (CalEEMod) (see *Section V.D, Air Quality* and Appendix C).

[23] Traffic noise model outputs are included in Appendix D. FHWA TNM Version 2.5 model was used for these results.

Operational Phase

HVAC Systems

The operation of the proposed hotel would include the use of new mechanical heating, ventilation, and air conditioning (HVAC) systems. Information regarding the noise-generating characteristics and locations of the equipment was not available at the time this analysis was conducted. However, noise from mechanical equipment would be required to comply with the operational standards set forth in Foster City Municipal Code Section 17.68.030.B as follows:

From 7:30 a.m. to 10:00 p.m., noise levels from mechanical equipment shall not exceed: 1) 60 dBA for any time duration greater than 3 minutes, or 65 dBA for any time duration less than 3 minutes at one- or two-family residential land use; 2) 65 dBA for any time duration greater than 3 minutes, or 70 dBA for any time duration less than 3 minutes at commercial (office) land use.

From 10:00 p.m. to 7:30 a.m., noise levels from mechanical equipment shall not exceed: 1) 50 dBA for any time duration greater than 3 minutes, or 55 dBA for any time duration less than 3 minutes at one- or two-family residential land use; 2) 60 dBA for any time duration greater than 3 minutes, or 65 dBA for any time duration less than 3 minutes at commercial (office) land use.

Controls that would typically be incorporated to attain this outcome include locating equipment in less noise-sensitive areas, when feasible; selecting quiet equipment; providing sound attenuators on fans and sound attenuator packages for cooling towers and emergency generators; and providing acoustical screen walls and equipment enclosures, which would be required as part of building design.

Compliance with the Foster City Municipal Code would ensure that appropriate noise controls on mechanical equipment are applied, and would reduce the impact to a less-than-significant level.

Delivery Trucks

As required by SCOA 1.12, truck arrival and unloading operations shall be conducted in accordance with all applicable City Ordinance requirements. Foster City Municipal Code Section 17.68.030.E(3) provides time restrictions for when loading and unloading activities can occur (if located within 300 feet from a residential district). Because the loading area is located within 300 feet from a residential district, loading and unloading activities would be limited to between 7:30 a.m. and 8:00 p.m. on weekdays and between 9:00 a.m. and 8:00 p.m. on weekends and holidays.

As also required by City Ordinance, during the above time period, operational noise levels shall not exceed: 1) 60 dBA for any time duration greater than 3 minutes, or 65 dBA for any time duration less than 3 minutes, at one- or two-family residential land use; 2) 65 dBA for any time duration greater than 3 minutes, or 70 dBA for any time duration less than 3 minutes, at commercial (office) land use.

During loading and unloading activities, noise would be mainly generated by the trucks' engines and exhaust systems, which would produce noise levels of approximately 75 dBA L_{max} at 50 feet.[24] The loading area would be located on the northwestern side of the project site. The opening on the north of the loading area would face a parking lot to the north of the project site. The opening on the south side of the loading area would face the parking structure of the project. Otherwise, the loading area would have walls on the east and west sides, and the office building to the west would be shielded from noise by the wall of the proposed building to the east of the loading area. The wall could reduce noise as much as 15 dBA.[25] Therefore, the resulting noise from trucks' engines and exhaust systems of 60 dBA L_{max} at 50 feet would not exceed the operational noise standard of 65 dBA for any time duration greater than 3 minutes, or 70 dBA for any time duration less than three minutes at commercial (office) land use.

In addition, SCOA 1.12 requires development of a plan to minimize noise from truck arrival or unloading operations if this becomes a problem (i.e., if receipt of complaints from surrounding receptors). This plan, if needed, would include requirements that truck arrival and/or unloading times are further restricted to minimize/eliminate the effects on nearby receptors.

For these reasons, the potential for noise generated by delivery trucks to result in a significant permanent noise increase at the project site would be less than significant.

Traffic-Generated Noise

AM and PM peak-hour traffic volumes were analyzed at 13 intersections in the vicinity of the project site and the results indicate that the increase in traffic volumes would range from approximately 0 to 4.7 percent along local roadway segments, as described in *Section V.C, Transportation*. The highest traffic volume increase of 4.7 percent would occur along Metro Center Boulevard between Vintage Park Drive and Shell Boulevard during the AM peak period. The predicted existing and Existing Plus Project traffic noise levels for this roadway segment are summarized in Table V.I-7 below. Traffic noise was determined using the Federal Highway Administration's Traffic Noise Model, the results of which are contained in Appendix D. Results

[24] Federal Transit Administration (FTA), 2018, op. cit. Truck idling noise is anticipated to be similar to bus idling noise.

[25] Federal Highway Administration (FHWA), 1976. The Audible Landscape: A Manual for Highway Noise and Land Use, August.

TABLE V.I-7 EXISTING AND EXISTING PLUS PROJECT PEAK-HOUR TRAFFIC NOISE LEVELS FOR THE ROADWAY SEGMENT WITH HIGHEST INCREASE, DBA L_{EQ} AT 50 FEET

Roadway Segment	Existing Traffic Noise Levels[a]	Existing Plus Project Traffic Noise Levels[a]	Estimated Increase in Noise[b]
Metro Center Boulevard between Vintage Park Drive and Shell Boulevard (AM peak period)	63.8	64.1	0.3

[a] Noise levels were determined using Federal Highway Administration (FHWA) TNM Version 2.5 model. Traffic noise model outputs are included in Appendix D. Road center to receptor distance is approximately 50 feet. The analysis considered 97 percent automobile and 3 percent heavy truck under the existing condition for this roadway segment. The analysis also assumed that project-generated traffic would not change the existing traffic distribution. Traffic speeds were set at 30 miles per hour.
[b] Considered significant if the incremental increase in noise from traffic is greater than the existing ambient noise level by 3 dBA L_{eq}, consistent with the General Plan Policy N-8.
Source: Fehr & Peers, 2019.

from the model show that traffic noise is expected to increase by about 0.3 dBA along this roadway segment. As this segment would have the greatest predicted increase in project-related traffic, noise increases along other roadway segments affected by the proposed project would be less than 0.3 dBA. This level of noise is below the 3-dBA significance threshold for project-generated traffic noise. Consequently, implementation of the proposed project would not result in a significant increase in traffic noise along local area roadways.

(2) Groundborne Vibration (Criterion 2)

Construction Phase

Construction activities associated with the proposed project would result in varying degrees of groundborne vibration, depending on the equipment type, activity, and soil conditions. Published reference vibration levels for construction equipment that could be used at the project site are presented in Table V.I-8. Table V.I-8 also presents the buffer distances at which vibration levels would be reduced below the 75-VdB threshold for disturbance at residential units and the hotel, the 78-VdB threshold for disturbance at the daycare center, and the 0.3-in/sec PPV threshold for potential cosmetic damage at the office building and nearby residential units. The impacts associated with vibration disturbance and vibration damage are discussed in detail below.

Vibration Disturbance

As discussed above, residential units are located less than 15 feet south of the project site and the Courtyard by Marriott is located 170 feet east of the project site, within the 428-foot buffer (see Table V.I-8) where impact pile driving from the project could exceed the 75-VdB threshold. Therefore, disturbance associated with pile driving may occur at the residential units south of the project site and the Courtyard by Marriott. It should be noted that the 428-foot buffer distance is conservatively calculated based on the upper range of the highest level of vibration (i.e., impact pile driver) being operated at the construction zone boundary. Locations of construction equipment would vary over time, and the equipment with the potential to generate the highest vibration levels would not be in use every day. Therefore, the construction vibration impact at any given receptor would generally be limited in both frequency and duration.

Foster City KinderCare is located outside of the 340-foot buffer (see Table V.I-8) where impact pile driving from the proposed project could exceed the 78-VdB threshold at which a disturbance may occur at institutional daytime uses.

Construction of the project would be subject to SCOA 2.9 and SCOA 9.1. Implementation of SCOA 2.9 would allow sources of potentially disruptive construction vibration to be quickly controlled or eliminated by designating a noise disturbance coordinator who shall determine the cause of the noise/vibration complaints and institute reasonable measures warranted to correct the problem. SCOA 9.1 limits construction hours to between 8:00 a.m. and 5:00 p.m. on weekdays, which would limit any impacts to normal daytime hours, thereby reducing the likelihood of disturbing residents or guests of the Courtyard by Marriott (i.e., through interfering with sleep).

Compliance with SCOA 2.9 and SCOA 9.1 would reduce the adverse impacts associated with vibration disturbance to a less-than-significant level.

Vibration Damage

As discussed above, an office building is 5 feet to the west of the project site and several residential buildings are to the south of the project site with the closest two buildings located less than 15 feet away. Construction for the proposed project could generate vibration that may damage the office building, as it is within the buffer distances shown on Table V.I-8. Construction for the project could generate vibration that could damage the nearby residential buildings if an impact pile driver is used within 109 feet of the buildings or if a vibratory roller is used within 18 feet of the buildings.

Impact NOISE-2: Construction of the project could cause vibration damage to the office building to the west of the project site and the residential buildings to the south of the project site. (S)

Mitigation Measure NOISE-2: The project applicant shall comply with the following restrictions to reduce potential vibration impacts to adjacent buildings. The contractor shall maintain the following distances from adjacent buildings during use of the stipulated equipment: 110 feet for an impact pile driver; 20 feet for any piece of nonimpact equipment (e.g., a vibratory roller, a large bulldozer, or a loaded truck. Should site conditions require the

TABLE V.I-8 REFERENCE VIBRATION LEVELS AND BUFFER DISTANCES FOR CONSTRUCTION EQUIPMENT

			Buffer Distances for Vibration Disturbance (Feet)		Buffer Distances for Vibration Damage (Feet)
Equipment	RMS at 25 Feet (VdB)[a]	PPV at 25 Feet (in/sec)[b]	Residential Units and the Hotel (75 VdB Threshold)	Daycare Center (78 VdB Threshold)	Office Building and Nearby Residential Units (0.3 in/sec PPV Threshold)
Pile Driver (Impact) Upper Range	112	1.518	428	340	109
Pile Driver (Impact) Typical	104	0.644	232	184	50
Vibratory Roller	94	0.210	107	85	18
Large Bulldozer	87	0.089	63	50	8.3
Caisson Drilling	87	0.089	63	50	8.3
Loaded Trucks	86	0.076	58	46	7.2
Small Bulldozer	58	0.003	7	5	0.4

Note: Receptors within the buffer distance could be affected by construction-generated vibration.
[a] RMS = root mean square, VdB = vibration decibel,
[b] PPV = peak particle velocity, in/sec = inches per second
Buffer distances are calculated based on the following equations:
PPV2 = PPV1 x (D1/D2)^1.1
Where:
PPV1 is the reference vibration level at the reference distance (25 feet), and PPV2 is the calculated vibration level (in this case 0.3 in/sec).
D1 is the reference distance (in this case 25 feet), and D2 is the distance from the equipment to the receiver (in this case the buffer distance).
RMS2 = RMS1 – 30 Log10 (D2/D1)
Where:
RMS1 is the reference vibration level at the reference distance (25 feet), and RMS2 is the calculated vibration level (in this case 75 VdB and 78 VdB).
D1 is the reference distance (in this case 25 feet), and D2 is the distance from the equipment to the receiver (in this case the buffer distance).
Source of Equation: Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September; California Department of Transportation (Caltrans), 2013. Transportation and Construction Vibration Guidance Manual, September.

use of this construction equipment within that area, a structural engineer or other appropriate professional shall be retained to prepare a vibration impact assessment (assessment) for the adjacent buildings. The assessment shall be conducted in accordance with Federal Transit Administration (FTA) guidance and include project-specific information such as the composition of the buildings, location of the various types of equipment used during each phase of the project, and the soil characteristics in the project area. If the assessment finds that the project may cause damage to these buildings, the structural engineer or other appropriate professional shall recommend design means and methods of construction to avoid the potential damage, if feasible. The assessment and its recommendations shall be reviewed and approved by the City of Foster City. If there are no feasible design means and methods to eliminate the potential for damage, the structural engineer or other appropriate professional shall undertake an existing conditions study (study) of any buildings that may experience damage. The study shall be included in the project noise control plan and establish the baseline condition of adjoining buildings including, but not limited to, the location and extent of any visible cracks or spalls on the buildings. The study shall include written descriptions and photographs of the buildings. Upon completion of the project, the building shall be resurveyed, and any new cracks or other changes in the building shall be compared to pre-construction conditions and a determination shall be made as to whether the proposed project caused the damage. If it is determined that project construction has resulted in damage to the building, the damage shall be repaired to the pre-existing condition by the project sponsor, provided that the property owner approves of the repair. (LTS)

Mitigation Measure NOISE-2 provides buffer distances to avoid potential damage, and requires a vibration impact assessment if it is infeasible to avoid potential vibration damage. The assessment would require alternative design means and methods to avoid the potential damage. If damage occurs due to project construction, the project sponsor would be responsible to repair the damage to the pre-existing condition. These would reduce the adverse impacts associated with vibration damage to a less-than-significant level.

Operational Phase

Once constructed, the operation of the proposed project would not cause any vibration or result in excessive vibration impacts because no significant vibration-generating activities or land uses would occur on the project site. Therefore, there would be no impact related to operational vibration.

(3) Aircraft Noise (Criterion 3)

The project site is not located within the vicinity of a private airstrip. The project site is located approximately 3.3 miles north of the San Carlos Airport and approximately 6.7 miles southeast of the San Francisco International Airport (SFO).[26] The project site is located within Area A of the Airport Influence Area (AIA) Boundary of the San Carlos airport, where requirements for real estate disclosure are mandatory due to potential noise issues. The project site is located within Area B of the AIA Boundary of the SFO, where land development proposals shall be reviewed by the Airport Land Use Commission. In addition, real estate disclosures are also mandatory.[27] As regulated by Federal Aviation Regulations (FAR) Part 150, CNEL 65 dB is considered the ambient noise level above which residential and other noise-sensitive land uses (including schools, hospitals, and places of worship) are considered incompatible. The project site is located outside of the 60-dBA CNEL contour area defined in the Land Use Plan for the San Carlos Airport and is located outside of the 65-dBA CNEL contour area defined in the Land Use Plan for the SFO. Therefore, the proposed project would not expose people at the project site to excessive noise levels from any public use airports. The impact would be less than significant.

(4) Land Use Compatibility (Criterion 4)

Exterior Noise

As discussed under "Land Use Compatibility Thresholds", this analysis considers a land use compatibility impact related to exterior noise to be significant if exterior noise would exceed 80 dBA L_{dn} at the project site. Because the existing ambient noise levels range from 68 to 70 dBA L_{dn} at the proposed hotel building location, the potential land use compatibility impacts related to exterior noise at the hotel building would be less than significant.

Interior Noise

A typical building façade with windows closed provides a noise level reduction of approximately 25 dBA,[28] and therefore conventional construction would likely reduce the interior noise levels for the proposed hotel building to 43 dBA L_{dn} to 45 dBA L_{dn}, given the ambient noise levels cited above. This would be consistent with the Noise Insulation Standards (Title 25, State Administrative Code) for new hotels of 45 dBA L_{dn}. The Noise Insulation Standards also require

[26] Federal Aviation Administration (FAA), 2019. Airport Data and Contact Information. Effective: August 15, 2019. Database searched for both public-use and private-use facilities in San Mateo County. Available at: http://www.faa.gov/airports/airport_safety/airportdata_5010/, accessed September 3, 2019.

[27] City/County Association of Governments of San Mateo County, 2012. Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport, November. Available at: http://ccag.ca.gov/plansreportslibrary/airport-land-use/, accessed August 13, 2019.

[28] Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers.

acoustical analyses for projects exposed to exterior sound levels of 60 dBA L_{dn} or above to ensure that the structure has been designed to limit outside noise to the allowable interior levels.

The proposed project would be required to comply with SCOA 7.1, which requires an acoustical analysis prepared by a licensed professional, specifying the manner in which interior noise levels will be reduced to the required Community Noise Equivalent Level (CNEL) per Title 24 of the California Administrative Code of 45 dBA L_{dn}. The details of noise attenuation recommended in the report will be subject to the review and approval of the Chief Building Official.

With the implementation of SCOA 7.1, the potential for the proposed project to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect would be less than significant.

d. Cumulative Noise Impacts

For noise and vibration, the geographic scope for assessing cumulative impacts is the near vicinity of the project. Noise and vibration dissipate with increased distance from the source; therefore, cumulative noise and vibration impacts would not be expected unless new sources of noise are located in close proximity to each other.

There are a total of eight projects included in the analysis of potential cumulative noise projects. These projects (the cumulative projects) are listed in *Section V.H, Hydrology and Water Quality.* The construction of the two projects nearest the project site (1297 Chess Drive project and Town Place Suites project) is already complete, and, therefore, there would be no overlap of construction schedules that could result in cumulative construction noise or vibration impacts. All the other cumulative projects are located at least 1,300 feet from the project site and would be separated from the project site by multiple rows (more than six rows) of buildings. Due to their distance from the project site, construction of these projects would not have the potential to combine with project-generated construction noise to produce cumulatively considerable noise or vibration levels.

(1) Cumulative Construction Phase Impacts

As indicated in Table V.I-6, the noisiest phase of construction (grading) of the project could generate noise levels of 95 dBA at a distance of 50 feet from the noise-generating source, which would be less than 67 dBA at 1,300 feet or farther.[29] The first row of buildings between a noise

[29] The following propagation was used for the calculation:
Dba2=dba1+10*log10(D1/D2)^2
Dba1 is the reference noise level at a specified distance

source and a receiver provides about 5 dBA of reduction. Each subsequent row provides an additional 3 dBA of reduction, with a 20-dBA reduction as the upper limit for noise reduction.[30] With the multiple rows (more than six rows) of buildings separating the project site from the nearest cumulative project, the noisiest phase of construction of the project would generate noise levels of less than 47 dBA at a distance of 1,300 feet or farther (i.e., at the nearest cumulative project site that could be under construction at the same time as the project). During construction of cumulative projects, noise levels of 47 dBA would not be audible because this is more than 10 dBA lower than the noise levels of a typical construction equipment (of more 80 dBA) that would likely be operated at one of the cumulative project sites. (As previously noted, when the difference between two noise levels is 10 dBA or more, the amount to be added to the higher noise level is zero.) Therefore, the potential cumulative impact related to construction noise would be less than significant.

As discussed above, vibration dissipates quickly with increased distance from the source. As indicated in Table V.I-8, at a distance of over 428 feet away, construction vibration from the project would not exceed the 75-VdB threshold for residential units. The cumulative projects are located at least 1,300 feet from the project site. At that distance, vibration from the project would not combine with vibration from cumulative projects to disturb receptors or cause damage to buildings. As such, the cumulative impact related to construction vibration that could cause damage or disturbance would be less than significant.

(2) Cumulative Operational Phase Impacts

Once constructed, operation of the project would not cause any vibration or result in excessive vibration impacts since no vibration-generating activities or land uses would occur on the project site. Therefore, the project would not contribute to any cumulative vibration impact.

The primary sources of operational noise from cumulative projects include HVAC systems and increased vehicular traffic. Compliance with the Foster City Municipal Code would ensure that appropriate noise controls on mechanical equipment would be applied and would reduce the project's contribution to any potential significant cumulative permanent noise impacts related to HVAC systems to a less-than-significant level.

With regard to vehicular traffic, an assessment of traffic volumes during the AM and PM peak hours at 13 intersections in the project site vicinity was performed under a cumulative scenario,

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Dba2 is the calculated noise level
D1 is the reference distance
D2 is the distance from the equipment to the receiver
[30] Charles M. Salter Associates, Inc., 1998, op. cit.

which considers traffic generated by past, present, and probable future projects, including the proposed project. Table V.I-9 indicates the roadway segments that would be most impacted (those with increases in ambient noise levels of over 3 dBA).

TABLE V.I-9 MODELED PEAK HOUR TRAFFIC NOISE LEVELS FOR THE MOST IMPACTED LOCATIONS UNDER CUMULATIVE SCENARIO, DBA L_{EQ} AT 50 FEET

Roadway Segment	(A) Existing Traffic Noise Levels[a]	(B) Cumulative No Project Traffic Noise Levels[a]	(C) Cumulative Plus Project Traffic Noise Levels[a]	(C-A) Difference Between Cumulative Plus Project and Existing[b]	(C-B) Difference Between Cumulative Plus Project and Cumulative No Project[b]
Edgewater Boulevard between Metro Center Boulevard and E. Hillsdale Boulevard (AM peak period)	52.8	59.1	59.1	**6.3**	0
Edgewater Boulevard between Metro Center Boulevard and E. Hillsdale Boulevard (PM peak period)	52.8	59.4	59.4	**6.6**	0
Vintage Park Drive north of Chess Drive (AM peak period)	62	65.9	65.9	**3.9**	0
Vintage Park Drive north of Chess Drive (PM peak period)	61.7	65	65	**3.3**	0
Chess Drive east of Foster City Boulevard (AM peak period)	59.3	63.3	63.3	**4.0**	0
Chess Drive east of Foster City Boulevard (PM peak period)	58.7	62.7	62.7	**4.0**	0
Mariners Island Boulevard south of Edgewater Boulevard (AM peak period)	49.1	52.3	52.3	**3.2**	0

[a] Noise levels were determined using FHWA TNM Version 2.5 model. Traffic noise model outputs are included in Appendix D. Road center to receptor distance is approximately 50 feet. Traffic distribution was based on the information provided by Fehr & Peers, 2019. The analysis also assumed that traffic generated by cumulative projects would not change the existing traffic distribution. Traffic speeds were set at 30 miles per hour.
[b] Considered significant if the incremental increase in noise from traffic is greater than the existing ambient noise level by 3 dBA L_{eq}, consistent with the General Plan Policy N-8. Violations are in **bolded** text.
Source: Fehr & Peers, 2019.

As shown in Table V.I-9, there would be no difference between the noise levels in the Cumulative Plus Project scenario (which includes probable future projects as well as the project) and the Cumulative No Project scenario (which includes probable future projects but does not include the project). Although a significant cumulative noise increase is anticipated to occur along the roadway segments shown in Table V.I-9, the project would not contribute to the significant cumulative noise impact for any of the roadway segments. Consequently, the contribution of the project to the significant cumulative traffic noise increase would be less than cumulatively considerable and does not result in a significant impact.

J. PUBLIC SERVICES, UTILITIES, AND RECREATION

This section analyzes and identifies the project's potential impacts to public services, utilities, and recreation including fire and emergency services, police services, water supply, wastewater, solid waste, telecommunications, and energy. Standard Conditions of Approval (SCOAs) are recommended as appropriate. The related topic of storm drainage is evaluated in *Section V.H, Hydrology and Water Quality*.

1. Setting

This section describes existing public services and utilities locations, capacities, and expansion possibilities.

a. Fire Protection

In January of 2019, the fire departments of the cities of Belmont, Foster City, and San Mateo joined together as a Joint Powers Authority. This new Fire Department is known as The San Mateo Consolidated Fire Department (SMCFD) and provides fire suppression, prevention, life safety, and hazardous material response and containment services for Foster City, in addition to Belmont and San Mateo. SMCFD consists of nine fire stations strategically located throughout the cities of Foster City, Belmont, and San Mateo. The Fire Department's staffing, facilities and equipment, and response times are described below.

(1) Staffing

The SMCFD has a current authorized staff of 154 full-time employees and 4.5 part-time employees. Staff includes 87 firefighters, 36 captains, seven battalion chiefs, one fire chief, one fire marshal, and seven administrative staff.[1] Generally, each Fire Station in the SMCFD network has one fire engine staffed by one fire captain and two firefighter/engineers. Two stations have ladder trucks that are staffed by one fire captain and three firefighter/engineers. One member of the Engine Company is a paramedic. Most of the firefighters have special skills including, but not limited to, rescue systems, confined space, swift water, and hazardous materials.[2]

[1] Estero Municipal Improvement District (EMID), 2019. Final Budget, Fiscal Year 2019-2020. Available at: https://www.fostercity.org/sites/default/files/fileattachments/financial_services/page/3521/fy_2019-2020_final_budget.pdf, accessed September 18, 2019.

[2] San Mateo Consolidated Fire Department (SMCFD), 2018a. About Us. Available at: https://www.smcfire.org/about-us, accessed December 23, 2019.

(2) Facilities and Equipment

The Foster City Fire Station is located at 1040 East Hillsdale Boulevard, approximately 0.7 miles from the project site. The station is staffed by six firefighters and houses two fire engines and one water rescue boat. There are currently no planned improvements at this fire station, and there are no plans for the construction of new fire stations in the area.[3]

Station 26 at 1500 Marina Court in San Mateo is the second closest station to the project site, approximately 1 mile away. The station is staffed by three firefighters and equipped with one fire engine.[4]

(3) Response Times

The SMCFD's goal is to respond to 90 percent of all Priority 1 calls in under 7 minutes.[5] In 2018, the SMCFD's average response time in Foster City is approximately 5 minutes for Priority 1 and First In calls.[6] In 2019, average response times to the area of the project site were approximately 4 minutes.

The SMCFD's current Insurance Service Office (ISO) rating is Class 2 (1 being the highest and 10 being the lowest), upgraded from Class 3 in 2000. This rating considers a community's fire defense capacity versus its fire potential. The score is then used to set property insurance premiums for homeowners and commercial property owners.[7]

b. Police Services

The City of Foster City Police Department (FCPD) is located at 1030 East Hillsdale Boulevard, adjacent to Fire Station 28. The FCPD headquarters is approximately 0.7 miles from the project site. The FCPD has an authorized staff of 54 including one chief, two captains, two lieutenants, seven sergeants, six corporals, and 21 officers.[8] Citywide, one supervisor and three to five officers

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[3] Marshall, Robert, Fire Marshal, San Mateo Consolidated Fire Department (SMCFD), 2020. Personal communication with Urban Planning Partners. January 16.

[4] San Mateo Consolidated Fire Department (SMCFD), 2018b. Annual Report. Available at: https://71f04371-fe8e-43f6-9e59-9983550affde.filesusr.com/ugd/5d7bb7_41ae5667ac3442fa8b268614eb058e71.pdf, accessed December 23, 2019.

[5] San Mateo Consolidated Fire Department (SMCFD), 2018c. Field Operations. Available at: https://www.smcfire.org/field-operations, accessed December 23, 2019.

[6] San Mateo Consolidated Fire Department (SMCFD), 2018b, op. cit.

[7] City of Foster City, 2019a. Foster City Fire Department, Insurance Rating Office. Available at: https://www.fostercity.org/fire/page/insurance-rating-office, accessed June 6.

[8] Estero Municipal Improvement District (EMID), 2019. Final Budget, Fiscal Year 2019-2020. Available at: https://www.fostercity.org/sites/default/files/fileattachments/financial_services/page/3521/fy_2019-2020_final_budget.pdf, accessed September 18, 2019.

work during each daytime and evening shift. The FCPD is not fully staffed, although the department has additional support from 11 volunteers.

Based on an estimated population of 34,151 in 2018,[9] the current police officer-to-resident ratio is approximately 0.6 sworn officers per 1,000 residents, below the City's target police officer-to-resident ratio of 1 to 1.5 sworn officers per 1,000 residents, the industry standard.[10] This standard does not take daytime, non-resident populations into account. Generally, municipalities with land uses that significantly increase such populations, such as universities or large business parks, use the standard as a baseline and add officers as needed to serve those populations. The FCPD has not identified a standard that considers non-residents.

As of 2019, average response time for non-emergency calls in Foster City is 7 minutes and 30 seconds. For emergency calls throughout the city, the average response time is 4 minutes and 58 seconds. The average response times for both non-emergency and emergency calls to the project site are the same as citywide averages.[11]

c. Parks and Recreation

The City of Foster City maintains 24 parks and recreational facilities. The parks range in size from 0.12 acres to 23.9 acres, and total approximately 113.8 acres. In addition, the city contains 212 acres of recreational waterways, for a total of 325.8 acres.[12] Almost all residents live within 0.25 miles of a park or a private recreational facility. All of those who do not live within 0.25 miles of a park live within 0.25 miles of the waterfront.[13] Recreational and community facilities include the Foster City Community Center (1000 E. Hillsdale Boulevard); the VIBE Teen Center (670 Shell Boulevard); and the William E. Walker Recreation Center, which includes the Senior Center (650 Shell Boulevard).

The project site is centrally located within the city, approximately 0.25 miles from Leo J. Ryan Memorial Park, Foster City Community Center, and William E. Walker Recreation Center. Leo J. Ryan Memorial Park is a 20-acre park adjacent to the City's Central Lake (Lagoon), with amenities including a boat launch, basketball and tennis courts, an amphitheater, and multi-use paths.

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[9] U.S. Census, 2018. Quick Facts Foster City, California. Available at: https://www.census.gov/quickfacts/fostercitycitycalifornia, accessed December 24, 2019.

[10] Murray, Travis, Crime Prevention/Community Outreach Corporal, Foster City Police Department (FCPD), 2020. Personal communication with Urban Planning Partners. January 16.

[11] Ibid.

[12] City of Foster City, 2009. Parks and Open Space Element. Available at: https://www.fostercity.org/commdev/page/chapter-5-parks-and-open-space-element, accessed September 16, 2019.

[13] City of Foster City, 2019b. Parks and Facilities Map. Available at: https://www.fostercity.org/parksites/, accessed September 16, 2019.

Foster City Community Center and William E. Walker Recreation Center offer multi-purpose facilities for venue rentals and community classes. The project is also served by Foster City's segment of the San Francisco Bay Trail—the Levee Pedway/Bikeway—which is handicap-accessible within a mile of the project site to the north and southwest.

The City of Foster City currently uses the standard of 5 acres of parkland per 1,000 residents as a threshold to measure how well its citizens are provided with park and recreational facilities access. Based on an estimated population of 34,151 in 2018,[14] the City provides approximately 10 acres of parkland (including recreational waterways) per 1,000 residents, exceeding the established standard.

d. Schools

The City of Foster City and the City of San Mateo are served by two school districts: the San Mateo-Foster City School District (SMFCSD) and the San Mateo Union High School District (SMUHSD). School capacity is a growing concern for each of these districts.

The following subsection describes current conditions related to school services. The project does not include the development of new residential uses and would not result in a direct increase to the local student population. However, new students could be added to the school system indirectly if new employees move to Foster City and San Mateo from elsewhere, thus increasing the number of local households as described in *Chapter VII, CEQA Required Assessment Conclusions*. As a result, schools are considered in this EIR.

(1) San Mateo-Foster City School District

The SMFCSD operates 20 schools serving San Mateo and Foster City, including 14 elementary schools, three middle schools, and three elementary-middle schools. Districtwide enrollment as of October 2019 was 11,574 students.[15] The SMFCSD operates three elementary schools and one middle school in Foster City. Foster City, Brewer Island, and Audubon Elementary Schools are at capacity and have overflowed students to other schools in the district; both Audubon Elementary School and Bowditch Middle School provide portable buildings to accommodate enrolled

[14] U.S. Census, 2018. Quick Facts Foster City, California. Available at: https://www.census.gov/quickfacts/fostercitycitycalifornia, accessed December 24, 2019.

[15] California Department of Education, 2019. Enrollment Multi-Year Summary by Grade: San Mateo-Foster City Report. https://dq.cde.ca.gov/dataquest/dqcensus/EnrGrdYears.aspx?cds=4169039&agglevel=district&year=2018-19, accessed September 16, 2019.

students.[16] To increase student capacity in Foster City, the SMFCSD has approved construction of a new elementary school, as described below.

In February 2008, 75.5 percent of voters in San Mateo and Foster City supported Measure L, a $175 million bond to fund district-wide facility improvements, including new classrooms and buildings at the existing elementary and middle schools. In November 2015, 59 percent of voters approved Measure X, an additional $148 million bond. The SMFCSD's Board of Trustees anticipate two phases (Phase I and II) of Measure X-funded projects. Phase I is currently underway and includes additional classrooms and facilities at existing schools, as well as the construction of a new elementary school in Foster City. The new elementary school will serve approximately 425 K-5 students, with anticipated completion in 2020-2021. Anticipated development under Phase II includes a new elementary school in San Mateo.[17]

Schools may experience secondary impacts as a result of employees moving into the SMFCSD service area. To provide necessary funding for capital facilities, the City imposes an impact fee of $3.13 per square foot for development related to lodging.[18] In December 2018, voters approved Measure V, a parcel tax funding SMFCSD's educational programs and staff. Measure V is anticipated to collect $10 million in revenue over a nine-year period.

(2) San Mateo Union High School District

The San Mateo Union High School District (SMUHSD) operates six high schools and one continuation high school serving the communities of Burlingame, Foster City, Hillsborough, Millbrae, San Mateo, and San Bruno. The SMUHSD operates three high schools that serve households in Foster City: Aragon High School, Hillsdale High School, and San Mateo High School.

As of September 2018, Aragon High School was operating at 86-percent capacity, Hillsdale High School was operating at 89-percent capacity, and San Mateo High School was operating at 90 percent capacity. With total SMUHSD enrollment of 9,313 students during the 2019-2020 school year and a total enrollment capacity of 11,581 students, the entire SMUHSD was at 80 percent capacity.[19,20]

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[16] Drinkwater, Sarah, Assistant Superintendent, San Mateo-Foster City School District, 2020. Personal communication with Urban Planning Partners. January 22.

[17] San Mateo-Foster City School District (SMFCSD), 2019. Measure X Overview. Available at: http://www.smfcsd.net/en/measure-x/information-about-measure-x.html, accessed June 10, 2019.

[18] San Mateo-Foster City School District (SMFCSD), 2018. Level I Developer Fee Study, May 23.

[19] San Mateo Union High School District, 2019. Superintendent Newsletter. Available at: https://myemail.constantcontact.com/Superintendent-s-Newsletter---September-2019-.html?soid=1118656445157&aid=QuIucvDh42I, accessed September 17.

e. Water Services

The Estero Municipal Improvement District (EMID) manages the distribution, operation, and maintenance of the City of Foster City's water supply system. The City's sources of water, water treatment facilities, and water distribution system are described below. This information is based primarily on the 2020 Water Supply Assessment (WSA) completed as part of this environmental review and included as Appendix E to this EIR.

(1) Water Sources

The EMID is located midway between San Francisco and San Jose and serves a population of approximately 37,000.[21] The service area of the EMID consists of Foster City and the Mariner's Island area of San Mateo. Most customers are residential users, with a broad cross-section of offices, commercial businesses, and a small number of industrial businesses.

Today, the City of Foster City is almost built-out with several development projects in various stages of planning. Table V.J-1 shows projected service area population and employment growth in 5-year increments until the year 2040.

TABLE V.J-1 EMID PROJECTED POPULATION AND EMPLOYMENT

	2015[a]	2020	2025	2030	2035	2040
Service Area Population	36,231	37,200	37,800	38,400	39,000	39,600
Service Area Employment	23,533	28,488	29,744	32,749	34,805	35,910
Percent Population Increase		2.6	1.6	1.6	1.6	1.5
Percent Employment Increase		21.1	4.4	10.1	6.3	3.2

[a] 2015 data based on actual numbers.
Source: Estero Municipal Improvement District (EMID), 2015 Urban Water Management Plan, and 2020 WSA (Appendix E).

EMID purchases its water from the San Francisco Public Utilities Commission (SFPUC) as a contractual member of the Bay Area Water Supply Conservation Agency (BAWSCA). The SFPUC's water system consists of three regional water supply and conveyance systems: the Hetch Hetchy system, the Alameda system, and the Peninsula system. The Hetch Hetchy system

[20] McManus, Liz, Deputy Superintendent, Business Services, San Mateo Union High School District, 2020. Personal communication with Urban Planning Partners, March 4.

[21] Bay Area Water Supply & Conservation Agency (BAWSCA). Member Agency Profile: Estero Municipal Improvement District. Available at: http://bawsca.org/members/profiles/estero, September 17, 2019.

is supplied by runoff from the upper Tuolumne River watershed on the western slope of the central Sierra Nevada Mountains. The Alameda system includes conveyance facilities connecting the Hetch Hetchy aqueducts and the Alameda water sources to the Peninsula system. The Peninsula system includes water facilities that connect the EMID and other Peninsula customers to the SFPUC distribution system and the Bay Division Pipelines. EMID does not have any groundwater or recycled water sources to supplement its supply.

EMID does not hold any existing water rights—its water supply assurances are the result of its contract with the SFPUC. In 1984, the SFPUC executed a Settlement Agreement and Master Water Sales Contract with the members of BAWSCA. The Contract is governed by the Master Sales Agreement (MSA), which expired in June of 2009. In August of 2009, BAWSCA and its member agencies signed a new Water Supply Agreement and Individual Water Sales Contract with SFPUC. The contract runs through June 30, 2034 and guarantees a supply assurance of 184 million gallons per day (MGD) to BAWSCA member agencies. The supply assurance to EMID is 5.9 MGD or 6,608 acre-feet[22] per year (AFY). The portion of that supply assurance to EMID, and BAWSCA's recent water demand projections for EMID through 2040, are shown in Table V.J-2. Table V.J-2 shows that EMID water demand is, and will remain, significantly lower than its SFPUC assured supply.

Although the Master Agreement and accompanying Water Supply Contract expire in 2034, the Supply Assurance (which quantifies San Francisco's obligation to supply water to its individual wholesale customers) survives their expiration and continues indefinitely.

TABLE V.J-2 EMID CURRENT AND FUTURE WATER SUPPLY AND DEMAND (AFY)

	2015[a]	2020	2025	2030	2035	2040
SFPUC Supply	6,610	6,610	6,610	6,610	6,610	6,610
EMID Demand Projections	4,459	4,450	4,444	4,514	4,582	4,628
Annual Excess	2,151	2,160	2,166	2,096	2,028	1,982
Percent Excess	33%	33%	33%	32%	31%	30%

[a] 2015 data based on actual numbers.
Source: Estero Municipal Improvement District (EMID), 2015 Urban Water Management Plan and 2019 WSA.

According to the SFPUC's Water System Improvement Program (WSIP), the Supply Assurance is subject to reductions in the event of drought, water shortage, or earthquake, or rehabilitation/ maintenance of the system. Table V.J-3 shows SFPUC's projected deliveries to EMID for a single

[22] An acre-foot is the amount of water necessary to cover an acre of land to a depth of 1 foot; it is equivalent to 325,851.43 gallons.

dry year and for five consecutive dry years, based on the 2015 allocation of 6,608 AFY. The SFPUC WSIP calls for a 26 percent supply reduction on the normal year supply during the first year, followed by 34 percent reductions for the next four dry years. During the periods of supply reductions, EMID would have to reduce demand by implementing the Water Shortage Contingency Plan adopted in 1993.

TABLE V.J-3 EMID PROJECTED ANNUAL SUPPLY ALLOCATIONS FOR A SINGLE AND MULTIPLE DRY YEAR (AFY)

Water Supply Source	Normal Year	Single Year/ Year 1	Year 2	Year 3	Year 4	Year 5
SFPUC	6,614	4,888	4,394	4,394	4,394	4,394
EMID Demand Projections		26%	34%	34%	34%	34%

Source: Estero Municipal Improvement District (EMID), 2015 Urban Water Management Plan and 2019 WSA.

(2) Water Treatment, Distribution, and Storage Facilities

As discussed above, the majority of the SFPUC's water supply originates in the upper elevations of the Sierra Nevada Mountains, in the Tuolumne Watershed. The SFPUC treats its water to meet all drinking water standards, and the EMID receives the already-treated water from the SFPUC and distributes it to its customers. As a retailer, the EMID has no direct control over its water supply and treatment. The EMID has only one main source of water supply, a 24-inch transmission main that connects to the SFPUC's 54-inch Crystal Springs No. 2 line. The connection point is in San Mateo, on Crystal Springs Road.

In addition to the 24-inch transmission main, the EMID has two separate 12-inch emergency supply connections with the California Water Service Company (which serves the City of San Mateo) and with the Mid-Peninsula Water Agency (formerly called Belmont County Water District, which serves the City of Belmont, San Carlos, and part of Redwood City). The EMID has agreements with both agencies that allow the EMID to use these connections during emergency situations. Both the California Water Service Company and the Mid-Peninsula Water Agency are members of the BAWSCA.

The EMID has four at-grade water storage tanks with a total capacity of 20 million gallons for emergencies and peak and fire flow demand. Booster pumps are necessary to pump water from the storage tanks into the distribution system. The booster pump station has two electrical pumps and four engine-driven pumps. The engine-driven pumps are powered by natural gas with propane backup.

To enhance the ability of the SFPUC's water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply, the SFPUC is undertaking a

Water System Improvement Program (WSIP). The WSIP will deliver capital improvements aimed at enhancing the SFPUC's ability to meet its water service mission of providing high-quality water to its customers in a reliable, affordable, and environmentally sustainable manner. As of September 30, 2019, the WSIP is approximately 98 percent complete with construction finished on 35 local projects and 37 regional projects along the Hetch Hetchy Regional Water System to ensure reliable water delivery to customers. Construction is in progress on eight regional projects valued at $2.1 billion, while construction has been completed on 37 regional projects valued at $1.6 billion."[23]

f. Wastewater (Sanitary Sewer) System

The wastewater collection and treatment system serving the project site is owned by the EMID and operated by the Sewer Division of the Foster City Public Works Department. The existing collection system and wastewater treatment facilities serving the City and the project site are described below.

(1) Collection System

The Wastewater Division of the City of Foster City Public Works Department operates and maintains more than 43 miles of sanitary sewer lines, more than 8.5 miles of sewer force mains, 49 pumping stations, 15 permanent standby generators, and four portable generators to ensure that the approximately 3 million gallons of wastewater that Foster City homes and businesses generate each day is pumped to the jointly-owned San Mateo Treatment facility in San Mateo.

Wastewater is transported via a collection of mains and lift stations from the project site directly to the San Mateo Regional Water Quality Control Plant, where it is reclaimed and then discharged into the San Francisco Bay. The system is maintained and upgraded on an as-needed basis.

(2) Wastewater Treatment Facilities

Wastewater treatment is provided by the San Mateo Wastewater Treatment Plant (WWTP), which is jointly owned by the EMID and the City of San Mateo and serves over 130,000 people and businesses. The EMID owns approximately 25 percent of the treatment plant. The treatment plant has an average daily dry-weather flow capacity of 15.7 MGD, of which 4.3 MGD is the

[23] San Francisco Public Utilities Commission (SFPUC), 2018. WSIP Overview. Available at: http://www.sfwater.org/index.aspx?page=115, accessed September 6, 2019.

purchased capacity for EMID per the Joint Powers Agreement.[24] The WWTP has an actual average daily dry-weather flow of 12.3 MGD.[25] EMID's actual average daily flow is approximately 3.1 MGD, or 1.2 MGD below capacity.[26] Based on current flow data, average daily dry-weather flows produced by the EMID are below the capacities anticipated in the Joint Powers Agreement.

The WWTP can treat up to 60 MGD through primary treatment (using gravity to remove solid waste) and 40 MGD through secondary treatment (using biological processes to remove dissolved waste). During heavy rains this capacity is regularly exceeded, causing sewers to overflow. In addition, the WWTP is an aging wastewater collection system, with facilities and components that are up to 75 years old. To address these issues, the City of San Mateo's Clean Water Program is upgrading and expanding the WWTP facilities in collaboration with the City of Foster City/EMID. The WWTP upgrades will accommodate heavy storm events up to 78 MGD. Construction was initiated in August 2019 with an anticipated date of completion in 2024.[27]

g. Storm Drainage System

The project site is served by an existing public storm drain system, the main line of which runs below Shell Boulevard from the southeast corner of the project site to East Hillsdale Boulevard, where it diverts through Leo J. Ryan Park and into the Foster City Lagoon.

h. Solid Waste

The following section describes the City of Foster City's non-hazardous and hazardous waste disposal services and capacity.

(1) Non-Hazardous Solid Waste

The City of Foster City is a member agency of the South Bayside Waste Management Authority (SBWMA), also known as RethinkWaste, a joint powers authority created in 1982 to facilitate waste management programs for its member agencies. The SBWMA contracts with Recology San Mateo County, a private service, to provide recycling, compost, and garbage collection services for residents and businesses in the SBWMA service area. Non-hazardous solid waste and recyclables are taken to the Shoreway Environmental Center (Shoreway), located on the border

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[24] City of Foster City, 2016a. General Plan, Local Hazard Mitigation Plan & Safety Element, pp. 126. Adopted November 21.

[25] City of San Mateo, 2013. Wastewater Treatment Plant 20 Year Master Plan (2010-2030). Available at: http://www.cityofsanmateo.org/documentcenter/view/37550, accessed September 17, 2019.

[26] City of Foster City, 2016b. Foster City General Plan, Chapter 7: Safety Element, page 126.

[27] City of San Mateo, 2018. Clean Water Program: WWTP. Available at: http://cleanwaterprogramsanmateo.org/wwtp/, accessed September 17, 2019.

of the cities of San Carlos and Redwood City. Shoreway's facilities include a Transfer Station operated by South Bay Recycling and a Public Recycling Center.

As of 2010, the facility is permitted to receive 3,000 tons per day of solid waste and recyclables, with permit review required every five years.[28] Currently, the facility receives an average of 604 tons of trash, 330 tons of green waste, and 357 tons of recyclables, or approximately 1,291 tons of waste per day.[29] After undergoing processing, waste from Shoreway is delivered to the Corinda Los Trancos (Ox Mountain) Landfill in Half Moon Bay. The landfill handles construction, demolition, and mixed municipal waste. The landfill has a permitted throughput of 3,598 tons per day and an estimated "cease operation date" of January 1, 2034. As of December 31, 2015, the estimated remaining capacity was 22.18 million cubic yards, or 36 percent of the original total.[30]

(2) Hazardous Solid Waste

Foster City's hazardous wastes are disposed of at the Kettleman Hills Facility, Landfill B-18, which is operated by Chemical Waste Management, Inc. The Kettleman Hills Facility is in the San Joaquin Valley, about 2.5 miles west of Interstate 5, approximately midway between San Francisco and Los Angeles. The facility is approved under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and permitted under the Toxic Substances Control Act (TSCA) and the Resource Conservation and Recovery Act (RCRA) to manage hazardous waste materials.[31] The Kettleman Hills Landfill B-18 encompasses 499 acres and has a total capacity of 10.7 million cubic yards, and was "operating at near capacity" in July of 2013, according to the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control.[32] In May of 2014, a permit was approved to increase the total capacity of the landfill from 10.7 million cubic yards to 15.7 million cubic yards.[33]

According to the California Department of Resources Recycling and Recovery (CalRecycle), no closure date has been identified for the landfill.[34]

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[28] CalRecycle, 2019a. SWIS Facility Detail: Shoreway Environmental Center. Available at: https://www2.calrecycle.ca.gov/swfacilities/Directory/41-AA-0016, accessed September 18, 2019.

[29] Rethink Waste, South Bayside Water Management Authority, 2019. 2018 Annual Report. Avaiable at: https://rethinkwaste.org/wp-content/uploads/2019/08/2018-annual-report.pdf, accessed September 18, 2019.

[30] CalRecycle, 2019a, op. cit.

[31] California Environmental Protection Agency (Cal/EPA), 2019. Kettleman Hills. Available at: https://www.epa.gov/ca/kettleman-hills, accessed September 18, 2019.

[32] California Environmental Protection Agency (Cal/EPA), 2013. News Release: DTSC Issues Draft Decision on Kettleman Facility and Announces Initiative to Reduce Landfill Waste by 50 Percent, July 2.

[33] California Department of Toxic Substances Control, 2014. Press Release. Available at: http://www.dtsc.ca.gov/PressRoom/upload/News_Release_T-11-14.pdf, accessed September 18, 2019.

[34] CalRecycle, 2019b. SWIS Facility Detail: Kettleman Hills – B18 Nonhaz Codisposal. Available at: https://www2.calrecycle.ca.gov/swfacilities/Directory/16-AA-0023/, accessed September 18, 2019.

i. Telecommunications

Multiple telecommunications providers serve Foster City. AT&T (formerly SBC/Pacific Bell) is the City's primary telephone provider (or Incumbent Local Exchange Carrier – ILEC). Other carriers such as Qwest, Williams Communications, MCI/Worldcom, and Sprint have started providing services to commercial accounts in Foster City. Other providers offer DSL-type services to the residential market, but most are reliant upon AT&T's infrastructure. The City has a non-exclusive Franchise Agreement with the Comcast Corporation, which is currently the sole cable television and broadband internet provider. The City regulates Comcast services as provided under federal law. These service providers are privately owned and operated, and recover the costs of operation, maintenance, and capital improvement through connection and user fees collected from all customers. These services are currently available at the project site.

The California Public Utilities Commission regulates California's telecommunications industry and requires that local phone service providers anticipate and serve new growth. To meet this requirement, local providers continually upgrade their facilities, technology, and infrastructure to remain in conformance with California Public Utilities Commission tariffs and regulations and to serve customer demand in the City.

j. Electricity and Gas

The Pacific Gas & Electric Company (PG&E) provides electrical and natural gas service to customers in Foster City. PG&E charges connection and user fees for all new development, in addition to sliding rates for electrical and natural gas service based on use. Electrical services are currently available at the project site. Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings, details requirements to achieve minimum energy efficiency standards of the State of California. The standards regulate energy consumed by new residential and non-residential building construction for heating, cooling, ventilation, water heating, and lighting. The local building permit process verifies and enforces compliance with these standards.

2. Regulatory Setting

The following section describes the regulatory context for public utilities in the City of Foster City, including Statewide mandates and local General Plan policies.

a. California Integrated Waste Management Act (AB 939)

The California Integrated Waste Management Act of 1989 (AB 939) set a requirement for cities and counties to divert 50 percent of all solid waste from landfills by 2000. To meet this requirement, AB 939 mandated that counties adopt a Countywide Integrated Waste

Management Plan (CIWMP) establishing objectives, policies, and programs related to waste disposal, management, source reduction, and recycling. AB 939 also established a goal for all California counties to provide at least 15 years of ongoing landfill capacity

Under AB 939, cities were required to adopt source reduction and recycling elements (SRREs) that specified how each jurisdiction would meet the 50 percent waste diversion goal. Certain special and hazardous wastes are included within the purview of the SRRE, but communities are also required to adopt a separate Household Hazardous Waste Element (HHWE) to address hazardous wastes generated by households. The City of Foster City adopted a SRRE and HHWE in 1992.

In 2010, the California Integrated Waste Management Board (CIWMB) was replaced by the California Department of Resources Recycling and Recovery (CalRecycle). Each jurisdiction must submit an annual report to CalRecycle with an update of its progress in implementing diversion programs and its current per-capita disposal rate (a jurisdiction's reported total disposal of solid waste divided by the jurisdiction's population). As established by CalRecycle, the Foster City target per capita disposal rate is 3.7 pounds per day (PPD) per resident and 7.1 PPD per employee. In 2018, the City of Foster City per capita disposal rate met CalRecycle targets by achieving disposal rates of 2.6 PPD per resident, and 4.2 PPD per employee.[35]

The County of San Mateo and its cities have implemented a variety of programs to address solid waste collection, disposal, and recycling including curbside recycling, commercial recycling programs, organics collection, backyard composting, electronics recycling, construction and demolition recycling ordinances, and green building programs. Project applicants are required to prepare a Waste Management Plan that accurately estimates the tonnage of demolition and construction debris generated by applicable projects. Plans for diverting these materials must be described by the applicant and approved by the City as detailed in Chapter 15.44 of the Foster City Municipal Code.

b. California Code of Regulations, Title 24: California Building Standards Code

Title 24, California's Energy Efficiency Standards for Residential and Non-Residential Buildings, requires construction of new buildings and additions to adhere to energy-efficiency standards. These standards include targets for energy efficiency, water consumption, dual-plumbing

[35] CalRecycle, 2019c. Jurisdiction Diversion/Disposal Rate Summary (2007 - Current). Available at: http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx, accessed June 20, 2019.

systems for potable and recyclable water, diversion of construction waste from landfills, and the use of environmentally-sensitive materials in construction and design.

The City of Foster City follows the most current State business codes. The City's General Plan Conservation Element, Program C-o, requires new construction to be built according to Title 24.

c. General Plan Policies

The City's General Plan includes goals, policies, and programs from elements that are related to public services, utilities, and recreation.

(1) Land Use and Circulation Element

Goal LUC-F: Provide Adequate Services and Facilities. *Ensure that new and existing developments can be adequately served by municipal services and facilities.*

Policy LUC-L-10: Adequacy of Public Infrastructure and Services. New projects which require construction or expansion of public improvements shall pay their pro rata fair share of the costs necessary to improve or expand infrastructure necessary to serve them, including streets and street improvements, parks, water storage tanks, sewer and water service, and other public services. The City has established several assessment districts to pay for needed municipal improvements. Facilities benefiting a specific development must be provided by the developer of that project.

(2) Parks and Open Space Element

Goal PC-A: Provide Sufficient and Diverse Recreational Opportunities. *Provide sufficient and diverse recreational opportunities for all the City of Foster City residents through the development of new recreational facilities as needed, given available funding and support, and the construction of additional park amenities in existing parks and elsewhere in locations where deficiencies have been identified or opportunities occur.*

(3) Conservation Element

Policy C-1: Water Resources. Conserve water resources in existing and new development.

Policy C-5: Solid Waste. Reduce the generation of solid waste through recycling and other methods.

Program C-a: Water Saving Landscaping and Irrigation. Promote the use of low-water-use landscaping and irrigation devices in parks, and during review of new projects and modifications to existing developments.

Program C-b: Property Owner Water Saving Techniques. Encourage all property owners to implement the following conservation techniques: utilize drought tolerant plant materials, limit turf areas to 25 percent of landscaping, limit hours of the day for watering, retrofit with water-conserving fixtures, retrofit existing bathrooms and install new bathrooms with ultra-low-flow toilets and water conserving shower heads.

Program C-o: Title 24. Construct new buildings and additions to energy efficiency standards according to Title 24 of the California State Model Code.

Program C-p: Solar Heating and Cooling. Encourage installation of solar panels for heating and cooling with solar energy.

Program C-t: Source Reduction and Recycling Element. Implement the Source Reduction and Recycling Element in accordance with State regulations.

(4) Safety Element

Policy S-A-3: Water Supply. The City will provide an adequate supply of water for daily use and emergency situations.

Program S-A-3-a: Water Supply and Delivery. The City will maintain a water supply and delivery system that can meet potential fire-fighting demands through annual exercising of fire hydrants and periodic review of storage needs.

Policy S-C-4: Minimize Loss of Life, Injuries, and Property Damage Due to Fires. The City will minimize loss of life injuries, and property damage due to fires through review of development proposals, public education, and maintenance of well-trained fire suppression personnel.

Program S-C-4-a: Development Review for Fire Safety. The City will review proposals for new and modified buildings to ensure that fire safety provisions are included as required by the most current uniform codes and local regulations.

Program S-D-4-b: Development Review for Crime Prevention. The City will review proposals for new and modified buildings for compliance with crime prevention requirements.

Policy S-E-2: Police Services. The City will provide police services necessary to maintain community order and public safety.

Program S-E-1-a: Police Services. The City will provide adequate personnel, training, and equipment to support the provision of police services.

d. Foster City Standard Conditions of Approval

The City of Foster City has adopted Standard Conditions of Approval (SCOAs) for large new and redevelopment projects. The following SCOAs related to public services, utilities, and recreation would apply to the project.

SCOA 2.4: Prior to issuance of a building permit, the Construction Best Management Practices (BMPs) related to stormwater prevention shall be included as notes on the building permit drawings (see http://www.fostercity.org/Services/permits/List-of-Forms.cfm).

SCOA 2.9: The construction contractor shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaints (e.g., beginning work too early, bad muffler) and institute reasonable measures warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site. The construction contractor shall protect all downstream sanitary sewer lines from construction debris while performing sanitary sewer construction. Means to prevent construction debris must be used and shall be inspected by the construction inspector.

SCOA 5.5: Prior to issuance of a building permit, the applicants, at their expense, shall have a registered civil engineer prepare a complete sewer system capacity study of the on- and off-site sewer system (including lift stations) which services the project (both upstream and downstream). The study shall meet the approval of the City Engineer. All needed construction improvements shall be installed by the applicants at applicants' sole cost. No on-site or downstream overloading of existing sewer system will be permitted.

SCOA 5.6: The applicant shall prepare a sewer flow projection study and a hydraulic capacity study, to be submitted to the Foster City Public Works Department for review, to verify that the existing sewer system is properly sized to meet the projected increase in wastewater generation on the project site. The studies shall show the new connecting points to the existing sewers and model the estimated flows and peaking factors, as they relate to the changes in land use for the proposed project.

SCOA 5.12.1: Prior to issuance of a building permit, the stormwater system shall be designed to be capable of handling a 25-year storm with the hydraulic grade line at least one foot below every grate, to the satisfaction of the Engineering Division. Drainage facilities shall be designed in accordance with accepted engineering principles and shall conform to the Foster City Drainage Design Criteria/Standards available on the City's website: https://www.fostercity.org/publicworks/page/city-standard-design-criteria

SCOA 5.14: Prior to issuance of a building permit, a complete storm drainage study of the proposed development must be submitted showing the amount of runoff, and existing and proposed drainage structure capacities. This study shall be subject to review and approval by the Engineering Division. All needed construction improvements will be made by the applicants. No overloading of the existing system will be permitted. A hydrology/hydraulic analysis shall be completed on the existing storm drain system to verify it is adequately sized to handle the run-off from the project. Storm drainage study/Hydraulic Analysis shall conform to the City's Drainage Design Criteria/Standards available on the City's website: https://www.fostercity.org/publicworks/page/city-standard-design-criteria

SCOA 5.15: Prior to issuance of a building permit, should the City determine that the City's storm drain system or storm drain pumping capacity requires expansion or modification as a result of the applicants' development, the applicants shall pay for all necessary improvement costs. The timing and amount of payment shall be as determined by the City.

SCOA 5.16: Prior to the issuance of a building permit, the improvement plans shall include the design of a domestic water system to the satisfaction of the Engineering Division.

SCOA 5.17.1: Water lines shall be designed for fire flows to meet California Fire Code and Fire Department requirements.

SCOA 5.18: All on-site fire water service mains shall have two sources of supply connections to City/District water system and meet the requirements of the State Department of Health Services and the City Fire Marshal.

SCOA 5.20: Prior to the issuance of a building permit, fire mains shall be designed to Fire Department specifications. Fire mains shall be constructed according to those specifications.

SCOA 5.22: To properly evaluate necessary improvements, a complete water system capacity study of the on-and-off site water system which services the proposed project shall be prepared by a registered civil engineer approved by the City/District Engineer, and retained by the project developer prior to approval of a building permit. The study shall include: a map showing the project location, utility drawings for the project area (pdf and CAD files), a project description (type of development, number of units, land use, acreage, etc.), and a system demand analysis (including average daily demand, maximum daily demand, peak hour demand, and fire flow requirements), specific to the proposed development. The study shall include a detailed water pipe hydraulic flow analysis to determine whether the existing water distribution system is properly sized to meet the projected new water demands on the project site. All needed construction improvements to upsize the existing water distribution system to meet the demands of the new project, shall be constructed by the applicant at the applicant's sole cost.

SCOA 8.1: Documentation showing compliance with Chapter 8.8 of the EMID Code, including, but not limited to submittal of the Outdoor Water Use Efficiency Checklist.

SCOA 9.18: All excess fill shall be disposed of in accordance with City requirements. All building debris shall be disposed of outside the City of Foster City, pursuant to Chapter 15.44, Recycling and Salvaging of Construction and Demolition Debris.

SCOA 10.23: Prior to occupancy the existing storm drain pipe lines on the project site and downstream to the nearest lagoon inlet shall be cleaned and sediment removed at the completion of the project. Applicant shall submit a map illustrating the route to be televised for approval of the City/District Engineer prior to sediment removal. The storm drain pipe lines shall be televised after cleaning to verify that the sediment has been removed and to identify any damages to the storm drain pipe lines during construction. A post construction survey report shall be prepared identifying facilities to be repaired and confirming removal of sediment from storm lines. Sediment left in mains shall be subject to re-cleaning at the applicant's sole cost.

SCOA 10.24: Prior to occupancy the applicant shall arrange a joint field meeting with representatives of the Water Department to perform a visual survey of the condition of the existing water distribution system (including testing of valves and appurtenances) in the vicinity of the project site. The applicant shall prepare a post-construction survey report to be submitted to the Foster City Public Works Department for review. Report shall document any necessary repairs required to the existing water supply infrastructure. The applicant shall be responsible for constructing and financing any such repairs.

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section discusses public services, utilities, and recreation impacts that could result from implementation of the project. The section begins by identifying significance criteria from the CEQA Guidelines and the City's Environmental Review Guidelines that establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCOAs, if appropriate.

a. Significance Criteria

In accordance with Appendix G of the CEQA Guidelines, the project would have a significant impact on the environment related to public services, utilities and recreation if it would:

1. Result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
   - Fire protection;
   - Police protection;
   - Schools; or
   - Other public facilities.
2. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
3. Create a shortage of parks facilities for new residents, because total parks acreage does not meet the Government standard of 5 acres per 1,000 persons (Foster City Municipal Code Section 16.36).
4. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.
5. Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
6. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

b. Less-Than-Significant Public Services, Utilities, and Recreation Impacts

Less-than-significant public services, utilities, and recreation impacts associated with the project are discussed below.

(1) Fire Protection

As described above, the SMCFD's average response time goal is respond to 90 percent of all Priority 1 calls in under 7 minutes. As noted by the SMCFD, the average response time to the area of the project site is approximately 4 minutes, meeting that goal.

Given that the project site is currently vacant, proposed development of the project may result in an incremental increase in demand for fire protection and associated emergency services. However, the project site is in a highly-developed urban area, approximately 0.7 miles from Fire Station 28 and 1 mile from Fire Station 26. As such, the project would not require the provision of, or need for, new or physically altered facilities to continue to serve the project site at the current level, nor would the project impact the Department's current response times.[36] Moreover, increased development associated with the project would not exceed the capabilities of existing SMCFD staffing levels and require new personnel. The SMCFD currently has sufficient numbers and types of engines, equipment and non-personnel resources to adequately serve the project. As such, development of the project would result in a less-than-significant impact to fire and emergency medical services within the City.

The project would be required to meet all applicable City of Foster City fire code regulations as set forth in Chapter 15.24 of the municipal code. The City of Foster City has modified, by City Ordinance, some sections of the California Fire Code (CFC) which would require further compliance.

(2) Police Protection

The project would create approximately 93 new full-time jobs in Foster City, as described in *Chapter III, Project Description*. This could increase the demand for police services at the site and surroundings. As noted in the setting section, there is no industry-wide standard to determine the ratio of police officers needed to serve a non-resident daytime population.

Although implementation of the project may result in an incremental increase in demand for police services, this increase would not result in the need for new police facilities or staffing.[37]

As indicated above, the current ratio of sworn officers to Foster City residents is approximately 0.6 officers per 1,000 residents, below the City's goal of 1 to 1.5 officers per 1,000 residents.[38]

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[36] Marshall, Robert, Fire Marshal, San Mateo Consolidated Fire Department (SMCFD), 2020. Personal correspondence with Urban Planning Partners, January 16.

[37] Murray, Travis, Crime Prevention/Community Outreach Corporal, Foster City Police Department (FCPD), 2020. Personal correspondence with Urban Planning Partners, January 16.

[38] Ibid.

Based on an estimated population of 33,529 in 2017 and an existing staff of 21 sworn officers, about 29 new sworn officers are needed to bring the staffing levels to a ratio of 1.5 officers per 1,000 residents.

As described in *Chapter VII, CEQA Required Assessment Conclusions*, approximately seven new Foster City residents would be generated as a result of the project. This addition of new residents from the project would require less than one additional sworn officer to serve the new development within FCPD's desired staffing ratio.

Police services and staffing ratios are reviewed through an annual budgeting process during which citywide priorities are established and service levels monitored, allowing adjustments where needed. Any added personnel would be funded through the City's General Fund. Revenue and taxes generated by the project would contribute to the City's General Fund for such purposes as funding added personnel. Additional officers needed to meet FCPD's desired staffing level would be accommodated by existing facilities.[39] However, staffing levels do not relate to physical impacts and thus are not considered an impact under CEQA. This analysis is therefore provided for informational purposes only. Development of the project would not affect the Department's ability to meet this response time goal, nor would it require the provision of or need for new or physically altered facilities to continue to serve the project site.[40] The project would therefore have a less-than-significant impact on police protection services.

(3) Schools

The commercial nature of the proposed project would result in no direct increase in local school population. While school capacity is limited within both the SMFCSD and SMUHSD, the indirect increases in demand on schools associated with project-related job creation would be mitigated by the payment of developer fees pursuant to the California Education Code.

While important to the quality of life in the project area, impacts to schools from increased development do not necessarily result in physical environmental impacts. In Goleta Union School District v. Regents of the University of California, the Court of Appeal found that "Classroom overcrowding, per se, does not constitute a significant effect on the environment." A General Plan may have policies relating to public service levels in general or schools in particular. If a development project overwhelms the school district's capacity and quality of service, it could be inconsistent with the General Plan. The City of Foster City General Plan does not have a specific policy related to school service levels.

[39] Ibid.
[40] Ibid.

Pursuant to California Education Code Section 17620(a)(1), developers pay fees to both the San Mateo-Foster City School District and The San Mateo Union High School District, which share a single collection agency. As of July 1, 2012, the impact fees paid by developers of lodging projects, such as hotels, is $3.13 square feet to SMFCSD, and $0.59 per square feet to the SMUHSD, for a combined total of $3.72 per square foot in impact fees.[41] At approximately 83,187 square feet, the project would result in $309,455.64 in fees paid by the developer of the project to the districts, including $260,375.31 to SMFCSD and $49,080.33 to the SMUHSD. With payment of these fees, the impact of the project on school facilities would be less than significant.

(4) Parks and Recreation

The indirect increase in demand on parks and recreational facilities associated with project-related job creation would not be significant enough to trigger the need for new facilities. As previously described, the City of Foster City has a policy of providing 5 acres per 1,000 residents as a threshold to measure how well its citizens are provided with park and recreational facilities access. With an estimated population of 34,151 residents in 2018 and a total of 325.8 acres of recreational space, the City currently exceeds this policy, providing approximately 10 acres of recreational waterways and parks per 1,000 residents.

As detailed in *Chapter III, Project Description*, no new residents are anticipated and the project would not include construction of recreational facilities or open spaces except for those designed for employees and customers. With a conservative estimate of seven total new Foster City residents as a result of the project, implementation of the project would not cause a significant imbalance in the parks-to-residents ratio. Therefore, the project would result in a less-than-significant impact related to the advanced physical deterioration of existing parks or shortage of parks and recreational services. The project would not require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

(5) Wastewater Treatment

As described above, the WWTP's average daily dry weather capacity is 15.7 MGD, of which 4.3 MGD is the purchased capacity for EMID. In 2013, the WWTP had an average daily dry-weather flow of 12.3 MGD, and EMID's average daily flow was 3.1 MGD. The average daily flow for both the WWTP and EMID is within the average daily flow design capacity.[42] According to the 2019

[41] San Mateo-Foster City School District (SMFCSD), 2018. Level I Developer Fee Study, January 16. San Mateo Union High School District (SMUHSD), 2012. School Impact (Developer) Fees. Available at: https://www.smuhsd.org/domain/2518, accessed September 19, 2019.

[42] City of San Mateo, 2013. Wastewater Treatment Plant 20 Year Master Plan (2010-2030). Available at: http://www.cityofsanmateo.org/documentcenter/view/37550, accessed March 12, 2015.

WSA conducted for the project and other major projects in Foster City (see Appendix E), the project would result in approximately 10 acre-feet of additional water demand per year. Assuming the total amount of water demand generated by the project is equal to the total amount of wastewater generated, the project would generate approximately 3,258,510 gallons of wastewater per year, or 8,927 gallons per day (0.009 MGD).[43] This method of estimating the project's wastewater flows assumes that all water used by the project would enter the City's sewer system. This assumption overestimates the amount of wastewater created, as a portion of the water demanded by the project would be used for purposes of landscaping and other uses that would not enter the City's sewer system. The net increase of 0.009 MGD would increase EMID and WWTP's average daily flow; however, this would be an incremental increase to both the EMID and WWTP's remaining average daily flow.

Implementation of SCOA 5.5 would require the applicant to complete a sewer system capacity study and install all needed construction improvements. SCOA 5.6 would also require the applicant to prepare a sewer flow projection study and a hydraulic capacity study to verify that the existing sewer system is properly sized to meet the projected increase in wastewater generation on the project site.

Because the project would allow EMID to remain well below its allocated daily flow capacity at the WWTP, it would result in a less-than-significant impact on wastewater treatment and disposal, as no new wastewater facilities would be required to serve the project.

(6) Stormwater

As explained in *Section V.H. Hydrology and Water Quality*, the project would result in an increase in impervious surfaces on the project site compared to existing conditions. The placement of these surfaces could result in increased storm water runoff that could exceed the capacity of the existing storm drain systems. However, compliance with the City's Green Infrastructure Plan as required by Foster City Municipal Code Section 13.12 would ensure that increased stormwater discharge resulting from the project would be minimized. The storm drainage system would be located within the grading footprint and would convey runoff to approximately the same points where it now discharges the project site.

The City's SCOAs require that prior to construction of the project, existing storm drain pipelines on the project site and downstream be monitored to verify they have not become filled with sediment and cleaned out concurrently. If the existing storm drain system would be by-passed or replaced, a hydrology/hydraulic analysis for the project would be performed to the satisfaction of

[43] 1 acre-feet is equal to 325,851 gallons.

the City Engineer in accordance with the City's SCOAs. The analysis would verify whether proposed modifications to the drainage infrastructure would be adequate to receive and convey runoff from the project site. If the findings of the analysis reveal that implementation of the project would create runoff beyond the capacity of the existing storm drain systems, the project would be required to upgrade undersized components as a condition of approval for the project. Prior to project approval, the design drainage plans of the project would be subject to review by the Foster City Public Works Department to ensure that the proposed storm drainage system would be adequate to convey runoff under the proposed setting. The SCOAs also require that post-construction survey reports be completed on the existing storm drain system. Any necessary repairs to restore the facilities must be an element of the report. If required, the existing storm drains would be cleaned as necessary during and at the completion of the project. As such, the project would not result in the construction of new stormwater drainage facilities, or expansion of existing facilities. In addition, a stormwater management plan would be prepared in conjunction with the project (as part of the SCOAs) through which stormwater generation would be evaluated and minimized. With implementation of applicable SCOAs, the impact related to stormwater would be less than significant.

(7) Water Supply

The project would contain approximately 83,187 square feet of floor area, including 156 guest rooms, a restaurant, and other employee and guest amenities as described in *Chapter III, Project Description*. Compliance with Estero Municipal Improvement District Code Section 8.70 and the California Green Building Code[44] would ensure that all indoor water be water-efficient to minimize water consumption.

According to the 2019 WSA conducted for the project and other major projects in Foster City (included as Appendix E), the project would result in approximately ten acre-feet of additional water demand per year. Table V.J-4 shows the anticipated SFPUC water supply assurance every five years between 2020 and 2040 (assuming no supply disruptions or critical multi-year

TABLE V.J-4 EMID WATER SUPPLY AND DEMAND PROJECTIONS PLUS PROJECTS (AFY)

	2020	2025	2030	2035	2040
Normal SFPUC Water Supply Assurance	6,608	6,608	6,608	6,608	6,608
Demand Projection for EMID, with Passive and Active Conservation, AFY	4,449	4,444	4,514	4,582	4,628
Proposed Project Demand	–	10	10	10	10
Additional Projects Demand	250	396	457	457	457

[44] California Code of Regulations Title 24, Part 11.

Total System Demand	4,700	4,854	4,910	4,981	5,048
Estimated Remaining SFPUC Supply	1,910	1,757	1,700	1,630	1,562
Estimated Remaining Supply Reliability, %	29%	27%	26%	25%	24%

Source: Bay Area Water Supply and Conservation Agency, 2014; Estero Municipal Improvement District, 2010-2015 Urban Water Management Plan.

droughts), projected demand within the EMID service area as determined by the Bay Area Water Supply and Conservation Agency (BAWSCA), additional demand from the project, demand associated with other major proposed development projects in the EMID service area, and water supply remaining after accounting for expected demand.

As indicated in Table V.J-4, EMID is under contract to receive 6,608 AFY from the SFPUC, assuming no significant supply disruptions or prolonged drought conditions. This water supply is assured through 2034, with provisions for extension to 2044. Considering anticipated development projects within the EMID service area, including the Metro Center Hotel, EMID would have enough water supply to meet expected demand. The expected water supply surplus would range from 1,910 AFY in 2020 to 1,562 AFY in 2040.

In the event of prolonged drought conditions, EMID would implement the Water Shortage Contingency Plan, which would result in reduced water demand of up to 20 percent within the service area. The Water Shortage Contingency Plan would thus ensure an adequate water supply within the EMID service area if the SFPUC reduces water deliveries to EMID by 10 to 20 percent (as would occur during a prolonged drought). For instance, a 20 percent reduction in water demand would reduce the overall demand during year five of a five-year drought starting in 2040 to approximately 3,702 AFY with the new projects. The anticipated supply that year, accounting for a 20 percent reduction in water deliveries from the SFPUC, would be 4,039 AFY. Even under a five-year drought scenario starting in 2040, EMID would still be able to provide adequate water to all existing and anticipated development and maintain a water surplus of approximately 355 AFY.

Therefore, the water demand associated with the project and all foreseeable development could be accommodated during multiple dry years (such as those that could result from global climate change), through implementation of the mandatory demand reductions outlined in the Water Shortage Contingency Plan.

The project would represent an increase in water demand within the anticipated supply range for the City, but it would not lead to insufficient water supplies in existing entitlements and resources or require new or expanded entitlements. No new water facilities, or expansion of existing water facilities, the construction of which could cause significant environmental effects, would result. Therefore, the project would result in a less-than-significant impact on potable water supply.

(8) Solid Waste

The project would be served by landfills with the capacity to handle solid wastes generated by the operational phases of the project. As required by AB 939, the California Integrated Waste Management Act, a minimum of 50 percent of the City's waste must be recycled. Per the City's construction and demolition ordinance, the construction contractor would be required to recycle a minimum of half of all demolition and construction debris to meet City requirements. Chapter 15.44 (Ordinance 593) of the Foster City Municipal Code requires construction contractors to take their construction and demolition debris to a facility that processes construction and demolition materials for recycling. Most of these facilities yield recycling rates in excess of 80 percent. The typical remaining refuse sent to the landfill is 10 to 15 percent of the debris. This would not substantially decrease the available capacity at the Ox Mountain Sanitary Landfill.

In 2006, the CIWMB (now CalRecycle) provided the following estimated waste generation rates for large hotels: 5.04 pounds per room per day and 1.68 pounds per employee per day.[45] The project would result in the construction of 156 rooms and the addition of an estimated 93 new employees, producing about 942 pounds of waste per day. This represents 0.01 percent of the total daily permitted throughput for the Shoreway Environmental Center, which is permitted for a daily throughput of 3,000 tons of solid waste and recyclables. The amount of solid waste generated by operation of the project would not exceed the landfill capacity. In addition, Allied Waste Management currently provides recycling services to the project site. These services contribute to a reduction in solid waste generated by proposed development. The design and location of on-site recycling bins serving new development would be subject to City review and approval prior to issuance of building permits. Therefore, development of the project would have a less-than-significant impact on landfill capacity.

(9) Electricity, Gas, and Telecommunications

Development of the project would occur in a location that currently has electricity, gas, telephone, cable, and internet services. As such, the project would have a less-than-significant impact on electricity, gas, telecommunications, cable, and internet services.

c. Significant Public Services, Utilities, and Recreation Impacts

Implementation of the project would not result in any public services, utilities, or recreation impacts; all impacts would be less than significant with implementation of the City's SCOAs as discussed above.

[45] California Integrated Waste Management Board (CIWMB), 2006. Targeted Statewide Waste Characterization Study: Waste Disposal and Diversion Findings for Selected Industry Groups, June.

d. Cumulative Public Services, Utilities, and Recreation Impacts

The project and cumulative projects would incrementally increase the demand for fire, police, school, and recreation services. These services are subject to an annual budgeting process during which service priorities are established and service levels are monitored, allowing for adjustments where needed. Changes in demand for these services are expected to be incremental, allowing for carefully planned expansions of existing facilities. Any expansions would be likely to occur on sites already occupied by existing service providers. Therefore, no cumulative impacts to these services are anticipated that would result in adverse physical impacts associated with the maintenance of service standards.

The project and cumulative development projects would incrementally increase demand for wastewater and water services and other utilities in Foster City. While development of the project would place additional demands on City services and utility projects, buildout of the project and other planned development would not result in any significant impacts to services and utility projects, as discussed above. Similarly, it is not projected that the amount of waste generated from the project in conjunction with other cumulative development would exceed the capacity of these solid waste facilities. In addition, all cumulatively considerable projects would be required to comply with the City's waste reduction and recycling requirements. Thus, the cumulative impact of the project would be less than significant.

The project would increase demand on electrical and gas services but would be developed in an area where these services already exist, along with other foreseeable cumulative development projects. Further, the extent to which demand would grow is not expected to have a significant adverse cumulative impact. All applicable cumulatively considerable developments, including the project, would be subject to California Title 24 energy conservation standards for new construction which require specific energy-conserving design features, the use of non-depletable energy resources, or a demonstration that buildings would comply with a designated energy budget. Therefore, the project would not violate applicable statues and regulation related to energy standards. No significant adverse cumulative energy impacts are expected.

VI. ALTERNATIVES ANALYSIS

The California Environmental Quality Act (CEQA) Guidelines require the analysis of a range of reasonable alternatives to the proposed new hotel in the Metro Center General Development Plan (GDP) area (the project), or to the location of the project, which would feasibly attain most of the project's basic objectives and avoid or substantially lessen any of the significant effects of the project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.[1] An EIR is not required to consider alternatives which are infeasible and need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

The primary purpose of this chapter is to ascertain whether there are alternatives of design, scale, land use, or location that would avoid or substantially lessen the project's significant impacts, even if those alternatives "impede to some degree the attainment of the project objectives, or would be more costly."[2]

The two project alternatives considered include:

- The **No Project/No Build Alternative** assumes the project site would remain in its current condition and no new development would be constructed on the project site.
- **Reduced Density Project Alternative** assumes a smaller five-story hotel with only 96 rooms. The garage below the building podium with 81 mechanical lift parking spaces would remain; however, the rear surface lot with 60 spaces would be eliminated and replaced with open space.

In considering the range of alternatives to be analyzed in an EIR, the CEQA Guidelines state that an alternative site/location should be considered when feasible alternative locations are available and putting the project in these locations "would avoid or substantially lessen any of the significant effects of the project." Because the project would not result in any significant and unavoidable impacts, and because building the project in another location in the City would have similar impacts to those identified for the proposed project site, an alternative location for the project was not studied.

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[1] CEQA Guidelines, Section 15126.6.
[2] CEQA Guidelines, Section 15126.6(b).

A. PROJECT OBJECTIVES AND IMPACTS

In determining what alternatives should be selected for further analysis, the impacts identified for the project were considered along with the project objectives. The project is described in detail in *Chapter III, Project Description,* and the potential environmental effects of the project are analyzed in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures*. The project objectives and impacts are summarized below.

1. Project Objectives

The project objectives, which are first presented in *Chapter III, Project Description*, include:

- Enhance the image of Foster City with a new, three-star, select-service hotel in the commercial center of the city;
- Develop a 156-room limited service franchise hotel with a sky lobby, limited-service lounge, casual dining facility, parking garage, and ground-floor parking lot;
- Contribute to public health by providing an on-site gym for hotel guests to engage in physical activity during their travels;
- Provide business travelers with more modern hospitality choices during their stays in the Foster City area;
- Create a new community amenity on the roof-top sky lounge and decks as a gathering spot for small meetings and business traveler gatherings;
- Reduce local traffic congestion by reducing commuting into and out of the City through the provision of local accommodations for business travelers;
- Provide a comprehensive hotel bus shuttle service that will reduce automobile traffic on local streets and the San Mateo Bridge;
- Increase the walkability of the Metro Center by developing a hotel in close proximity to businesses and offices that hotel guests are likely to patronize, such as Costco, Visa, IBM, Qualys, Inc., and, Gilead Sciences; and
- Provide employment opportunities to local residents as well as to skilled workers from the surrounding areas.

2. Project Impacts

As detailed in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures* and *Chapter VII, CEQA Required Assessment Conclusions*, the project's impacts would be less than significant with implementation of the City's Standard Conditions of Approval (SCOAs) and/or mitigation measures. To help define project alternatives that could further reduce or eliminate significant impacts, the impacts of the project are summarized below.

Potentially significant impacts that could be mitigated to a less-than-significant level with implementation of recommended mitigation measures (as described in Table II-1, Summary of Impacts and Standard Conditions of Approval and Mitigation Measures, in *Chapter II*, *Summary*) include:

- Air Quality – Impact AIR-1: Construction and operation of the proposed project could expose sensitive receptors to substantial concentrations of TACs and PM2.5.
- Hydrology and Water Quality – Impact HYD-1: The project could be susceptible to inundation during a 100-year (or greater) storm due to the current levee deficiencies and could impede or redirect flood flows.
- Noise and Vibration – Impact NOISE-1: The operation of the construction equipment on the project site could result in temporary noise in excess of standards established in the Foster City Municipal Code.
- Noise and Vibration – Impact NOISE-2: Construction of the project could cause vibration damage to the office building to the west of the project site and the residential buildings to the south of the project site.

Project impacts are anticipated to be less than significant (without mitigation) for all other environmental topics. There were no significant and unavoidable impacts identified for any environmental topics.

B. CEQA ALTERNATIVES CONSIDERED

The principal characteristics of each selected alternative and its associated environmental effects relative to the proposed project are described below. These selected alternatives are intended to meet the CEQA requirement to consider a range of reasonable alternatives to the project that would feasibly attain most of the basic objectives of the project while avoiding or substantially lessening significant impacts.

1. No Project/No Build Alternative

a. Principal Characteristics

The No Project/No Build Alternative assumes that the project site would remain in its current condition and would not be subject to new development. No physical alterations would occur and the lot would continue to be vacant.

While the No Project/No Build Alternative would not achieve any of the key project objectives, it is required by CEQA in order to compare the impacts of approving the project to not approving the project and maintaining the status quo.

b. Relationship to Project Objectives

The No Project/No Build Alternative would not achieve any of the key project objectives, including those related to:

- Enhance the image of Foster City with a new, three-star, select-service hotel in the commercial center of the city;
- Develop a 156-room limited service franchise hotel with a sky lobby, limited-service lounge, casual dining facility, parking garage, and ground-floor parking lot;
- Provide employment opportunities to local residents as well as to skilled workers from the surrounding areas.

c. Analysis of the No Project/No Build Alternative

(1) Land Use

Implementation of the No Project/No Build Alternative would result in the continuation of existing land uses on the project site, which is currently vacant. No new land uses would be introduced. As would be the case under the project, this alternative would not physically divide the existing community, nor conflict with any land use plan, policy, or regulation. The positive land use impacts of growth that adheres and conforms to the Foster City General Plan would not occur under this alternative. Like the project, this alternative would not result in any significant land use impacts.

(2) Aesthetics and Shade and Shadow

Under the No Project/No Build Alternative, the project site would remain undeveloped, and its visual quality and impact on scenic resources unchanged.

As described in *Section V.B, Aesthetics and Shade and Shadow,* of this EIR, the project would have a less-than-significant impact on a scenic vista and on the visual character of the project site, have less-than-significant impacts related to shade and shadows and light and glare, and have no impact on scenic resources viewed from a state scenic highway. Because no change to the visual quality and character of the site would occur whatsoever under the No Project/No Build Alternative, the SCOAs and design review applicable to the project would not be triggered, and impacts related to aesthetics and shade and shadow would be reduced in comparison to the project.

(3) Transportaion

Under the No Project/No Build Alternative transportation would remain at current conditions and no service population or VMT would be generated. As described in *Section V.C, Transportation*, of this EIR, based on information provided by the applicant and industry reports on hotel standards, the expected daily service population of the project, including employees, hotel guests, and restaurant visitors is 332 people. This results in a VMT per capita of 20.8 which is below the significance threshold of 16.8 percent of the regional average (calculated to be 21.0 VMT per capita) set by the California Air Resources Board (ARB) and used for this EIR. As such, the project's impact on regional VMT is anticipated to be less than significant. Because the No Project/No Build Alternative would not generate any service population and therefore no VMT or additional vehicle trips at all, transportation impacts would be reduced compared to the project.

Like the project, this alternative would not conflict with any program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities , create geometric design hazards, or restrict emergency access, and would thus result in no significant transportation impacts.

(4) Air Quality

The No Project/No Build Alternative would not involve construction activity or generate any VMT and therefore would not change existing air quality. As described in *Section V.D, Air Quality*, of this EIR, the construction and operation of the project could expose sensitive receptors to substantial concentrations of Toxic Air Contaminants (TACs) and $PM_{2.5}$ due to exhaust from off-road diesel construction equipment and the testing and maintenance of an emergency generator, which would require implementation of Mitigation Measure AIR-1.

The No Project/No Build Alternative would not trigger potentially significant impacts related to increased emissions (see Impact AIR-1) and therefore Mitigation Measure AIR-1 would not be required. As such, air quality related impacts under the No Project/No Build Alternative would be reduced in comparison to the project.

(5) Greenhouse Gas Emissions

The No Project/No Build Alternative would result in no operational or construction activity at the project site. As a result, it would produce no new greenhouse gas (GHG) emissions. As described in *Section V.E, Greenhouse Gas Emissions*, of this EIR, the project would not result in potentially significant impacts related to GHG emissions because while construction and operation of the project would result in activities that contribute to GHG emissions, these emissions would not exceed Bay Area Air Quality Management District (BAAQMD) thresholds.

Like the project, the No Project/No Build Alternative would not conflict with any plans or policies related to the reduction of GHG emissions. However, because the No Project/No Build Alternative would generate no GHG emissions whatsoever, it's GHG impacts would be reduced in comparison to the project.

(6) Geology and Soils

The No Project/No Build Alternative would not involve construction of any structures on-site and therefore would not result in the exposure of new people or new structures to major seismic hazards. As described in *Section V.F, Geology and Soils* of this EIR, the project site is susceptible to seismic ground shaking, ground failure (including liquefaction), soil erosion or loss of topsoil, unstable soil, and expansive soils and therefore would require SCOAs to avoid potentially significant impacts associated with a new building on a site with potentially unstable soil conditions. Unlike the project, this alternative would avoid the need for these SCOAs because no development would occur. As such, the No Project/No Build Alternative would result in reduced geology and soils impacts compared to the project.

(7) Hazards and Hazardous Materials

Implementation of the No Project/No Build Alternative would keep the site in its existing condition. As such, this alternative would not cause significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials, or create a significant hazard to the public or the environment through reasonable foreseeable upset or accident conditions involving the release of hazardous materials into the environment. As described in *Section V.G, Hazards and Hazardous Materials*, of this EIR, project construction could expose construction workers or the public to hazardous materials from contaminants in the soil during and following construction activities, or expose workers or the public to airborne toxics, (e.g., lead-based paint and asbestos) during the removal of asbestos-cement (AC) pipes. While these project impacts would be reduced to a less-than-significant level with the imposition of SCOAs, because no development would occur under the No Project/No Build Alternative the SCOAs would not be required and impacts related to hazards and hazardous materials would be reduced compared to the project.

(8) Hydrology and Water Quality

The No Project/No Build Alternative would not result in the construction of any new structures, and the project site would remain in its current state. As described in *Section V.H, Hydrology and Water Quality*, of this EIR, the project could potentially be susceptible to inundation during a 100-year (or greater) storm event and could impede or direct flood flows during such an event (see Impact HYD-1) if constructed before the levee improvements are completed. This potentially significant impact is mitigated to a less-than-significant level with implementation of Mitigation

Measure HYD-1. Because the No Project/ No Build Alternative would not introduce any new structures that could impede or redirect flood flows, Mitigation Measure HYD-1 would not be required, and impacts related to hydrology and water quality in comparison to the project would be reduced.

(9) Noise and Vibration

No construction activity would occur under the No Project/No Build Alternative. As described in *Section V.I, Noise and Vibration,* of this EIR, the project could result in construction activities generating temporary noise in excess of the standards established in the Foster City Municipal Code and causing vibration damage to nearby buildings, therefore triggering implementation of Mitigation Measure NOISE-2. As no construction would occur under this No Project/ No Build Alternative, there would be no noise impacts related to construction noise and therefore no requirement to implement SCOAs and Mitigation Measures NOISE-1 and NOISE-2 to reduce the identified potential significant noise and vibration related impacts of the project to a less-than-significant level. As such, the impacts from construction-related noise under the No Project/No Build Alternative would be reduced in comparison to the project.

(10) Public Services, Utilities, and Recreation

The No Project/No Build Alternative would result in no new improvements and therefore no population or employment increase at the project site. As a result, it would place no new demands on any public services, utilities, infrastructure, or parks. As described in *Section V.J, Public Services, Utilities, and Recreation,* of this EIR, while the project would not result in potentially significant impacts related to public services, utility systems, or recreation, it would generate some new demand on City service, utilities, infrastructure, and parks. Therefore, the No Project/No Build Alternative impacts related to public services, utilities, and recreation would be reduced in comparison to the project.

2. Reduced Density Project Alternative

a. Principal Characteristics

The Reduced Density Project Alternative would eliminate two stories and 60 rooms to construct a five-story hotel with approximately 96 guest rooms (in comparison to the project's proposed seven-story hotel with approximately 156 guest rooms). The Reduced Density Project Alternative would retain the project's roof deck, casual dining facility, and bar at the top level in order to meet the project objectives related to these components. It would provide 81 parking spaces in a parking garage located in the buildings podium on the ground floor (in comparison to the 141 spaces proposed by the project). The Reduced Density Project Alternative would eliminate the 60 parking spaces currently proposed in the surface parking lot south of the hotel structure, and convert this area to open space. While the hotel structure under the Reduced Density Project Alternative is assumed to have the same footprint as the project, it would be moved from the northwest edge of the site (fronting both Metro Center Boulevard and Shell Boulevard) to roughly the center of the project site .

b. Relationship to Project Objectives

If constructed, the Reduced Density Project Alternative would achieve many of the project objectives, including those related to:

- Enhance the image of Foster City with a new, three-star, select-service hotel in the commercial center of the city;
- Contribute to public health by providing an on-site gym for hotel guests to engage in physical activity during their travels;
- Provide business travelers with more modern hospitality choices during their stays in the Foster City area;
- Create a new community amenity on the roof-top sky lounge and decks as a gathering spot for small meetings and business traveler gatherings;
- Reduce local traffic congestion by reducing commuting into and out of the City through the provision of local accommodations for business travelers;
- Increase the walkability of the Metro Center by developing a hotel in close proximity to businesses and offices that hotel guests are likely to patronize, such as Costco, Visa, IBM, Qualys, Inc., and, Gilead Sciences; and
- Provide employment opportunities to local residents as well as to skilled workers from the surrounding areas.

c. Analysis of the Reduced Density Project Alternative

(1) Land Use

Implementation of the Reduced Density Project Alternative would result in the construction of a five-story hotel with approximately 96 rooms at the project site which is two stories lower and 60 rooms less than what is proposed by the project. As described in *Section V.A, Land Use*, of this EIR, the project would not result in any significant land use impacts because it would not physically divide an established community; or cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. For these same reasons, the Reduced Density Project Alternative, like the project, also would not result in any significant land use impacts.

(2) Aesthetics and Shade and Shadow

The Reduced Density Project Alternative would result in a less intense development on the site, as the hotel would be two stories (approximately 20 feet) shorter than the currently proposed seven-story project. As described in *Section V.B*, *Aesthetics and Shade and Shadow*, of this EIR, with the implementation of design review and SCOA 8.2, the project would have a less-than-significant impact on a scenic vista and on the visual character of the project site, have less-than-significant impacts related to shade and shadows and light and glare, and have no impact on scenic resources viewed from a state scenic highway. The Reduced Density Project Alternative would have similar, although lesser, impacts on the visual quality and character of the site due to its reduced height. Like the project, the Reduced Density Project Alternative would be subject to design review to reduce its impacts on visual character of the project site. As with the project, shadows cast by the Reduced Density Project Alternative would be cast primarily on Metro Center Boulevard and Shell Boulevard; however, due to the reduced height of the Reduced Density Project Alternative, any shadows cast would be of shorter length and duration than the current project and therefore shade and shadow impacts would be reduced in comparison to the project. With the implementation of design review and SCOA 8.2, the Reduced Density Project Alternative would not result in any significant impacts related to aesthetics and shade and shadow.

(3) Transportation

Under the Reduced Density Project Alternative, the total vehicle trips, service population, and total project VMT generated would be reduced in comparison to the project, proportionate to the reduction in the number of guest rooms under this alternative. As described in *Section V.C*, *Transportation*, based on information provided by the applicant and industry reports on hotel standards, the expected daily service population of the project, including employees, hotel guests, and restaurant visitors is 332 people. This results in a VMT per capita of 20.8 which is below the significance threshold of 16.8 percent of the regional average (calculated to be 21.0 VMT per capita) set by the California Air Resources Board (ARB) and used for this EIR. As such, the project's impact on regional VMT is anticipated to be less than significant. The total vehicle trips, total VMT, and service population generated would all be reduced under the Reduced Density Project Alternative, proportionate to the reduction in the number of guest rooms under this alternative (an approximately 38 percent reduction with a decrease from 156 to 96 rooms). Therefore, it is assumed that the VMT per service population for the Reduced Density Project Alternative would remain about the same as the proposed project because it is derived by the ratio of total project VMT to service population. Therefore, VMT-related impacts would be similar to the project.

Like the project, this alternative would not conflict with any program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities , create geometric design hazards, or restrict emergency access and would thus result in no significant transportation impacts. Using the same methodology as *in Section V.C, Transportation*, the Reduced Density Project Alternative would generate approximately 766 daily trips, 54 AM peak hour trips, and 60 PM peak hour trips compared to the project which would generate approximately 1,111 daily trips, 75 AM peak hour trips, and 85 PM peak hour trips. As described in *Section V.C, Transportation*, vehicle trips resulting from the project would not add four or more seconds of vehicle delay to intersections already operating at LOS E or LOS F and therefore would not conflict or create inconsistencies with standards set forth in the General Plan. Because the Reduced Density Project Alternative would generate fewer vehicle trips than the project, it also would not conflict or create inconsistencies with standards set forth in the General Plan and other plans, ordinances, and policies addressing the City's circulation system.

Similar to the project, this alternative would also not create geometric design hazards, or restrict emergency access, and would thus result in no significant transportation impacts.

(4) Air Quality

The Reduced Density Project Alternative would contribute to an increase in emissions affecting air quality due to construction activities. The smaller development assumed under this alternative would decrease the Toxic Air Contaminants (TAC) and $PM_{2.5}$ emissions from construction equipment that could affect air quality under the project (see Impact AIR-1). Additionally, the reduced surface area of the structure and the elimination of the surface parking under this alternative would reduce reactive organic compound (ROG) emissions from the off-gassing of asphalt and paint and other architectural coatings. Because emissions from the Reduced Density Project Alternative would be proportionately less than the proposed project, air quality impacts would also be proportionately less than the project. Similar to the project, implementation of the SCOAs and Mitigation Measure AIR-1 would reduce this alternative's impact to a less-than-significant level.

(5) Greenhouse Gas Emissions

The Reduced Density Project Alternative would result in similar operational and construction activity at the project site. As a result, development under this alternative would produce new greenhouse gas (GHG) emissions, although the reduced size of the hotel in this alternative would result in fewer GHG emissions due to the smaller amount of vehicle trips associated with both construction and operation. Like the project, the Reduced Density Project Alternative would not conflict with any plans or policies related to the reduction of GHGs. Similar to the project, construction and operation of this Reduced Density Project Alternative would result in numerous activities that contribute to GHG emissions. Because GHG emissions from the Reduced Density Project Alternative would be proportionately less than the proposed project, GHG impacts would also be proportionately less than the project. The reduced GHG emissions from this alternative, like the project's GHG emissions, would not exceed BAAQMD thresholds and therefore, like the project, would not result in significant impacts related to GHGs.

(6) Geology and Soils

Under the Reduced Density Project Alternative, the project site would still be susceptible to seismic ground shaking, ground failure (including liquefaction), soil erosion or loss of topsoil, unstable soil, and expansive soils, as identified under the project. However, as a result of the reduced square footage under this alternative, fewer employees and visitors would be exposed to potential seismic ground shaking, as compared to development that could occur under the project. As described above, the Reduced Density Project Alternative would not reduce the risk of seismic activity nor change the risk of unstable, expansive, or eroding soils and thus the level of impacts under this alternative would conservatively be the same as the project. As with the project, all geology and soils impacts would be reduced to a less-than-significant level with implementation of SCOAs identified in *Section V.E, Geology and Soils*, and therefore impacts related to geology and soils would be similar to the project.

(7) Hazards and Hazardous Materials

Implementation of the Reduced Density Project Alternative would result in the construction of development with similar uses with less development intensity. Construction would occur under this alternative and could expose construction workers or the public to hazardous materials from contaminants in the soil during and following construction activities, or expose workers or the public to airborne toxics, (e.g., lead-based paint and asbestos) during the removal of asbestos-cement (AC) pipes. However, as with the project, implementation of the SCOAs outlined in *Section V. H, Hazards and Hazardous Materials* would reduce the potential impacts to a less-than-significant level; therefore, impacts related to hazards and hazardous materials would be similar to the project.

(8) Hydrology and Water Quality

The Reduced Density Project Alternative would result in the construction of new structures and landscaping, but to a lesser extent than the proposed project because the rear surface parking lot would be eliminated and converted to approximately 25,000 square feet of open space. As a result of more landscaped areas, this alternative would have less impervious surface and runoff as existing conditions which could affect stormwater conveyance systems or degradation of water quality in receiving waters. Like the project, the Reduced Density Project Alternative would introduce new structures in an area that could be susceptible to inundation during a 100-year (or greater) storm due to the current levee deficiencies (see Impact HYD-1). During an inundation event at the project site, these structures could create a potentially significant impact by impeding or redirecting flood flows. With implementation of the Mitigation Measure HYD-1 described in *Section V.H, Hydrology and Water Quality*, of this EIR, this impact would be mitigated to a less-than-significant level. Additionally, because this alternative would have less impervious surface than the proposed project, the hydrology and water quality impacts for the Reduced Density Project Alternative would be reduced in comparison to the project.

(9) Noise and Vibration

The Reduced Density Project Alternative would result in noise and vibration impacts associated with the construction of the project, similar to the impacts that would result from the project described in *Section V.I, Noise and Vibration,* of this EIR (see Impacts NOISE-1 and NOISE-2). However, several factors would reduce the severity of potential noise impacts during construction in comparison to the project. The overall reduction in the development would result in a slight decrease in construction activity, although it is likely that the use of similar construction equipment over a similar timeframe would be needed to construct the Reduced Density Project Alternative. Additionally, the elimination of the surface parking lot would allow the Reduced Density Project Alternative to focus development on the center of the lot, furthest from the project site's property lines. As the intensity of noise dissipates with distance, off-site receptors of construction noise would perceive construction further from the property line as less loud than construction nearer the property line. However, as the Reduced Density Project Alternative would still involve the operation of construction equipment in a manner that could cause construction noise to exceed 100 dBa at the property plane, this alternative would still need to implement SCOAs and Mitigation Measures NOISE-1 and NOISE-2 to reduce noise and vibration impacts to a less-than-significant level. This alternative would result in reduced total VMT, and therefore reduced noise associated with total VMT, compared to the project. As discussed above, the Reduced Density Project Alternative would generate less noise perceptible to off-site receptors than the project, and with the implementation of the SCOAs and Mitigation Measures NOISE-1 and NOISE-2, noise and vibration impacts under the Reduced Density Project Alternative would be less than significant.

(10) Public Services, Utilities, and Recreation

Due to fewer employees, the Reduced Density Project Alternative would result in a somewhat reduced demand for City services, utilities, infrastructure, or parks as compared with the project. Although the project would increase demands on City services, such as police and fire, as well as increased stress on existing utilities, these increases would be fairly minimal. As explained in *Section V.J, Public Services, Utilities, and Recreation*, adherence to the City's SCOAs would further ensure that the project's impact on public services, utilities, and recreational facilities are less than significant.

The Reduced Density Project Alternative's demands on these public services, utilities, and recreational facilities would be even less than the project given the fewer number of employees, and the implementation of SCOAs would further ensure that this alternative's impacts on public services, utilities and recreational facilities are less than significant.

C. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of the environmentally superior alternative in an EIR. Of the two alternatives analyzed above, the No Project/No Build Alternative is considered the environmentally superior alternative in the strict sense that the environmental impacts associated with its implementation would be the least of all the scenarios examined (including the project). While this alternative would be environmentally superior in the technical sense that contribution to these aforementioned impacts would not occur, this alternative would not meet the project objectives, nor offer the public and community benefits identified, such as boosting economic development in Foster City by redeveloping a site at an infill location that would provide jobs for the residents of Foster City and tax revenue for the City.

In cases where the No Project/No Build Alternative is the environmentally superior alternative, CEQA requires that the second most environmentally superior alternative be identified. The Reduced Density Project Alternative would be considered the second most environmentally superior alternative. Comparison of the environmental impacts associated with each alternative as described above, indicates the Reduced Density Project Alternative would generally represent the next-best alternative in terms of reducing impacts. The Reduced Density Project Alternative would result in further reducing potentially significant environmental impacts related to aesthetics and shade and shadow, air quality, GHG, hydrology and water quality, and noise and vibration, and reducing the already less-than-significant impacts produced by the project.

VII. CEQA REQUIRED ASSESSMENT CONCLUSIONS

As required by the California Environmental Quality Act (CEQA), this chapter discusses the following types of impacts that could result from implementation of the new proposed hotel in the Metro Center General Development Plan (GDP) area project (the project): effects found not to be significant, growth-inducing impacts, and significant irreversible changes.

A. EFFECTS FOUND NOT TO BE SIGNIFICANT

The scope of this Environmental Impact Report (EIR) was determined after meetings between department representatives of the City of Foster City involved in project planning and review and consultants for the City. In addition to these meetings, a Notice of Preparation (NOP) was circulated on April 10, 2019, and a public scoping session was held in conjunction with the Planning Commission meeting on April 18, 2019. Written comments received on the NOP were considered in the preparation of the final scope for this document and in the evaluation of the project. No public comments were received during the scoping session.

The environmental topics analyzed in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures,* include those topics upon which the project was determined to have a significant effect during the scoping phase and that generated the greatest potential controversy. By contrast, the following topics were excluded from detailed discussion in this EIR because it was determined during the scoping phase that project impacts on these resource areas would not be significant: agriculture and forest resources, biological resources, cultural resources, energy, mineral resources, population and housing, tribal cultural resources, and wildfire. An explanation of why these topics were found not to be significant is briefly discussed below.

1. Agriculture and Forest Resources

The project site is in an existing urban area. There are no agricultural uses—including Prime Farmland, Unique Farmland, or Farmland of Statewide Importance—located on, adjacent to, or near the project site. There are no agricultural zones near the site or Williamson Act-contracted properties near the site. Additionally, there are no forest lands or resources on or in the vicinity of the project site. As a result, the project would not impact agricultural or forest resources. No mitigation measures are required.

2. Biological Resources

The project site is undeveloped and surrounded by existing development, with vegetation consisting of a grassy lawn bordered by low hedges. Black acacia trees run parallel to Metro Center Boulevard and Shell Boulevard, outside of the project site's boundaries.

The project site contains no trees or other plants and is not within or near a riparian corridor. Given this existing, long-standing urban setting, the project site does not provide suitable habitat for any special-status plant or animal species and is unlikely to be a part of an established native resident or migratory wildlife corridor. Waterfowl have been observed congregating on the project site, but superior habitat—the San Francisco Bay shoreline and the Foster City Lagoon—are within close proximity of the project site. The project would not conflict with any local goals, policies, or programs protecting biological resources. As a result, the project would not have a significant impact on any biological resources or conflict with any policies, plans, or regulations related to biological resources. No mitigation measures are required.

3. Cultural Resources

The project site is undeveloped and surrounded by existing development. As the project area have been subject to continuous urban development over the past century, any archaeological or paleontological remains would be buried by fill. The project would result in demolition and some grading activities that would require a grading permit. The following Standard Conditions of Approval (SCOAs) are required to ensure that if any archaeological or paleontological deposits or human remains are encountered during excavation or construction activities on site, these resources will be addressed to lessen any potential adverse effects.

- **SCOA 9.19:** If paleontological resources are discovered during project activities, all work within 25 feet of the discovery shall be redirected and the Community Development Director immediately notified. A qualified paleontologist shall be contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Paleontological resources include fossil plants and animals, and evidence of past life such as trace fossils and tracks. Ancient marine sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Fossil vertebrate land animals may include bones of reptiles, birds, and mammals. Paleontological resources also include plant imprints, petrified wood, and animal tracks.

  Upon completion of the assessment, the paleontologist shall prepare a report documenting the methods and results and provide recommendations for the treatment of the paleontological resources discovered. This report shall be submitted to the project applicant, the Foster City Community Development Department, and the paleontological curation facility.

Adverse effects to paleontological resources shall be avoided by project activities. If avoidance is not feasible (as determined by the City, in conjunction with the qualified paleontologist), the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, adverse effects on the resources shall be avoided, or such effects shall be mitigated. Mitigation can include, but is not necessarily limited to: excavation of paleontological resources using standard paleontological field methods and procedures; laboratory and technical analyses of recovered materials; production of a report detailing the methods, findings, and significance of recovered fossils; curation of paleontological materials at an appropriate facility (e.g., the University of California Museum of Paleontology) for future research and/or display; an interpretive display of recovered fossils at a local school, museum, or library; and public lectures at local schools on the findings and significance of the site and recovered fossils. The City shall ensure that any mitigation involving excavation of the resource is implemented prior to project construction or actions that could adversely affect the resource. (CDD, BD)

- **SCOA 9.20:** If deposits of prehistoric or historic archaeological materials are encountered during project activities, all work within 25 feet of the discovery shall be redirected and the Community Development Director immediately notified. A qualified archaeologist shall be contacted to assess the find, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Prehistoric materials can include flaked-stone tools (e.g., projectile points, knives, choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, faunal bones, and cultural materials); and stone-milling equipment (e.g., mortars, pestles, handstones). Prehistoric archaeological sites often contain human remains. Historical materials can include wood, stone, concrete, or adobe footings, walls, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal and other refuse.

  Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results of the analysis, and provide recommendations for the treatment of the archaeological deposits discovered. The report shall be submitted to the project applicant, the Foster City Community Development Department and the Northwest Information Center. Project personnel shall not collect or move any archaeological materials or human remains. Adverse effects to such deposits shall be avoided by project activities. If avoidance is not feasible (as determined by the City, in conjunction with the qualified archaeologist), the archaeological deposits shall be evaluated for their eligibility for listing in the California Register. If the deposits are not eligible, avoidance is not necessary. If the deposits are eligible, avoidance of project impacts on the deposit shall be the preferred mitigation. If adverse effects on the deposits cannot be avoided, such effects must be mitigated. Mitigation can include, but is not necessarily limited to: excavation of the deposit in accordance with a data recovery plan (see CEQA Guidelines Section 15126.4(b)(3)(C)) and standard archaeological field methods and procedures; laboratory and technical analyses of recovered archaeological materials; production of a report detailing the methods, findings, and significance of the archaeological site and associated materials; curation of archaeological materials at an appropriate facility for future research and/or display; preparation of a brochure for public distribution that discusses the significance of the archaeological deposit; an interpretive display of recovered archaeological material sat a local school, museum, or library; and public lectures at local schools and/or historical societies on the findings and significance of the site and recovered archaeological materials. The City shall ensure that any mitigation involving excavation of the deposit is implemented prior to the resumption of actions that could adversely affect the deposit.

- **SCOA 9.21:** If human remains are encountered, work within 25 feet of the discovery shall be directed and the County Coroner and the Community Development Director immediately notified. At the same time, an archaeologist shall be contacted to assess the situation and consult with agencies as appropriate. The project applicant shall also be notified. Project personnel shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the Coroner shall notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The project sponsor shall comply with these recommendations. The report shall be submitted to the project applicant, the Foster City Community Development Department, the MLD, and the Northwest Information Center.

With implementation of the SCOAs identified above, the project would not result in significant impacts to cultural or paleontological resources.

4. Energy

The project would be subject to Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings and would not violate applicable regulations related to energy standards. The project would also not require or result in construction of new energy facilities or expansion of existing facilities, construction of which could cause significant environmental effects. The addition of 156 hotel rooms would have an incremental increase in energy demand; however, it would comply with the standards of Title 24 of the California Code of Regulations, resulting in a less-than-significant impact.

5. Mineral Resources

No known mineral resources are located within or near the project site, and no mineral extraction activities have taken place within or around the project site within recent history. The project site is not designated by the Foster City General Plan or other land use plan as a locally important mineral recovery site. For these reasons, the project's impacts to mineral resources would not be significant and no mitigation measures are required.

6. Population and Housing

The project does not include any new residential units and would not directly induce population growth. However, as outlined in *Chapter III, Project Description,* the size and uses of the project would result in the creation of approximately 93 new employees on the project site. These new job opportunities could cause people to move to Foster City or surrounding communities, which would generate additional housing demand in the region.

In 2017, an estimated 7.5 percent employees in Foster City lived within the City, while the other 92.5 percent lived elsewhere in the Bay Area.[1] According to this ratio, the project would result in approximately seven employees that would live in Foster City. Assuming that these employees would not be existing Foster City residents, the project could potentially increase demand for housing in Foster City by seven housing units. This determination is likely an overestimate, as new jobs created would reasonably be expected to attract existing City residents due to lifestyle advantages and shortened commutes.

The land use designation and zoning of the project site require approvals that would allow the City to carefully assess growth impacts. The project's proposed uses are consistent with the current General Plan Land Use classification for the project site, Town Center Commercial. As noted in *Section V.A, Land Use*, properties with Land Use Designation of Town Center Commercial are intended for a mix of office, commercial, and residential uses compatible with the downtown core. As a result, induced housing demand from the project would have a less-than-significant impact.

Finally, because the site is currently undeveloped, the project would not displace any existing housing or people, and therefore would not necessitate the construction of replacement housing elsewhere.

[1] U.S. Census Bureau, Center for Economic Studies, 2017. OnTheMap: Inflow/Outflow Analysis for Foster City. Available at: https://onthemap.ces.census.gov/, accessed September 19, 2019.

7. Tribal Cultural Resources

The project site is not listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k). The City of Foster City has not determined any resource within the project site to be significant pursuant to the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. Therefore, the project's impacts to tribal cultural resources would not be significant and no mitigation measures are required.

8. Wildfire

The project would not alter the adjacent roadways; therefore, it would not be expected to impair the function of nearby emergency evacuation routes and would have a less-than-significant impact on implementation of an adopted emergency response plan or emergency evacuation plan.

The project site is located in a Local Responsibility Area and is not regarded as a Very High Fire Hazard Severity Zone as mapped by the California Department of Forestry and Fire Protection.[2] Therefore, the project would not expose people or structures to a significant loss, injury or death involving wildland fires.

The project site is in a highly developed urban area, and all infrastructure serving the project, including roads, water sources, and other utilities, is already constructed. The project would install on-site connections to this infrastructure but would not install any infrastructure that would exacerbate fire risk. The project site is not located in the wildland-urban interface (WUI) where development would intensify existing fire risk.

Although the impacts of wildfire can be exacerbated in landslide-prone areas that can be destabilized following a wildfire, the project site is not located within a landslide hazard zone, as discussed in *Section V.F, Geology and Soils*. The project would replace an existing undeveloped site with a hotel, which would not alter the project site's risk from downstream flooding or landslides due to post-fire slope instability.

B. GROWTH-INDUCING IMPACTS

A project is considered growth-inducing if it would directly or indirectly foster substantial economic or population growth, or the construction of additional housing. Examples of projects

[2] Cal FIRE, 2008. San Mateo County Very High Fire Hazard Severity Zones in LRA as recommended by Cal FIRE, November 24.

likely to have significant growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are currently only sparsely developed or are undeveloped.

Implementation of the project would not result in direct population growth because new housing units are not included. The project would likely result in indirect population growth, but it would not be substantial in the context of population growth projected to occur in Foster City. Project-associated indirect population growth would occur as a result of the construction of up to 83,187 square feet of hotel, casual dining services, and amenity space and the creation of up to 93 new jobs on the project site.

As described in section A.6, Population and Housing, above, the creation of these jobs would cause new employees to move to Foster City, increasing the city's population. The creation of 93 new jobs on the project site would cause approximately seven employees to relocate to Foster City and would require seven housing units to meet this increased demand (assuming new employees live in separate households and do not currently live in Foster City). The projected housing units expected to be constructed in Foster City in the near term (approximately 508 units based on the approved Pilgrim Triton Phase C project and the currently under construction Foster Square project) would more than satisfy the demand associated with the project. As such, the project would not induce substantial population growth to Foster City.

In addition, the project would occur in an existing urbanized area, and as such would not require the extension of utilities or roads into undeveloped areas and would not directly or indirectly lead to the development of greenfield sites on the San Francisco Peninsula. Because the project site is located within an existing urbanized area and is served by transit, anticipated employment growth could reduce adverse impacts associated with automobile use, such as air pollution. The intensification of employment on the project site could allow for efficiencies in future transit expansions, thereby increasing the per-capita utilization of transit. Therefore, the growth that would occur as a result of project implementation would not be considered substantial or adverse.

C. SIGNIFICANT IRREVERSIBLE CHANGES

An EIR must identify any significant irreversible environmental changes that could result from implementation of a proposed project. These may include current or future uses of non-renewable resources, and secondary impacts that commit future generations to similar uses. CEQA dictates that irretrievable commitments of resources should be evaluated to assure that such current consumption is justified. The CEQA Guidelines describe three categories of significant irreversible changes: 1) changes in land use that would commit future generations; 2) irreversible changes from environmental actions; and 3) consumption of non-renewable resources.

1. Changes in Land Use Which Would Commit Future Generations to Similar Uses

The project would allow for the redevelopment of an approximately 1.36-acre vacant site located at the intersection of Metro Center Boulevard and Shell Boulevard. It is surrounded by a mix of commercial and residential development, and is designated Town Center Commercial which typically provides a mix of high-density office, residential, and commercial land uses that serve as Foster City's downtown core. Because the project would occur on an infill site in which a variety of land uses may be considered under the General Plan and Municipal Code, it would not commit future generations to a significant change in land use.

2. Irreversible Changes from Environmental Actions

No significant irreversible environmental damage, such as what could occur as a result of an accidental spill or explosion of hazardous materials, is anticipated due to redevelopment activities associated with the project. Furthermore, compliance with federal, State, and local regulations of the City of Foster City, and the implementation of SCOAs and mitigation measures identified in *Section V.G, Hazards and Hazardous Materials*, would reduce to a less-than-significant level the possibility that hazardous substances within the project site could cause significant environmental damage.

3. Consumption of Nonrenewable Resources

Consumption of nonrenewable resources includes conversion of agricultural lands, loss of access to mining reserves, and use of non-renewable energy sources. The project site is located within an urbanized area of Foster City. No agricultural lands exist on the project site; therefore, none would be converted to non-agricultural uses. In addition, the site does not contain known mineral resources and does not serve as a mining reserve; thus, implementation of the project would not result in the loss of access to mining reserves.

Construction of the project itself, including the use of fuel and concrete, among other materials, would also consume nonrenewable resources. However, the buildings and infrastructure constructed as part of the proposed project are expected to be long-lasting and construction methods are expected to be modern and efficient based on required compliance with City requirements, 2019 California Building Codes (CBC), California Green Building Codes (CALGreen), and Title 24 of the California Code of Regulations (Title 24). Therefore, the use of these materials would not be considered wasteful.

Implementation of SCOA 7.2 would require the project applicant to provide a letter describing the sustainable practices that are included in the project. This would help ensure that the project uses sustainable practices and would encourage the substitution of renewable fuel sources for nonrenewable sources. With implementation of required City requirements, 2019 CBC, CALGreen, and Title 24 energy efficiency standards, the proposed project would not result in a significant increase in the consumption of nonrenewable resources.

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URBAN
PLANNING
PARTNERS
INC.

NEW HOTEL IN THE METRO CENTER GENERAL DEVELOPMENT PLAN AREA PROJECT

Draft Environmental Impact Report - Appendices
State Clearinghouse No. 2019049065

Prepared for:
City of Foster City

March 2020

URBAN PLANNING PARTNERS INC.

NEW HOTEL IN THE METRO CENTER GENERAL DEVELOPMENT PLAN AREA PROJECT

Draft Environmental Impact Report - Appendices
State Clearinghouse No. 2019049065

Prepared for the City of Foster City

By:

Urban Planning Partners
388 17th Street, Suite 230
Oakland, CA 94612

With:

BASELINE Environmental Consulting
Fehr & Peers

March 2020

URBAN PLANNING PARTNERS INC.

APPENDICES

TABLE OF CONTENTS

APPENDICES

A. Notice of Preparation

B. Transportation Analysis

C. California Emissions Estimator Model (CalEEMod)Outputs

D. Traffic Noise Model Outputs

E. Water Supply Assessment

Appendix A

Notice of Preparation and Written Comments Received

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
P.O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5528
www.dot.ca.gov

Making Conservation a California Way of Life!

May 9, 2019

SCH: 2019049065
04-SM-2019-00245
GTS ID 15259
Post Mile: SM – 92- 13.408

Timothy Maier, Associate Planner
City of Foster City
610 Foster City Boulevard
Foster City, CA 95402

New Hotel Project – Notice of Preparation (NOP)

Dear Timothy Maier:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above-referenced project. In tandem with the Metropolitan Transportation Commission's Regional Transportation Plan/Sustainable Communities Strategy, Caltrans mission signals a modernization of our approach to evaluating and mitigating impacts to the State Transportation Network (STN). Caltrans' *Strategic Management Plan 2015-2020* aims to reduce Vehicle Miles Traveled by tripling bicycle and doubling both pedestrian and transit travel by 2020. Our comments are based on the NOP.

Project Understanding
The proposed project includes development of an approximately 77,479 square-foot, six-story hotel on a vacant, approximately 59,327-square-foot (1.36-acre) lot. The hotel would feature 155 guest rooms, a restaurant, meeting space, and a rooftop terrace bar, in addition to several features generally associated with limited-service (short-stay) hotels, including a fitness center, lobby lounge, and a guest laundry room. A two-story parking garage at the site would provide approximately 90 to100 parking stalls, and auto access to the site would be provided via driveways from Shell Boulevard and Metro Center Boulevard. Regional access is provided 800 feet from the proposed project at State Route 92.

Sea Level Rise
The effects of sea level rise may have impacts on transportation facilities located in the project area. Executive Order (EO) S-13-08 directs State agencies planning construction projects in areas vulnerable to sea level rise to begin planning for potential impacts by considering a range of sea level rise scenarios for years 2050 and 2100. Higher water levels may increase erosion rates, change environmental characteristics that affect material durability, lead to increased groundwater levels and change sediment movement along shores and at estuaries and river mouths, as well as affect soil pore pressure at dikes and levees on which transportation facilities are constructed. All these factors must be addressed through geotechnical and hydrological studies conducted in

coordination with Caltrans.

Vehicle Trip Reduction
Given the project's intensification of use and substantial vehicle parking spaces, the project should include a robust Transportation Demand Management (TDM) Program to reduce VMT and greenhouse gas emissions. Such measures will be critical to facilitate efficient transportation access to and from the project site and reduce transportation impacts associated with the project. The measures listed below will promote smart mobility and reduce regional VMT.

- Project design to encourage walking, bicycling and convenient transit access;
- Secured bicycle storage facilities located conveniently near entrances to minimize determent of bicycle use due to weather conditions;
- Bicycle parking;
- Subsidized transit passes on an ongoing basis;
- Shuttle service for employees and guests;
- Fix-it bicycle repair station(s);
- Charging stations and designated parking spaces for electric vehicles;
- Carpool and clean-fuel parking spaces conveniently located to encourage carpooling and clean-fuel vehicles;
- Lower parking ratios;
- Showers, changing rooms and clothing lockers for employee bike commuters;
- Bicycle route mapping resources and bicycle parking incentives;
- Employee transportation coordinator;
- Emergency Ride Home program;
- Participation/Formation in/of a Transportation Management Association (TMA) in partnership with other developments in the area; and
- Aggressive trip reduction targets with annual Lead Agency monitoring and enforcement.

Transportation Demand Management programs should be documented with annual monitoring reports by an onsite TDM coordinator to demonstrate effectiveness. If the project does not achieve the VMT reduction goals, the reports should also include next steps to achieve those targets. Also, reducing parking supply can encourage active forms of transportation, reduce regional VMT, and lessen future transportation impacts on nearby State facilities. These smart growth approaches are consistent with the MTC's Regional Transportation Plan/SCS goals and would meet Caltrans Strategic Management Plan sustainability goals.

Lead Agency
As the Lead Agency, the City of Foster City is responsible for all project mitigation, including any needed improvements to the STN. The project's financing, scheduling, implementation responsibilities and monitoring should be fully discussed for all proposed mitigation measures,

prior to the submittal of an encroachment permit. Potential mitigation measures that include the requirements of other agencies—such as Caltrans—are fully enforceable through permit conditions, agreements, or other legally-binding instruments under the control of the Lead Agency.

Should you have any questions regarding this letter, please contact Michael McHenry at (510) 286-5562 or Michael.mchenry@dot.ca.gov.

Sincerely,

PATRICIA MAURICE
District Branch Chief
Local Development - Intergovernmental Review

c. State Clearinghouse

SAN MATEO
LAFCo LOCAL AGENCY FORMATION COMMISSION
455 COUNTY CENTER, 2ND FLOOR • REDWOOD CITY, CA 94063-1663 • PHONE (650) 363-4224 • FAX (650) 363-4849

FOSTER CITY
RECEIVED

MAY 06 2019

PLANNING/
CODE ENFORCEMENT

May 6, 2019

City of Foster City
Attn: Timothy Maier
610 Foster City Boulevard
Foster City, CA 94404

Subject: Notice of Preparation of an Environmental Impact Report for New Hotel Project (APN 094-522-350)

Dear Mr. Maier,

Thank you for you for the opportunity to comment on the Notice of Preparation of an Environmental Impact Report for the New Hotel Project (Project) located in the City of Foster City.

The Local Agency Formation Commission (LAFCo) is a state mandated local agency established in every county to oversee the boundaries of cities and special districts. San Mateo LAFCo has jurisdiction over the boundaries of the 20 cities, 22 independent special districts, and many of the 38 county and city governed special districts serving San Mateo County.

San Mateo LAFCo does not have any comments on the scope of the Environmental Impact Report at this time.

San Mateo LAFCo looks forward to reviewing future environmental documents if it is identified that action by LAFCo will be required for the Project.

Sincerely,

Rob Bartoli

Rob Bartoli
Management Analyst

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Gavin Newsom
Governor

Kate Gordon
Director

Notice of Preparation

FOSTER CITY
RECEIVED
APR 1 5 2019
PLANNING/
CODE ENFORCEMENT

April 11, 2019

To: Reviewing Agencies

Re: New Hotel Project
SCH# 2019049065

Attached for your review and comment is the Notice of Preparation (NOP) for the New Hotel Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Marlene Subhashini
Foster City
610 Foster City Boulevard
Foster City, CA 94404

with a copy to the State Clearinghouse in the Office of Planning and Research at state.clearinghouse@opr.ca.gov . Please refer to the SCH number noted above in all correspondence concerning this project on our website: https://ceqanet.opr.ca.gov/2019049065/2 .

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

cc: Lead Agency

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

April 16, 2019

Marlene Subhashini
Foster City
610 Foster City Boulevard
Foster City, CA 94404

RE: SCH# 2019049065 New Hotel Project, San Mateo County

Dear Ms. Subhashini:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
   a. A brief description of the project.
   b. The lead agency contact information.
   c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
   d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
   a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
   a. Alternatives to the project.
   b. Recommended mitigation measures.
   c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   a. Type of environmental review necessary.
   b. Significance of the tribal cultural resources.
   c. Significance of the project's impacts on tribal cultural resources.
   d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
   b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
   a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
   b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
       i. Planning and construction to avoid the resources and protect the cultural and natural context.
       ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
       i. Protecting the cultural character and integrity of the resource.
       ii. Protecting the traditional use of the resource.
       iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at

my email address: Gayle.Totton@nahc.ca.gov.

Sincerely,

Nancy Gonzalez

for

Gayle Totton
Associate Governmental Program Analyst

cc: State Clearinghouse

FOSTER CITY
RECEIVED

MAY 01 2019

PLANNING/
CODE ENFORCEMENT

HUDSON
PACIFIC
PROPERTIES

VIA FEDEX

April 30, 2019

City of Foster City
Attn: Marlene Subhashini
610 Foster City Boulevard
Foster City, CA 94404

RE: Notice of Preparation of a Draft Environmental Impact Report for a New Hotel Project

Dear Marlene:

We are in receipt of the above referenced Notice dated April 8, 2019 for Project Applicant, MPQ Foster City Metro Center LLC. Please note that Project Applicant is Owner to that certain parcel governed by the Declaration of Covenants, Conditions and Restrictions for Metro Center dated May 15, 1985 and currently managed by Hudson Metro Center, LLC.

As Manager of the Affected Property, please keep us informed and updated on the status of this Project.

If you have any questions or require any additional information, please do not hesitate to contact me.

Hudson Metro Center, LLC,
a Delaware limited liability company

By: Hudson Pacific Properties, L.P.,
a Maryland limited partnership,
its sole member

By: Hudson Pacific Properties, Inc.,
a Maryland corporation,
its general partner

By:
Name: Naomi Oiwa
Title: Senior Property Manager

950 TOWER LANE, SUITE 1800, FOSTER CITY, CA 94404
O 650 227 4069 W HUDSONPACIFICPROPERTIES.COM

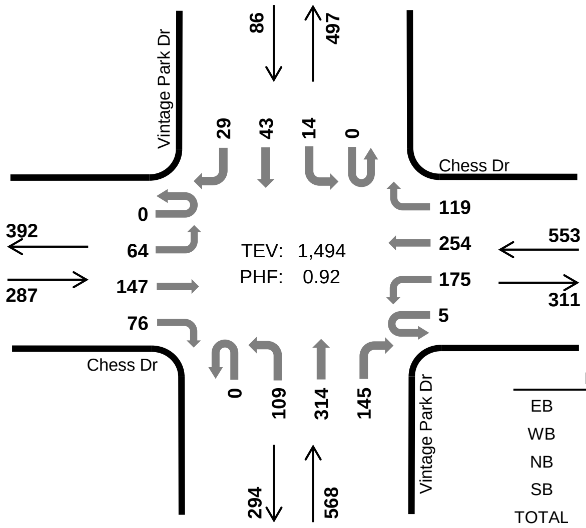
APPENDIX B

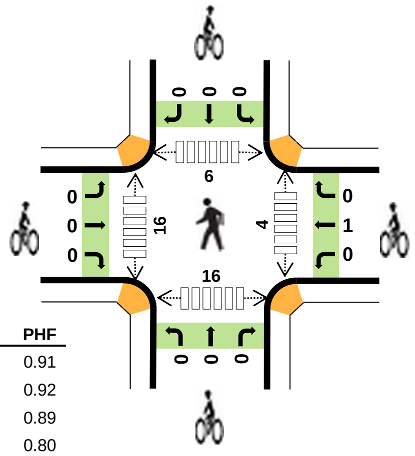
TRANSPORTATION ANALYSIS

Vintage Park Dr
Chess Dr

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour





	HV %:	PHF
EB	3.5%	0.91
WB	3.1%	0.92
NB	1.6%	0.89
SB	11.6%	0.80
TOTAL	3.1%	0.92

Two-Hour Count Summaries

Interval Start	Chess Dr Eastbound UT	LT	TH	RT	Chess Dr Westbound UT	LT	TH	RT	Vintage Park Dr Northbound UT	LT	TH	RT	Vintage Park Dr Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	5	17	10	0	14	34	8	0	14	41	14	0	4	3	0	164	0
7:15 AM	0	6	19	13	0	29	38	20	0	22	43	17	0	3	3	2	215	0
7:30 AM	0	8	32	17	0	25	44	13	0	24	64	24	0	3	6	3	263	0
7:45 AM	0	14	27	16	0	32	58	28	0	20	74	25	0	0	6	10	310	952
8:00 AM	**0**	**13**	**39**	**18**	**1**	**49**	**48**	**35**	**0**	**21**	**65**	**20**	**0**	**2**	**11**	**7**	**329**	1,117
8:15 AM	**0**	**26**	**37**	**16**	**0**	**41**	**63**	**23**	**0**	**35**	**87**	**38**	**0**	**7**	**10**	**4**	**387**	1,289
8:30 AM	**0**	**12**	**31**	**23**	**1**	**48**	**65**	**28**	**0**	**28**	**84**	**36**	**0**	**1**	**8**	**9**	**374**	1,400
8:45 AM	**0**	**13**	**40**	**19**	**3**	**37**	**78**	**33**	**0**	**25**	**78**	**51**	**0**	**4**	**14**	**9**	**404**	**1,494**
Count Total	0	97	242	132	5	275	428	188	0	189	536	225	0	24	61	44	2,446	0
Peak Hour All	**0**	**64**	**147**	**76**	**5**	**175**	**254**	**119**	**0**	**109**	**314**	**145**	**0**	**14**	**43**	**29**	**1,494**	**0**
Peak Hour HV	**0**	**3**	**6**	**1**	**0**	**9**	**7**	**1**	**0**	**3**	**1**	**5**	**0**	**2**	**4**	**4**	**46**	**0**
Peak Hour HV%	**-**	**5%**	**4%**	**1%**	**0%**	**5%**	**3%**	**1%**	**-**	**3%**	**0%**	**3%**	**-**	**14%**	**9%**	**14%**	**3%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	1	2	2	2	*7*	0	1	0	0	*1*	1	3	0	0	*4*
7:15 AM	2	5	1	1	*9*	0	0	0	0	*0*	2	0	0	4	*6*
7:30 AM	1	2	3	2	*8*	0	0	0	0	*0*	2	10	1	0	*13*
7:45 AM	4	2	3	2	*11*	0	0	1	0	*1*	1	2	0	5	*8*
8:00 AM	**3**	**6**	**2**	**2**	***13***	**0**	**0**	**0**	**0**	***0***	**1**	**3**	**1**	**5**	*10*
8:15 AM	**1**	**2**	**1**	**3**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**8**	**1**	**4**	*13*
8:30 AM	**1**	**4**	**1**	**2**	***8***	**0**	**0**	**0**	**0**	***0***	**2**	**4**	**0**	**4**	*10*
8:45 AM	**5**	**5**	**5**	**3**	***18***	**0**	**1**	**0**	**0**	***1***	**1**	**1**	**4**	**3**	*9*
Count Total	18	28	18	17	*81*	0	2	1	0	*3*	10	31	7	25	*73*
Peak Hour	**10**	**17**	**9**	**10**	***46***	**0**	**1**	**0**	**0**	***1***	**4**	**16**	**6**	**16**	***42***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Chess Dr Eastbound				Chess Dr Westbound				Vintage Park Dr Northbound				Vintage Park Dr 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	0	2	0	0	0	1	1	0	0	2	0	7	0
7:15 AM	0	0	2	0	0	1	2	2	0	0	1	0	0	1	0	0	9	0
7:30 AM	0	0	1	0	0	1	1	0	0	1	2	0	0	0	0	2	8	0
7:45 AM	0	1	2	1	0	2	0	0	0	1	1	1	0	0	2	0	11	35
8:00 AM	**0**	**1**	**2**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**13**	41
8:15 AM	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**1**	**0**	**7**	39
8:30 AM	**0**	**0**	**1**	**0**	**0**	**2**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**8**	39
8:45 AM	**0**	**2**	**2**	**1**	**0**	**3**	**2**	**0**	**0**	**3**	**1**	**1**	**0**	**0**	**1**	**2**	**18**	**46**
Count Total	0	4	12	2	0	13	12	3	0	5	6	7	0	3	8	6	81	0
Peak Hour	**0**	**3**	**6**	**1**	**0**	**9**	**7**	**1**	**0**	**3**	**1**	**5**	**0**	**2**	**4**	**4**	**46**	**0**

Two-Hour Count Summaries - Bikes

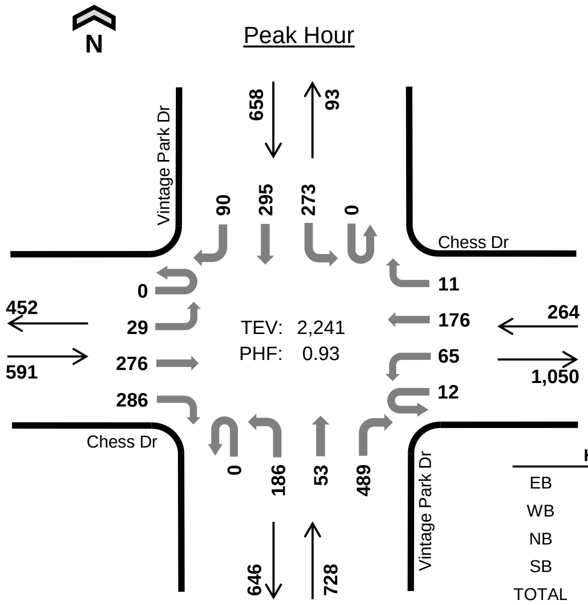
Interval Start	Chess Dr Eastbound			Chess Dr Westbound			Vintage Park Dr Northbound			Vintage Park Dr Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:45 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
Count Total	0	0	0	0	2	0	0	1	0	0	0	0	3	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

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

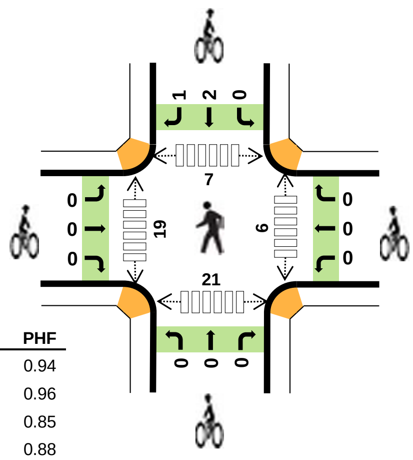
Vintage Park Dr
Chess Dr

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Peak Hour



	HV %:	PHF
EB	1.0%	0.94
WB	3.0%	0.96
NB	0.1%	0.85
SB	2.0%	0.88
TOTAL	1.2%	0.93



Two-Hour Count Summaries

Interval Start	Chess Dr Eastbound UT	LT	TH	RT	Chess Dr Westbound UT	LT	TH	RT	Vintage Park Dr Northbound UT	LT	TH	RT	Vintage Park Dr Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	6	74	62	0	16	47	2	0	44	12	87	0	62	45	13	470	0
4:15 PM	0	5	61	60	0	11	34	2	0	55	6	105	0	66	44	21	470	0
4:30 PM	0	6	58	58	3	7	42	4	0	47	11	93	0	88	68	26	511	0
4:45 PM	**0**	**8**	**67**	**67**	**1**	**20**	**39**	**2**	**0**	**34**	**12**	**108**	**0**	**68**	**75**	**28**	**529**	1,980
5:00 PM	**0**	**7**	**60**	**69**	**0**	**19**	**45**	**3**	**0**	**57**	**19**	**137**	**0**	**76**	**87**	**25**	**604**	2,114
5:15 PM	**0**	**8**	**78**	**70**	**6**	**11**	**50**	**2**	**0**	**44**	**11**	**141**	**0**	**76**	**73**	**16**	**586**	2,230
5:30 PM	**0**	**6**	**71**	**80**	**5**	**15**	**42**	**4**	**0**	**51**	**11**	**103**	**0**	**53**	**60**	**21**	**522**	**2,241**
5:45 PM	0	6	71	59	3	14	37	1	0	63	7	102	0	50	59	19	491	2,203
Count Total	0	52	540	525	18	113	336	20	0	395	89	876	0	539	511	169	4,183	0
Peak Hour All	**0**	**29**	**276**	**286**	**12**	**65**	**176**	**11**	**0**	**186**	**53**	**489**	**0**	**273**	**295**	**90**	**2,241**	**0**
Peak Hour HV	**0**	**0**	**3**	**3**	**0**	**6**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**13**	**0**	**28**	**0**
Peak Hour HV%	**-**	**0%**	**1%**	**1%**	**0%**	**9%**	**1%**	**0%**	**-**	**1%**	**0%**	**0%**	**-**	**0%**	**4%**	**0%**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	2	2	2	0	*6*	0	0	0	0	*0*	0	0	0	8	*8*
4:15 PM	5	2	1	6	*14*	0	0	0	1	*1*	2	4	3	5	*14*
4:30 PM	1	0	0	3	*4*	0	0	0	1	*1*	1	2	1	2	*6*
4:45 PM	**3**	**4**	**1**	**5**	***13***	**0**	**0**	**0**	**0**	***0***	**1**	**6**	**0**	**7**	*14*
5:00 PM	**1**	**3**	**0**	**4**	***8***	**0**	**0**	**0**	**2**	***2***	**1**	**6**	**2**	**1**	*10*
5:15 PM	**1**	**0**	**0**	**4**	***5***	**0**	**0**	**0**	**1**	***1***	**2**	**3**	**4**	**4**	*13*
5:30 PM	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**2**	**4**	**1**	**9**	*16*
5:45 PM	2	1	1	5	*9*	0	0	0	0	*0*	7	4	4	5	*20*
Count Total	16	13	5	27	*61*	0	0	0	5	*5*	16	29	15	41	*101*
Peak Hour	**6**	**8**	**1**	**13**	***28***	**0**	**0**	**0**	**3**	***3***	**6**	**19**	**7**	**21**	***53***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Chess Dr Eastbound				Chess Dr Westbound				Vintage Park Dr Northbound				Vintage Park Dr 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	2	0	0	2	0	0	0	2	0	0	0	0	0	0	6	0
4:15 PM	0	0	2	3	0	1	1	0	0	1	0	0	0	3	2	1	14	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	4	0
4:45 PM	**0**	**0**	**2**	**1**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**5**	**0**	**13**	37
5:00 PM	**0**	**0**	**0**	**1**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**8**	39
5:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**5**	30
5:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**28**
5:45 PM	0	0	2	0	0	0	1	0	0	0	0	1	0	0	5	0	9	24
Count Total	0	0	10	6	0	9	4	0	0	4	0	1	0	3	22	2	61	0
Peak Hour	**0**	**0**	**3**	**3**	**0**	**6**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**13**	**0**	**28**	**0**

Two-Hour Count Summaries - Bikes

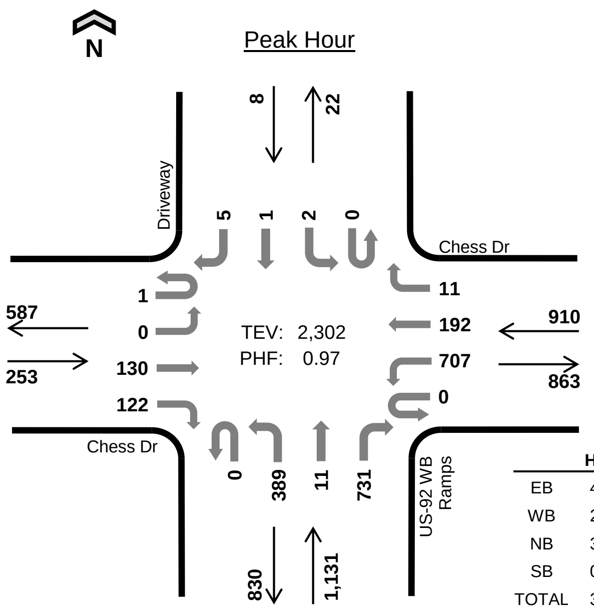
Interval Start	Chess Dr Eastbound			Chess Dr Westbound			Vintage Park Dr Northbound			Vintage Park Dr Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	4
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	4
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Count Total	0	0	0	0	0	0	0	0	0	0	3	2	5	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**3**	**0**

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

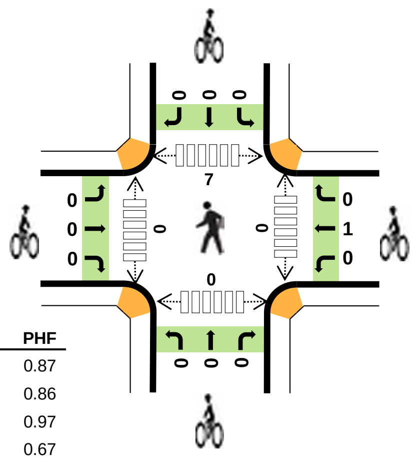
US-92 WB Ramps
Chess Dr

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	HV %:	PHF
EB	4.3%	0.87
WB	2.5%	0.86
NB	3.0%	0.97
SB	0.0%	0.67
TOTAL	3.0%	0.97



Two-Hour Count Summaries

Interval Start	Chess Dr Eastbound UT	LT	TH	RT	Chess Dr Westbound UT	LT	TH	RT	US-92 WB Ramps Northbound UT	LT	TH	RT	Driveway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	9	25	0	100	12	5	0	52	1	112	0	1	3	2	322	0
7:15 AM	1	0	11	30	0	152	24	2	0	60	4	119	0	0	0	0	403	0
7:30 AM	0	0	18	36	0	181	20	4	0	77	2	170	0	0	1	1	510	0
7:45 AM	0	0	16	33	0	144	35	4	0	88	4	222	0	0	3	0	549	1,784
8:00 AM	**0**	**0**	**38**	**21**	**0**	**144**	**34**	**1**	**0**	**99**	**4**	**190**	**0**	**1**	**0**	**0**	**532**	1,994
8:15 AM	**1**	**0**	**27**	**43**	**0**	**209**	**52**	**4**	**0**	**79**	**1**	**179**	**0**	**0**	**0**	**1**	**596**	2,187
8:30 AM	**0**	**0**	**27**	**23**	**0**	**183**	**54**	**4**	**0**	**107**	**2**	**182**	**0**	**0**	**0**	**3**	**585**	2,262
8:45 AM	**0**	**0**	**38**	**35**	**0**	**171**	**52**	**2**	**0**	**104**	**4**	**180**	**0**	**1**	**1**	**1**	**589**	**2,302**
Count Total	2	0	184	246	0	1,284	283	26	0	666	22	1,354	0	3	8	8	4,086	0
Peak Hour All	**1**	**0**	**130**	**122**	**0**	**707**	**192**	**11**	**0**	**389**	**11**	**731**	**0**	**2**	**1**	**5**	**2,302**	**0**
Peak Hour HV	**0**	**0**	**3**	**8**	**0**	**17**	**5**	**1**	**0**	**9**	**0**	**25**	**0**	**0**	**0**	**0**	**68**	**0**
Peak Hour HV%	**0%**	**-**	**2%**	**7%**	**-**	**2%**	**3%**	**9%**	**-**	**2%**	**0%**	**3%**	**-**	**0%**	**0%**	**0%**	**3%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	1	2	5	0	*8*	0	1	0	0	*1*	0	1	2	0	*3*
7:15 AM	3	6	13	0	*22*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	1	8	9	0	*18*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	1	1	10	0	*12*	0	0	0	0	*0*	0	0	1	0	*1*
8:00 AM	**4**	**4**	**6**	**0**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**3**	**0**	*3*
8:15 AM	**4**	**2**	**10**	**0**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
8:30 AM	**1**	**8**	**10**	**0**	***19***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**2**	**0**	*2*
8:45 AM	**2**	**9**	**8**	**0**	***19***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
Count Total	17	40	71	0	*128*	0	2	0	0	*2*	0	1	10	0	*11*
Peak Hour	**11**	**23**	**34**	**0**	***68***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**7**	**0**	***7***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Chess Dr Eastbound				Chess Dr Westbound				US-92 WB Ramps Northbound				Driveway 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	0	1	0	1	1	0	0	0	0	5	0	0	0	0	8	0
7:15 AM	0	0	1	2	0	5	1	0	0	6	0	7	0	0	0	0	22	0
7:30 AM	0	0	0	1	0	7	1	0	0	1	0	8	0	0	0	0	18	0
7:45 AM	0	0	0	1	0	0	1	0	0	3	0	7	0	0	0	0	12	60
8:00 AM	**0**	**0**	**1**	**3**	**0**	**2**	**2**	**0**	**0**	**2**	**0**	**4**	**0**	**0**	**0**	**0**	**14**	66
8:15 AM	**0**	**0**	**0**	**4**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**16**	60
8:30 AM	**0**	**0**	**0**	**1**	**0**	**6**	**1**	**1**	**0**	**4**	**0**	**6**	**0**	**0**	**0**	**0**	**19**	61
8:45 AM	**0**	**0**	**2**	**0**	**0**	**7**	**2**	**0**	**0**	**3**	**0**	**5**	**0**	**0**	**0**	**0**	**19**	**68**
Count Total	0	0	4	13	0	30	9	1	0	19	0	52	0	0	0	0	128	0
Peak Hour	**0**	**0**	**3**	**8**	**0**	**17**	**5**	**1**	**0**	**9**	**0**	**25**	**0**	**0**	**0**	**0**	**68**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Chess Dr Eastbound			Chess Dr Westbound			US-92 WB Ramps Northbound			Driveway 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	1	0	0	0	0	0	0	0	1	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	1
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**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Count Total	0	0	0	0	2	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

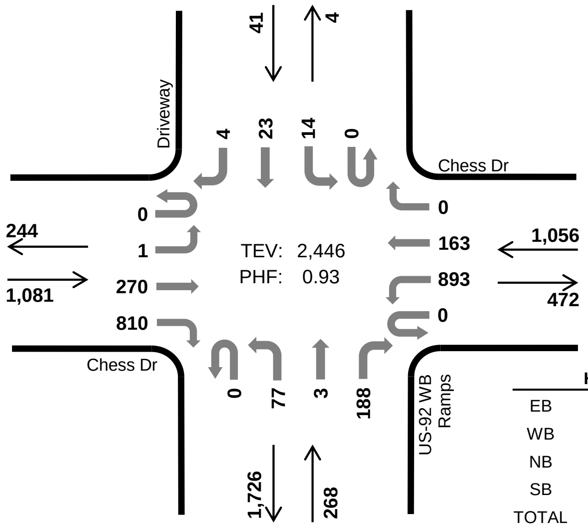
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

US-92 WB Ramps
Chess Dr

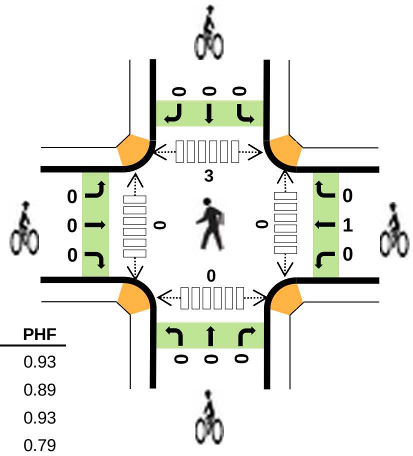
Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM

N

Peak Hour



	HV %:	PHF
EB	0.2%	0.93
WB	1.9%	0.89
NB	3.7%	0.93
SB	0.0%	0.79
TOTAL	1.3%	0.93



Two-Hour Count Summaries

Interval Start		Chess Dr Eastbound				Chess Dr Westbound				US-92 WB Ramps Northbound				Driveway 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	78	136	0	225	43	0	0	17	0	47	0	7	2	1	556	0
4:15 PM		1	0	68	174	0	199	44	0	0	2	0	35	0	8	8	0	539	0
4:30 PM		**0**	**1**	**79**	**184**	**0**	**196**	**34**	**0**	**0**	**15**	**1**	**47**	**0**	**5**	**7**	**1**	**570**	0
4:45 PM		**0**	**0**	**59**	**187**	**0**	**211**	**37**	**0**	**0**	**21**	**0**	**48**	**0**	**3**	**2**	**0**	**568**	2,233
5:00 PM		**0**	**0**	**60**	**221**	**0**	**253**	**42**	**0**	**0**	**24**	**1**	**39**	**0**	**2**	**9**	**2**	**653**	2,330
5:15 PM		**0**	**0**	**72**	**218**	**0**	**233**	**50**	**0**	**0**	**17**	**1**	**54**	**0**	**4**	**5**	**1**	**655**	**2,446**
5:30 PM		0	0	71	154	0	213	43	1	0	15	0	54	0	1	4	1	557	2,433
5:45 PM		0	0	61	153	0	183	35	0	0	19	0	58	0	3	8	0	520	2,385
Count Total		1	1	548	1,427	0	1,713	328	1	0	130	3	382	0	33	45	6	4,618	0
Peak Hour	**All**	**0**	**1**	**270**	**810**	**0**	**893**	**163**	**0**	**0**	**77**	**3**	**188**	**0**	**14**	**23**	**4**	**2,446**	**0**
	HV	**0**	**0**	**1**	**1**	**0**	**16**	**4**	**0**	**0**	**3**	**0**	**7**	**0**	**0**	**0**	**0**	**32**	**0**
	HV%	**-**	**0%**	**0%**	**0%**	**-**	**2%**	**2%**	**-**	**-**	**4%**	**0%**	**4%**	**-**	**0%**	**0%**	**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	2	2	1	0	*5*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	5	5	2	0	*12*	0	0	0	0	*0*	0	0	5	0	*5*
4:30 PM	**1**	**4**	**1**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**1**	**5**	**7**	**0**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**0**	*2*
5:00 PM	**0**	**7**	**1**	**0**	***8***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**1**	**0**	*1*
5:15 PM	**0**	**4**	**1**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	0	2	1	0	*3*	0	0	0	0	*0*	0	0	1	0	*1*
5:45 PM	2	4	0	0	*6*	0	0	0	0	*0*	0	0	5	0	*5*
Count Total	11	33	14	0	*58*	0	1	0	0	*1*	0	0	14	0	*14*
Peak Hour	**2**	**20**	**10**	**0**	***32***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**3**	**0**	***3***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Chess Dr Eastbound UT	LT	TH	RT	Chess Dr Westbound UT	LT	TH	RT	US-92 WB Ramps Northbound UT	LT	TH	RT	Driveway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	1	1	0	1	1	0	0	1	0	0	0	0	0	0	5	0
4:15 PM	0	0	3	2	0	2	3	0	0	0	0	2	0	0	0	0	12	0
4:30 PM	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	0
4:45 PM	**0**	**0**	**0**	**1**	**0**	**3**	**2**	**0**	**0**	**2**	**0**	**5**	**0**	**0**	**0**	**0**	**13**	36
5:00 PM	**0**	**0**	**0**	**0**	**0**	**5**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	39
5:15 PM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**5**	**32**
5:30 PM	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	3	29
5:45 PM	0	0	2	0	0	3	1	0	0	0	0	0	0	0	0	0	6	22
Count Total	0	0	7	4	0	24	9	0	0	4	0	10	0	0	0	0	58	0
Peak Hour	**0**	**0**	**1**	**1**	**0**	**16**	**4**	**0**	**0**	**3**	**0**	**7**	**0**	**0**	**0**	**0**	**32**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Chess Dr Eastbound LT	TH	RT	Chess Dr Westbound LT	TH	RT	US-92 WB Ramps Northbound LT	TH	RT	Driveway Southbound LT	TH	RT	15-min Total	Rolling One Hour
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**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
5:15 PM	**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	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

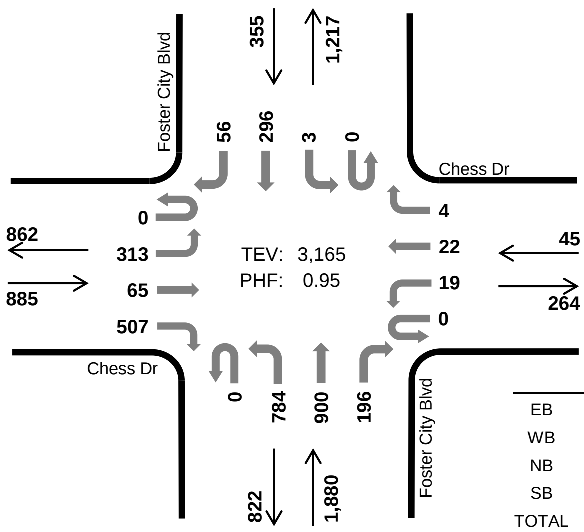
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Foster City Blvd
Chess Dr

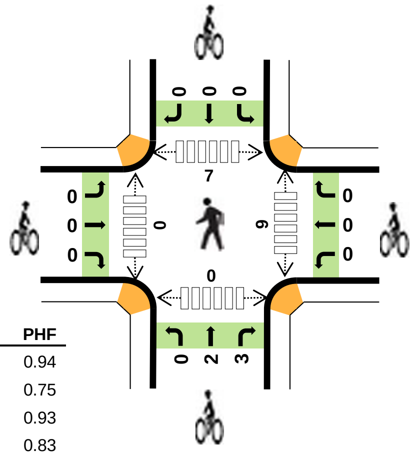
Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM

N

Peak Hour



	HV %:	PHF
EB	2.8%	0.94
WB	6.7%	0.75
NB	1.9%	0.93
SB	5.9%	0.83
TOTAL	2.7%	0.95



Two-Hour Count Summaries

Interval Start	Chess Dr Eastbound UT	LT	TH	RT	Chess Dr Westbound UT	LT	TH	RT	Foster City Blvd Northbound UT	LT	TH	RT	Foster City Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	43	12	64	0	2	2	0	0	110	134	31	0	0	27	10	435	0
7:15 AM	0	48	11	77	0	4	6	1	0	159	189	42	0	0	33	9	579	0
7:30 AM	0	47	8	122	0	3	1	0	0	185	265	27	0	3	37	13	711	0
7:45 AM	**0**	**77**	**13**	**143**	**0**	**2**	**5**	**0**	**0**	**167**	**231**	**41**	**0**	**0**	**58**	**11**	**748**	2,473
8:00 AM	**0**	**78**	**22**	**136**	**0**	**7**	**6**	**2**	**0**	**173**	**207**	**52**	**0**	**2**	**81**	**8**	**774**	2,812
8:15 AM	**0**	**61**	**18**	**123**	**0**	**7**	**5**	**1**	**0**	**240**	**217**	**51**	**0**	**0**	**89**	**18**	**830**	3,063
8:30 AM	**0**	**97**	**12**	**105**	**0**	**3**	**6**	**1**	**0**	**204**	**245**	**52**	**0**	**1**	**68**	**19**	**813**	**3,165**
8:45 AM	0	82	8	110	0	2	8	0	0	190	224	39	0	0	61	21	745	3,162
Count Total	0	533	104	880	0	30	39	5	0	1,428	1,712	335	0	6	454	109	5,635	0
Peak Hour All	**0**	**313**	**65**	**507**	**0**	**19**	**22**	**4**	**0**	**784**	**900**	**196**	**0**	**3**	**296**	**56**	**3,165**	**0**
Peak Hour HV	**0**	**15**	**1**	**9**	**0**	**0**	**3**	**0**	**0**	**12**	**14**	**9**	**0**	**1**	**18**	**2**	**84**	**0**
Peak Hour HV%	**-**	**5%**	**2%**	**2%**	**-**	**0%**	**14%**	**0%**	**-**	**2%**	**2%**	**5%**	**-**	**33%**	**6%**	**4%**	**3%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	5	0	2	6	*13*	0	0	0	0	*0*	2	0	2	0	*4*
7:15 AM	6	0	9	4	*19*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	6	2	13	7	*28*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	**6**	**1**	**2**	**4**	***13***	**0**	**0**	**1**	**0**	***1***	**2**	**0**	**0**	**0**	*2*
8:00 AM	**4**	**1**	**6**	**5**	***16***	**0**	**0**	**2**	**0**	***2***	**5**	**0**	**5**	**0**	*10*
8:15 AM	**8**	**1**	**13**	**6**	***28***	**0**	**0**	**2**	**0**	***2***	**1**	**0**	**1**	**0**	*2*
8:30 AM	**7**	**0**	**14**	**6**	***27***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**0**	*2*
8:45 AM	4	2	13	3	*22*	0	0	0	0	*0*	1	0	1	0	*2*
Count Total	46	7	72	41	*166*	0	0	5	0	*5*	12	0	10	0	*22*
Peak Hour	**25**	**3**	**35**	**21**	***84***	**0**	**0**	**5**	**0**	***5***	**9**	**0**	**7**	**0**	***16***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Chess Dr Eastbound				Chess Dr Westbound				Foster City Blvd Northbound				Foster City Blvd 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	2	1	0	0	0	0	0	0	2	0	0	0	3	3	13	0
7:15 AM	0	5	1	0	0	0	0	0	0	5	3	1	0	0	3	1	19	0
7:30 AM	0	2	1	3	0	1	1	0	0	5	7	1	0	1	3	3	28	0
7:45 AM	**0**	**4**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**13**	73
8:00 AM	**0**	**1**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**2**	**0**	**0**	**4**	**1**	**16**	76
8:15 AM	**0**	**3**	**1**	**4**	**0**	**0**	**1**	**0**	**0**	**3**	**5**	**5**	**0**	**0**	**6**	**0**	**28**	85
8:30 AM	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**5**	**2**	**0**	**1**	**4**	**1**	**27**	**84**
8:45 AM	0	2	2	0	0	0	2	0	0	3	10	0	0	0	2	1	22	93
Count Total	0	26	7	13	0	1	6	0	0	25	36	11	0	2	29	10	166	0
Peak Hour	**0**	**15**	**1**	**9**	**0**	**0**	**3**	**0**	**0**	**12**	**14**	**9**	**0**	**1**	**18**	**2**	**84**	**0**

Two-Hour Count Summaries - Bikes

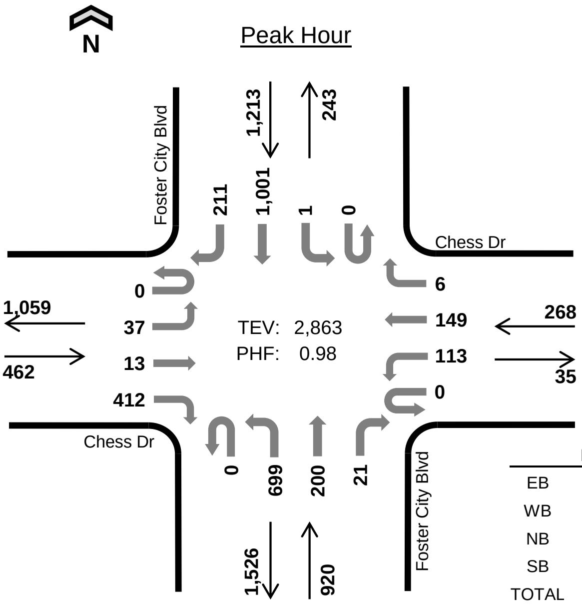
Interval Start	Chess Dr Eastbound			Chess Dr Westbound			Foster City Blvd Northbound			Foster City Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	3
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	5
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Count Total	0	0	0	0	0	0	0	2	3	0	0	0	5	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**0**	**0**	**5**	**0**

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

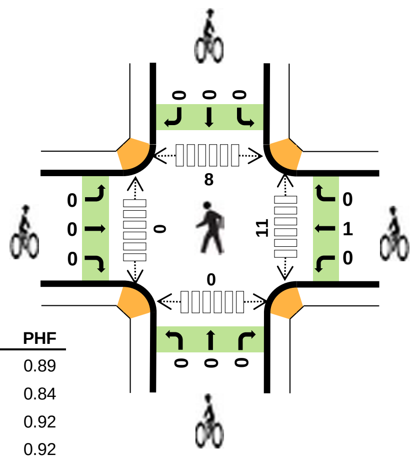
Foster City Blvd
Chess Dr

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM

Peak Hour



	HV %:	PHF
EB	1.5%	0.89
WB	1.9%	0.84
NB	2.4%	0.92
SB	1.3%	0.92
TOTAL	1.7%	0.98



Two-Hour Count Summaries

Interval Start	Chess Dr Eastbound UT	LT	TH	RT	Chess Dr Westbound UT	LT	TH	RT	Foster City Blvd Northbound UT	LT	TH	RT	Foster City Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	10	3	117	0	17	30	1	0	184	52	6	0	1	226	52	699	0
4:15 PM	0	13	5	93	0	13	18	0	0	186	47	10	0	0	250	41	676	0
4:30 PM	**0**	**9**	**2**	**118**	**0**	**25**	**30**	**2**	**0**	**161**	**47**	**8**	**0**	**0**	**278**	**41**	**721**	0
4:45 PM	**0**	**9**	**5**	**101**	**0**	**25**	**37**	**1**	**0**	**163**	**42**	**3**	**0**	**0**	**282**	**48**	**716**	2,812
5:00 PM	**0**	**7**	**3**	**78**	**0**	**32**	**46**	**2**	**0**	**189**	**49**	**8**	**0**	**0**	**216**	**63**	**693**	2,806
5:15 PM	**0**	**12**	**3**	**115**	**0**	**31**	**36**	**1**	**0**	**186**	**62**	**2**	**0**	**1**	**225**	**59**	**733**	**2,863**
5:30 PM	0	9	2	111	0	19	42	0	0	151	53	6	0	1	249	65	708	2,850
5:45 PM	0	24	4	110	0	13	33	0	1	148	40	3	0	0	236	35	647	2,781
Count Total	0	93	27	843	0	175	272	7	1	1,368	392	46	0	3	1,962	404	5,593	0
Peak Hour All	**0**	**37**	**13**	**412**	**0**	**113**	**149**	**6**	**0**	**699**	**200**	**21**	**0**	**1**	**1,001**	**211**	**2,863**	**0**
Peak Hour HV	**0**	**4**	**0**	**3**	**0**	**1**	**4**	**0**	**0**	**14**	**4**	**4**	**0**	**0**	**11**	**5**	**50**	**0**
Peak Hour HV%	**-**	**11%**	**0%**	**1%**	**-**	**1%**	**3%**	**0%**	**-**	**2%**	**2%**	**19%**	**-**	**0%**	**1%**	**2%**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	2	1	4	11	*18*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	4	2	4	5	*15*	0	0	0	0	*0*	4	0	2	0	*6*
4:30 PM	**1**	**1**	**7**	**7**	***16***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**3**	**0**	*6*
4:45 PM	**5**	**2**	**4**	**1**	***12***	**0**	**0**	**0**	**0**	***0***	**4**	**0**	**2**	**0**	*6*
5:00 PM	**0**	**1**	**6**	**5**	***12***	**0**	**1**	**0**	**0**	***1***	**1**	**0**	**1**	**0**	*2*
5:15 PM	**1**	**1**	**5**	**3**	***10***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**2**	**0**	***5***
5:30 PM	1	0	4	2	*7*	0	0	1	0	*1*	1	0	1	0	*2*
5:45 PM	2	1	4	2	*9*	0	0	0	0	*0*	3	0	4	0	*7*
Count Total	16	9	38	36	*99*	0	1	1	0	*2*	19	0	15	0	*34*
Peak Hour	**7**	**5**	**22**	**16**	***50***	**0**	**1**	**0**	**0**	***1***	**11**	**0**	**8**	**0**	***19***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Chess Dr Eastbound				Chess Dr Westbound				Foster City Blvd Northbound				Foster City Blvd 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	2	0	0	1	0	0	1	1	2	0	0	11	0	18	0
4:15 PM	0	1	0	3	0	1	1	0	0	2	0	2	0	0	5	0	15	0
4:30 PM	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**4**	**3**	**0**	**0**	**0**	**7**	**0**	**16**	0
4:45 PM	**0**	**3**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**1**	**0**	**12**	61
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**3**	**0**	**0**	**1**	**4**	**12**	55
5:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**1**	**1**	**0**	**0**	**2**	**1**	**10**	**50**
5:30 PM	0	0	0	1	0	0	0	0	0	2	0	2	0	0	1	1	7	41
5:45 PM	0	2	0	0	0	0	1	0	0	2	1	1	0	0	1	1	9	38
Count Total	0	7	0	9	0	2	7	0	0	21	6	11	0	0	29	7	99	0
Peak Hour	**0**	**4**	**0**	**3**	**0**	**1**	**4**	**0**	**0**	**14**	**4**	**4**	**0**	**0**	**11**	**5**	**50**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Chess Dr Eastbound			Chess Dr Westbound			Foster City Blvd Northbound			Foster City Blvd 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**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	0	1	0	0	1	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

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

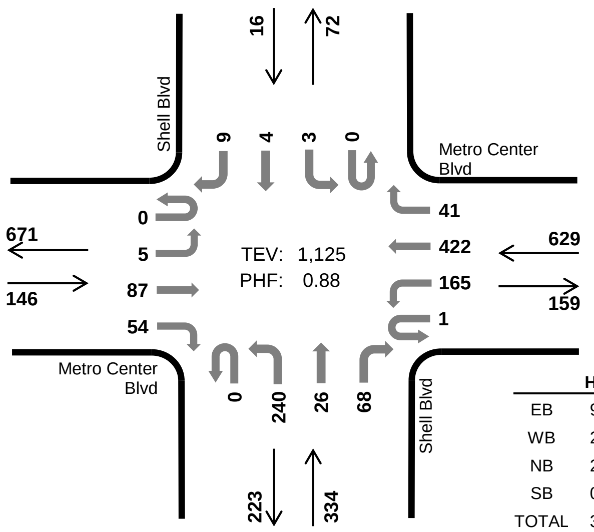
Shell Blvd
Metro Center Blvd

idax

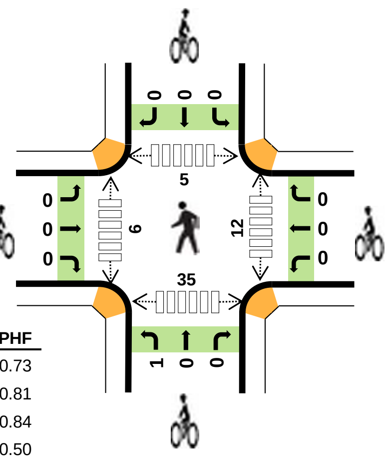
Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

N

Peak Hour



	HV %:	PHF
EB	9.6%	0.73
WB	2.5%	0.81
NB	2.4%	0.84
SB	0.0%	0.50
TOTAL	3.4%	0.88



Two-Hour Count Summaries

Interval Start	Metro Center Blvd Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Shell Blvd Northbound UT	LT	TH	RT	Shell Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	1	11	3	0	21	57	3	0	16	0	14	0	0	0	0	126	0
7:15 AM	0	0	23	7	0	25	51	5	0	42	1	12	0	1	0	0	167	0
7:30 AM	0	0	12	6	0	31	58	0	0	41	0	14	0	0	1	0	163	0
7:45 AM	0	1	14	8	0	36	83	0	0	62	2	8	0	2	0	0	216	672
8:00 AM	**0**	**2**	**28**	**20**	**1**	**28**	**77**	**9**	**0**	**48**	**3**	**14**	**0**	**0**	**0**	**3**	**233**	779
8:15 AM	**0**	**0**	**23**	**10**	**0**	**35**	**117**	**2**	**0**	**59**	**3**	**15**	**0**	**1**	**0**	**2**	**267**	879
8:30 AM	**0**	**0**	**19**	**14**	**0**	**48**	**110**	**8**	**0**	**70**	**8**	**21**	**0**	**2**	**3**	**3**	**306**	1,022
8:45 AM	**0**	**3**	**17**	**10**	**0**	**54**	**118**	**22**	**0**	**63**	**12**	**18**	**0**	**0**	**1**	**1**	**319**	**1,125**
Count Total	0	7	147	78	1	278	671	49	0	401	29	116	0	6	5	9	1,797	0
Peak Hour All	**0**	**5**	**87**	**54**	**1**	**165**	**422**	**41**	**0**	**240**	**26**	**68**	**0**	**3**	**4**	**9**	**1,125**	**0**
Peak Hour HV	**0**	**0**	**9**	**5**	**0**	**3**	**9**	**4**	**0**	**2**	**1**	**5**	**0**	**0**	**0**	**0**	**38**	**0**
Peak Hour HV%	**-**	**0%**	**10%**	**9%**	**0%**	**2%**	**2%**	**10%**	**-**	**1%**	**4%**	**7%**	**-**	**0%**	**0%**	**0%**	**3%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	2	3	0	0	*5*	0	0	0	0	*0*	1	2	1	8	*12*
7:15 AM	6	2	1	0	*9*	0	0	0	0	*0*	0	1	0	9	*10*
7:30 AM	0	5	0	0	*5*	0	0	0	0	*0*	3	0	0	6	*9*
7:45 AM	4	1	0	1	*6*	0	0	0	0	*0*	1	1	0	12	*14*
8:00 AM	**4**	**4**	**3**	**0**	***11***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**5**	*7*
8:15 AM	**3**	**6**	**1**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**2**	**3**	**1**	**10**	*16*
8:30 AM	**5**	**1**	**2**	**0**	***8***	**0**	**0**	**1**	**0**	***1***	**5**	**2**	**2**	**15**	*24*
8:45 AM	**2**	**5**	**2**	**0**	***9***	**0**	**0**	**0**	**0**	***0***	**4**	**1**	**1**	**5**	***11***
Count Total	26	27	9	1	*63*	0	0	1	0	*1*	17	10	6	70	*103*
Peak Hour	**14**	**16**	**8**	**0**	***38***	**0**	**0**	**1**	**0**	***1***	**12**	**6**	**5**	**35**	***58***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Metro Center Blvd				Metro Center Blvd				Shell Blvd				Shell Blvd				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	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0	5	0
7:15 AM	0	0	6	0	0	0	1	1	0	0	0	1	0	0	0	0	9	0
7:30 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	0
7:45 AM	0	0	2	2	0	0	1	0	0	0	0	0	0	1	0	0	6	25
8:00 AM	**0**	**0**	**2**	**2**	**0**	**0**	**2**	**2**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**11**	31
8:15 AM	**0**	**0**	**2**	**1**	**0**	**2**	**3**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**10**	32
8:30 AM	**0**	**0**	**4**	**1**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**8**	35
8:45 AM	**0**	**0**	**1**	**1**	**0**	**1**	**3**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**9**	**38**
Count Total	0	1	17	8	0	4	17	6	0	2	1	6	0	1	0	0	63	0
Peak Hour	**0**	**0**	**9**	**5**	**0**	**3**	**9**	**4**	**0**	**2**	**1**	**5**	**0**	**0**	**0**	**0**	**38**	**0**

Two-Hour Count Summaries - Bikes

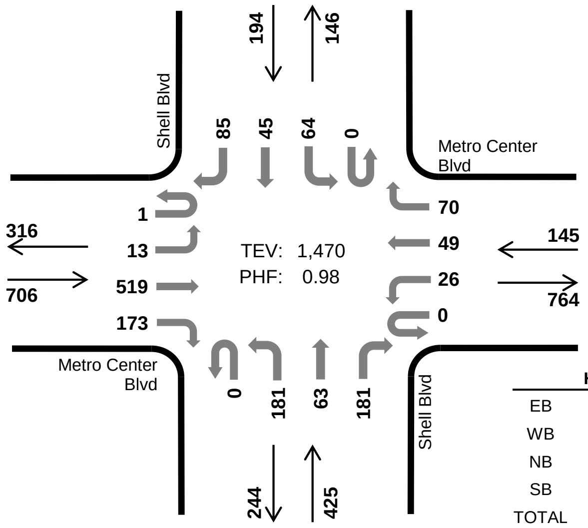
Interval Start	Metro Center Blvd			Metro Center Blvd			Shell Blvd			Shell Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	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**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	1
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Count Total	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

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

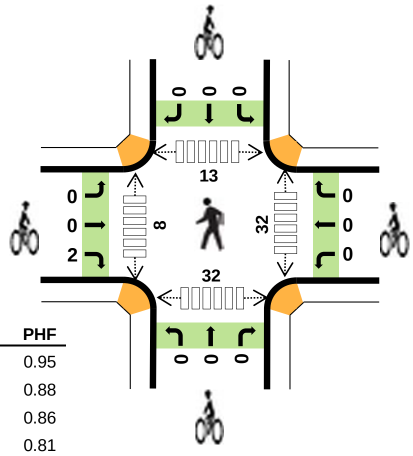
Shell Blvd
Metro Center Blvd

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Peak Hour



	HV %:	PHF
EB	2.3%	0.95
WB	0.0%	0.88
NB	0.5%	0.86
SB	0.5%	0.81
TOTAL	1.3%	0.98



Two-Hour Count Summaries

Interval Start	Metro Center Blvd Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Shell Blvd Northbound UT	LT	TH	RT	Shell Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	3	113	32	0	13	23	28	0	29	17	35	0	13	17	20	343	0
4:15 PM	0	6	121	26	0	2	16	17	0	51	6	37	0	9	16	21	328	0
4:30 PM	0	5	112	36	0	9	7	31	0	48	10	38	0	12	17	16	341	0
4:45 PM	**1**	**5**	**135**	**44**	**0**	**8**	**12**	**20**	**0**	**35**	**16**	**31**	**0**	**13**	**12**	**35**	**367**	1,379
5:00 PM	**0**	**1**	**143**	**38**	**0**	**3**	**8**	**13**	**0**	**53**	**12**	**58**	**0**	**10**	**7**	**15**	**361**	1,397
5:15 PM	**0**	**4**	**126**	**48**	**0**	**8**	**19**	**13**	**0**	**45**	**17**	**46**	**0**	**16**	**10**	**23**	**375**	1,444
5:30 PM	**0**	**3**	**115**	**43**	**0**	**7**	**10**	**24**	**0**	**48**	**18**	**46**	**0**	**25**	**16**	**12**	**367**	**1,470**
5:45 PM	0	0	128	51	0	9	12	22	0	54	11	31	0	10	16	11	355	1,458
Count Total	1	27	993	318	0	59	107	168	0	363	107	322	0	108	111	153	2,837	0
Peak Hour All	**1**	**13**	**519**	**173**	**0**	**26**	**49**	**70**	**0**	**181**	**63**	**181**	**0**	**64**	**45**	**85**	**1,470**	**0**
Peak Hour HV	**0**	**0**	**10**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**19**	**0**
Peak Hour HV%	**0%**	**0%**	**2%**	**3%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**1%**	**-**	**2%**	**0%**	**0%**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	1	1	2	0	*4*	0	0	0	0	*0*	5	7	4	9	*25*
4:15 PM	4	1	3	0	*8*	0	0	0	0	*0*	3	4	5	3	*15*
4:30 PM	6	0	0	0	*6*	0	0	0	0	*0*	5	0	2	8	*15*
4:45 PM	**2**	**0**	**1**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**10**	**2**	**1**	**6**	*19*
5:00 PM	**5**	**0**	**0**	**1**	***6***	**0**	**0**	**0**	**0**	***0***	**11**	**4**	**11**	**10**	*36*
5:15 PM	**6**	**0**	**0**	**0**	***6***	**2**	**0**	**0**	**0**	***2***	**5**	**0**	**0**	**5**	*10*
5:30 PM	**3**	**0**	**1**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**6**	**2**	**1**	**11**	*20*
5:45 PM	4	0	1	0	*5*	2	0	0	0	*2*	3	1	0	8	*12*
Count Total	31	2	8	1	*42*	4	0	0	0	*4*	48	20	24	60	*152*
Peak Hour	**16**	**0**	**2**	**1**	***19***	**2**	**0**	**0**	**0**	***2***	**32**	**8**	**13**	**32**	***85***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Metro Center Blvd Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Shell Blvd Northbound UT	LT	TH	RT	Shell Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	1	0	0	1	0	0	0	0	2	0	0	0	0	4	0
4:15 PM	0	0	4	0	0	0	1	0	0	1	0	2	0	0	0	0	8	0
4:30 PM	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	6	0
4:45 PM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	21
5:00 PM	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**6**	23
5:15 PM	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	21
5:30 PM	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**4**	**19**
5:45 PM	0	0	4	0	0	0	0	0	0	0	0	1	0	0	0	0	5	21
Count Total	0	0	22	9	0	0	2	0	0	1	0	7	0	1	0	0	42	0
Peak Hour	**0**	**0**	**10**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**19**	**0**

Two-Hour Count Summaries - Bikes

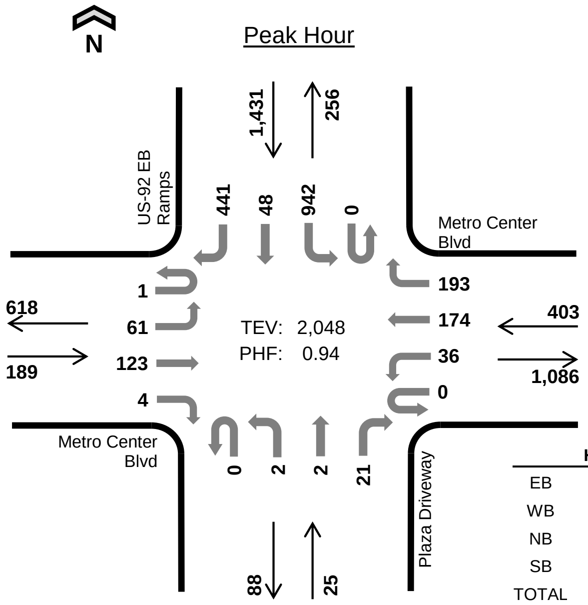
Interval Start	Metro Center Blvd Eastbound LT	TH	RT	Metro Center Blvd Westbound LT	TH	RT	Shell Blvd Northbound LT	TH	RT	Shell Blvd Southbound LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**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**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
5:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	2	4
Count Total	0	0	4	0	0	0	0	0	0	0	0	0	4	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**

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

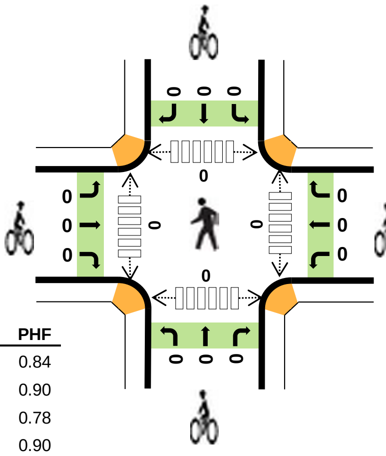
US-92 EB Ramps
Metro Center Blvd

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	HV %:	PHF
EB	8.5%	0.84
WB	3.5%	0.90
NB	0.0%	0.78
SB	2.1%	0.90
TOTAL	2.9%	0.94



Two-Hour Count Summaries

Interval Start	Metro Center Blvd Eastbound				Metro Center Blvd Westbound				Plaza Driveway Northbound				US-92 EB Ramps 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	17	17	1	1	5	15	47	0	0	1	1	0	150	10	65	330	0
7:15 AM	0	15	26	0	0	5	28	29	0	0	0	2	0	134	10	51	300	0
7:30 AM	0	16	22	1	0	6	21	27	0	1	1	4	0	193	15	68	375	0
7:45 AM	0	9	20	1	0	8	25	46	0	0	0	1	0	240	11	86	447	1,452
8:00 AM	**0**	**13**	**34**	**1**	**0**	**11**	**36**	**43**	**0**	**0**	**0**	**8**	**0**	**259**	**13**	**76**	**494**	1,616
8:15 AM	**0**	**17**	**32**	**0**	**0**	**11**	**36**	**51**	**0**	**1**	**2**	**3**	**0**	**249**	**14**	**112**	**528**	1,844
8:30 AM	**1**	**22**	**30**	**3**	**0**	**9**	**54**	**49**	**0**	**0**	**0**	**4**	**0**	**189**	**8**	**115**	**484**	1,953
8:45 AM	**0**	**9**	**27**	**0**	**0**	**5**	**48**	**50**	**0**	**1**	**0**	**6**	**0**	**245**	**13**	**138**	**542**	**2,048**
Count Total	1	118	208	7	1	60	263	342	0	3	4	29	0	1,659	94	711	3,500	0
Peak Hour All	**1**	**61**	**123**	**4**	**0**	**36**	**174**	**193**	**0**	**2**	**2**	**21**	**0**	**942**	**48**	**441**	**2,048**	**0**
Peak Hour HV	**0**	**2**	**12**	**2**	**0**	**1**	**3**	**10**	**0**	**0**	**0**	**0**	**0**	**24**	**1**	**5**	**60**	**0**
Peak Hour HV%	**0%**	**3%**	**10%**	**50%**	**-**	**3%**	**2%**	**5%**	**-**	**0%**	**0%**	**0%**	**-**	**3%**	**2%**	**1%**	**3%**	**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	3	0	8	*11*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	7	1	0	2	*10*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	0	2	1	10	*13*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	3	2	0	4	*9*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	**3**	**4**	**0**	**7**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**5**	**4**	**0**	**7**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**6**	**2**	**0**	**4**	***12***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:45 AM	**2**	**4**	**0**	**12**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
Count Total	26	22	1	54	*103*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**16**	**14**	**0**	**30**	***60***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Metro Center Blvd Eastbound				Metro Center Blvd Westbound				Plaza Driveway Northbound				US-92 EB Ramps 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	0	0	0	0	0	3	0	0	0	0	0	6	0	2	11	0
7:15 AM	0	0	7	0	0	0	1	0	0	0	0	0	0	1	0	1	10	0
7:30 AM	0	0	0	0	0	0	0	2	0	0	0	1	0	7	0	3	13	0
7:45 AM	0	1	2	0	0	0	0	2	0	0	0	0	0	3	0	1	9	43
8:00 AM	**0**	**0**	**2**	**1**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**1**	**14**	46
8:15 AM	**0**	**2**	**3**	**0**	**0**	**1**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**2**	**16**	52
8:30 AM	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**12**	51
8:45 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**9**	**1**	**2**	**18**	**60**
Count Total	0	3	21	2	0	1	4	17	0	0	0	1	0	41	1	12	103	0
Peak Hour	**0**	**2**	**12**	**2**	**0**	**1**	**3**	**10**	**0**	**0**	**0**	**0**	**0**	**24**	**1**	**5**	**60**	**0**

Two-Hour Count Summaries - Bikes

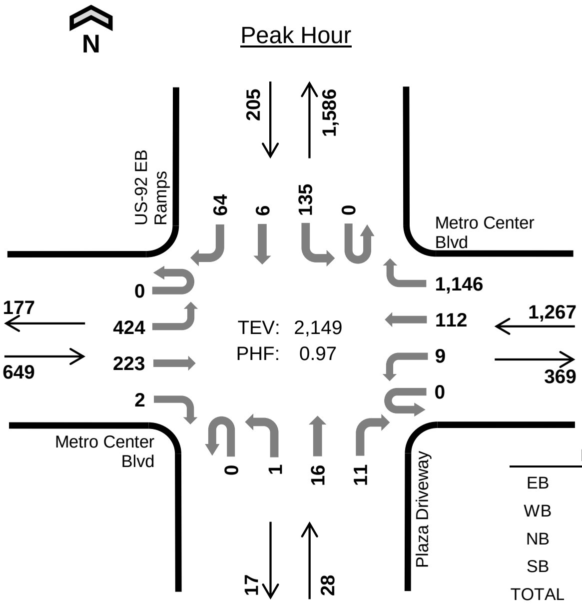
Interval Start	Metro Center Blvd Eastbound			Metro Center Blvd Westbound			Plaza Driveway Northbound			US-92 EB Ramps Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	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.

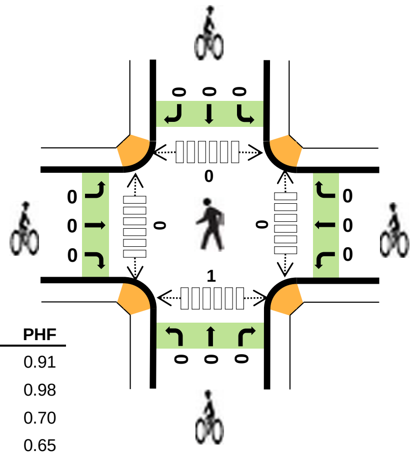
US-92 EB Ramps
Metro Center Blvd

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM

Peak Hour



	HV %:	PHF
EB	1.8%	0.91
WB	2.1%	0.98
NB	0.0%	0.70
SB	1.0%	0.65
TOTAL	1.9%	0.97



Two-Hour Count Summaries

Interval Start		Metro Center Blvd Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Plaza Driveway Northbound UT	LT	TH	RT	US-92 EB Ramps Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM		0	98	55	0	0	2	35	283	0	0	1	3	0	52	2	25	556	0
4:15 PM		0	123	54	1	0	1	24	290	0	0	3	2	0	25	2	10	535	0
4:30 PM		0	105	59	0	0	4	27	293	0	0	5	5	0	28	1	16	543	0
4:45 PM		0	98	55	1	0	2	26	280	0	1	7	1	0	30	1	13	515	2,149
5:00 PM		0	161	66	2	1	2	20	206	0	0	15	9	0	18	1	7	508	2,101
5:15 PM		0	123	53	1	0	3	24	219	0	1	19	5	0	23	1	9	481	2,047
5:30 PM		0	122	83	2	0	1	31	267	0	0	8	6	0	37	1	15	573	2,077
5:45 PM		0	96	59	2	0	2	27	225	0	0	1	5	2	36	2	11	468	2,030
Count Total		0	926	484	9	1	17	214	2,063	0	2	59	36	2	249	11	106	4,179	0
Peak Hour	All	0	424	223	2	0	9	112	1,146	0	1	16	11	0	135	6	64	2,149	0
	HV	0	3	9	0	0	0	0	27	0	0	0	0	0	0	0	2	41	0
	HV%	-	1%	4%	0%	-	0%	0%	2%	-	0%	0%	0%	-	0%	0%	3%	2%	0

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	2	11	0	1	*14*	0	0	0	0	*0*	0	0	0	1	*1*
4:15 PM	5	7	0	1	*13*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	4	6	0	0	*10*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	1	3	0	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	3	0	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	5	4	0	0	*9*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	3	1	0	0	*4*	0	0	0	0	*0*	0	0	0	1	*1*
5:45 PM	5	0	0	1	*6*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	28	32	0	3	*63*	0	0	0	0	*0*	0	0	0	2	*2*
Peak Hour	12	27	0	2	*41*	0	0	0	0	*0*	0	0	0	1	*1*

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Metro Center Blvd Eastbound				Metro Center Blvd Westbound				Plaza Driveway Northbound				US-92 EB Ramps 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**	**1**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**14**	0
4:15 PM	**0**	**2**	**3**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**13**	0
4:30 PM	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**41**
5:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	30
5:15 PM	0	1	4	0	0	0	0	4	0	0	0	0	0	0	0	0	9	26
5:30 PM	0	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	4	20
5:45 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	6	22
Count Total	0	10	18	0	0	0	0	32	0	0	0	0	0	1	0	2	63	0
Peak Hour	**0**	**3**	**9**	**0**	**0**	**0**	**0**	**27**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**41**	**0**

Two-Hour Count Summaries - Bikes

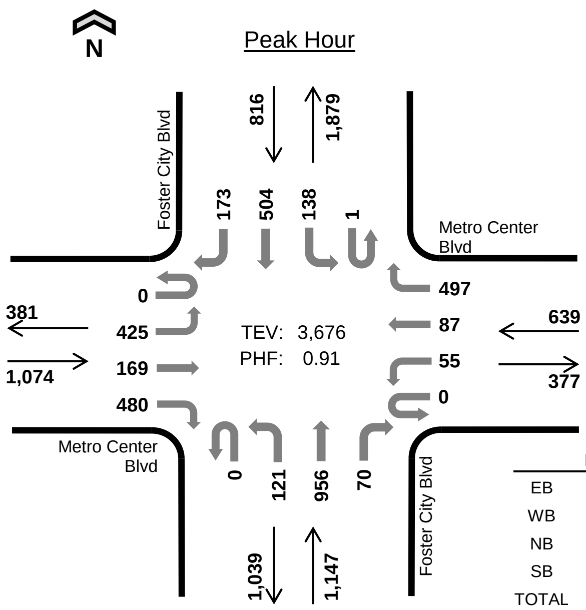
Interval Start	Metro Center Blvd Eastbound			Metro Center Blvd Westbound			Plaza Driveway Northbound			US-92 EB Ramps Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**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.

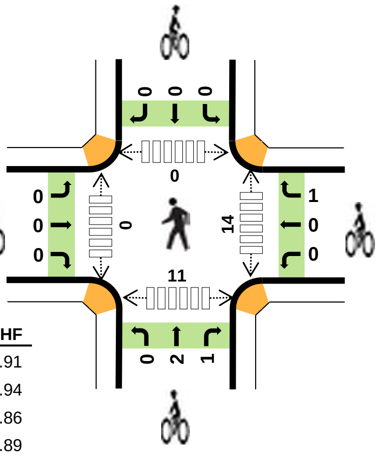
Foster City Blvd
Metro Center Blvd

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM

Peak Hour



	HV %	PHF
EB	3.0%	0.91
WB	0.6%	0.94
NB	1.5%	0.86
SB	3.7%	0.89
TOTAL	2.3%	0.91



Two-Hour Count Summaries

Interval Start	Metro Center Blvd Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Foster City Blvd Northbound UT	LT	TH	RT	Foster City Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	84	32	55	0	11	15	66	0	22	122	7	1	23	38	35	511	0
7:15 AM	0	80	29	49	0	15	19	106	0	17	228	12	0	22	69	21	667	0
7:30 AM	0	87	43	88	0	22	17	162	0	12	237	9	0	18	111	27	833	0
7:45 AM	**0**	**94**	**40**	**134**	**0**	**14**	**24**	**123**	**0**	**26**	**202**	**13**	**1**	**30**	**131**	**34**	**866**	2,877
8:00 AM	**0**	**105**	**49**	**137**	**0**	**13**	**18**	**113**	**0**	**20**	**216**	**20**	**0**	**35**	**143**	**50**	**919**	3,285
8:15 AM	**0**	**120**	**46**	**129**	**0**	**18**	**22**	**130**	**0**	**38**	**274**	**20**	**0**	**35**	**138**	**40**	**1,010**	3,628
8:30 AM	**0**	**106**	**34**	**80**	**0**	**10**	**23**	**131**	**0**	**37**	**264**	**17**	**0**	**38**	**92**	**49**	**881**	**3,676**
8:45 AM	0	125	53	99	0	11	22	119	0	36	198	9	0	26	85	51	834	3,644
Count Total	0	801	326	771	0	114	160	950	0	208	1,741	107	2	227	807	307	6,521	0
Peak Hour All	**0**	**425**	**169**	**480**	**0**	**55**	**87**	**497**	**0**	**121**	**956**	**70**	**1**	**138**	**504**	**173**	**3,676**	**0**
Peak Hour HV	**0**	**18**	**2**	**12**	**0**	**0**	**2**	**2**	**0**	**2**	**15**	**0**	**0**	**6**	**15**	**9**	**83**	**0**
Peak Hour HV%	**-**	**4%**	**1%**	**3%**	**-**	**0%**	**2%**	**0%**	**-**	**2%**	**2%**	**0%**	**0%**	**4%**	**3%**	**5%**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	6	1	4	4	*15*	0	0	0	0	*0*	5	0	0	6	*11*
7:15 AM	5	0	9	3	*17*	0	0	1	0	*1*	4	0	0	3	*7*
7:30 AM	10	1	3	6	*20*	0	0	2	0	*2*	1	0	0	2	*3*
7:45 AM	**6**	**0**	**0**	**8**	***14***	**0**	**1**	**0**	**0**	***1***	**5**	**0**	**0**	**5**	*10*
8:00 AM	**8**	**1**	**3**	**9**	***21***	**0**	**0**	**1**	**0**	***1***	**4**	**0**	**0**	**3**	*7*
8:15 AM	**9**	**2**	**6**	**9**	***26***	**0**	**0**	**2**	**0**	***2***	**2**	**0**	**0**	**0**	*2*
8:30 AM	**9**	**1**	**8**	**4**	***22***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**0**	**3**	***6***
8:45 AM	11	2	5	3	*21*	0	0	0	0	*0*	6	0	0	4	*10*
Count Total	64	8	38	46	*156*	0	1	6	0	*7*	30	0	0	26	*56*
Peak Hour	**32**	**4**	**17**	**30**	***83***	**0**	**1**	**3**	**0**	***4***	**14**	**0**	**0**	**11**	***25***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Metro Center Blvd Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Foster City Blvd Northbound UT	LT	TH	RT	Foster City Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	1	1	4	0	1	0	0	0	1	2	1	0	1	1	2	15	0
7:15 AM	0	3	1	1	0	0	0	0	0	0	8	1	0	0	2	1	17	0
7:30 AM	0	9	1	0	0	1	0	0	0	1	2	0	0	0	5	1	20	0
7:45 AM	**0**	**2**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**3**	**14**	66
8:00 AM	**0**	**2**	**1**	**5**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**2**	**5**	**2**	**21**	72
8:15 AM	**0**	**8**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**2**	**4**	**0**	**0**	**4**	**3**	**2**	**26**	81
8:30 AM	**0**	**6**	**1**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**8**	**0**	**0**	**0**	**2**	**2**	**22**	**83**
8:45 AM	0	4	4	3	0	0	0	2	0	1	4	0	0	1	0	2	21	90
Count Total	0	35	9	20	0	2	2	4	0	5	31	2	0	8	23	15	156	0
Peak Hour	**0**	**18**	**2**	**12**	**0**	**0**	**2**	**2**	**0**	**2**	**15**	**0**	**0**	**6**	**15**	**9**	**83**	**0**

Two-Hour Count Summaries - Bikes

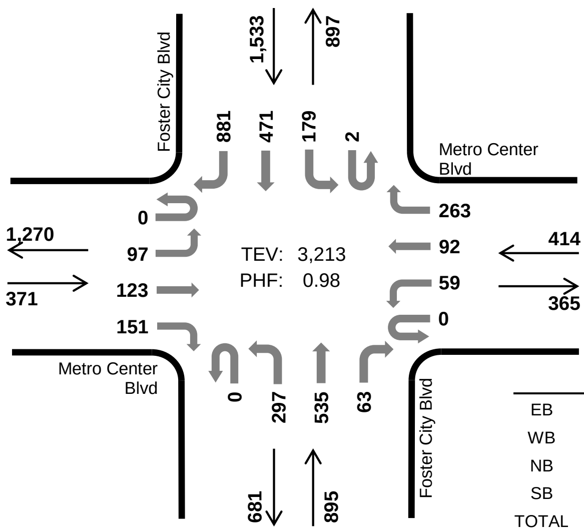
Interval Start	Metro Center Blvd Eastbound LT	TH	RT	Metro Center Blvd Westbound LT	TH	RT	Foster City Blvd Northbound LT	TH	RT	Foster City Blvd Southbound LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	4
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	5
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	6
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Count Total	0	0	0	0	0	1	0	5	1	0	0	0	7	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**1**	**0**	**0**	**0**	**4**	**0**

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

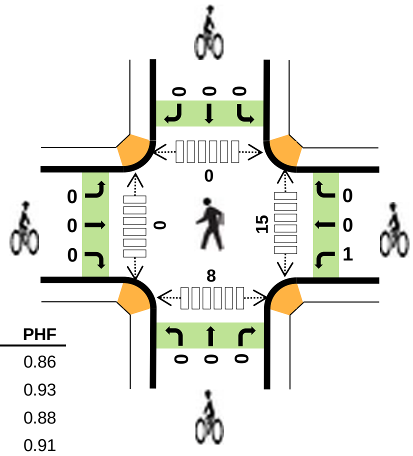
Foster City Blvd
Metro Center Blvd

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM

Peak Hour



	HV %:	PHF
EB	2.7%	0.86
WB	1.7%	0.93
NB	1.1%	0.88
SB	1.9%	0.91
TOTAL	1.7%	0.98



Two-Hour Count Summaries

Interval Start	Metro Center Blvd Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Foster City Blvd Northbound UT	LT	TH	RT	Foster City Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	24	42	42	0	10	25	65	0	71	149	14	0	39	107	227	815	0
4:15 PM	0	28	30	31	0	22	18	71	0	69	131	18	1	39	93	219	770	0
4:30 PM	0	26	26	36	0	12	20	64	0	113	126	14	0	46	129	211	823	0
4:45 PM	0	19	25	42	0	15	29	63	0	44	129	17	1	55	142	224	805	3,213
5:00 PM	0	33	27	37	0	17	28	66	0	71	139	21	0	44	133	129	745	3,143
5:15 PM	0	18	28	31	0	20	29	83	0	54	153	16	0	47	176	149	804	3,177
5:30 PM	0	33	50	43	0	10	29	56	0	59	126	10	0	52	164	207	839	3,193
5:45 PM	0	32	31	39	0	15	31	66	0	62	110	22	0	44	124	174	750	3,138
Count Total	0	213	259	301	0	121	209	534	0	543	1,063	132	2	366	1,068	1,540	6,351	0
Peak Hour All	0	97	123	151	0	59	92	263	0	297	535	63	2	179	471	881	3,213	0
Peak Hour HV	0	7	3	0	0	1	2	4	0	2	8	0	0	3	5	21	56	0
Peak Hour HV%	-	7%	2%	0%	-	2%	2%	2%	-	1%	1%	0%	0%	2%	1%	2%	2%	0

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	1	3	12	*16*	0	1	0	0	*1*	4	0	0	3	*7*
4:15 PM	5	0	3	7	*15*	0	0	0	0	*0*	5	0	0	0	*5*
4:30 PM	4	2	2	8	*16*	0	0	0	0	*0*	6	0	0	3	*9*
4:45 PM	1	4	2	2	*9*	0	0	0	0	*0*	0	0	0	2	*2*
5:00 PM	3	1	3	2	*9*	0	0	0	0	*0*	0	0	0	6	*6*
5:15 PM	4	1	3	2	*10*	0	0	0	0	*0*	4	0	0	1	*5*
5:30 PM	1	0	3	2	*6*	0	0	0	0	*0*	3	0	0	4	*7*
5:45 PM	1	0	2	0	*3*	0	0	0	0	*0*	7	0	0	10	*17*
Count Total	19	9	21	35	*84*	0	1	0	0	*1*	29	0	0	29	*58*
Peak Hour	10	7	10	29	*56*	0	1	0	0	*1*	15	0	0	8	*23*

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Metro Center Blvd Eastbound				Metro Center Blvd Westbound				Foster City Blvd Northbound				Foster City Blvd 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**	**1**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**3**	**9**	**16**	0
4:15 PM	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**1**	**5**	**15**	0
4:30 PM	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**6**	**16**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**1**	**9**	**56**
5:00 PM	0	2	1	0	0	0	0	1	0	0	3	0	0	0	1	1	9	49
5:15 PM	0	4	0	0	0	0	1	0	0	0	3	0	0	0	0	2	10	44
5:30 PM	0	1	0	0	0	0	0	0	0	0	3	0	0	0	1	1	6	34
5:45 PM	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	28
Count Total	0	15	4	0	0	1	3	5	0	2	19	0	0	3	7	25	84	0
Peak Hour	**0**	**7**	**3**	**0**	**0**	**1**	**2**	**4**	**0**	**2**	**8**	**0**	**0**	**3**	**5**	**21**	**56**	**0**

Two-Hour Count Summaries - Bikes

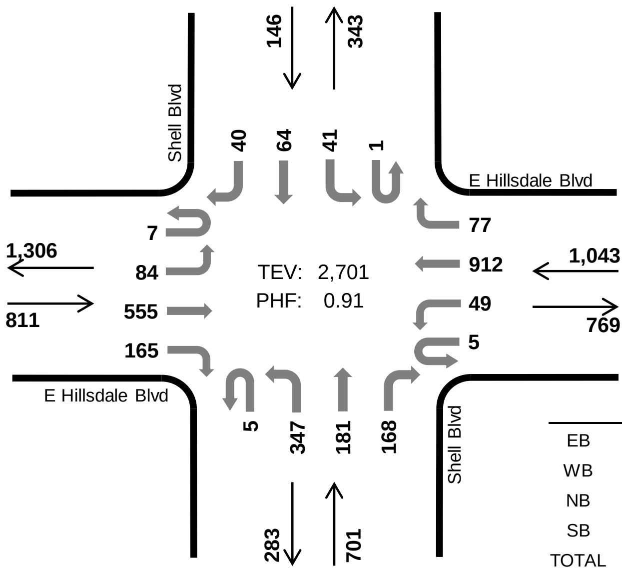
Interval Start	Metro Center Blvd Eastbound			Metro Center Blvd Westbound			Foster City Blvd Northbound			Foster City Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:15 PM	**0**	**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**	**1**
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	1	0	0	0	0	0	0	0	0	1	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.

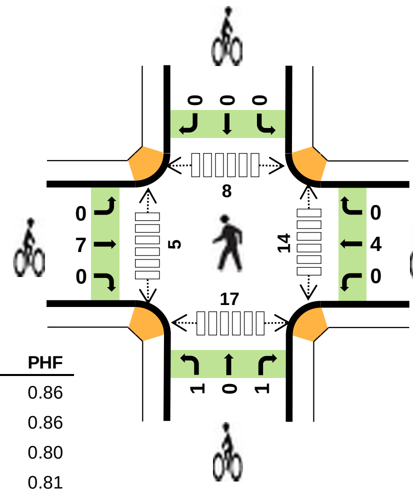
Shell Blvd
E Hillsdale Blvd

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM

Peak Hour



	HV %:	PHF
EB	1.4%	0.86
WB	2.3%	0.86
NB	1.6%	0.80
SB	2.1%	0.81
TOTAL	1.8%	0.91



Two-Hour Count Summaries

Interval Start	E Hillsdale Blvd Eastbound UT	LT	TH	RT	E Hillsdale Blvd Westbound UT	LT	TH	RT	Shell Blvd Northbound UT	LT	TH	RT	Shell Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	1	11	37	10	0	8	131	3	0	57	15	11	0	1	10	1	296	0
7:15 AM	1	6	79	17	1	13	133	6	1	67	36	31	0	2	5	7	405	0
7:30 AM	2	7	76	25	0	8	215	4	2	65	44	28	0	4	8	7	495	0
7:45 AM	**2**	**15**	**160**	**30**	**1**	**7**	**224**	**12**	**1**	**70**	**42**	**24**	**1**	**6**	**13**	**7**	**615**	1,811
8:00 AM	**1**	**20**	**173**	**43**	**0**	**8**	**223**	**15**	**1**	**105**	**49**	**64**	**0**	**21**	**11**	**8**	**742**	2,257
8:15 AM	**2**	**21**	**131**	**47**	**1**	**22**	**253**	**27**	**2**	**92**	**42**	**42**	**0**	**7**	**17**	**10**	**716**	2,568
8:30 AM	**2**	**28**	**91**	**45**	**3**	**12**	**212**	**23**	**1**	**80**	**48**	**38**	**0**	**7**	**23**	**15**	**628**	**2,701**
8:45 AM	0	26	129	35	2	14	160	16	1	54	52	28	0	6	15	6	544	2,630
Count Total	11	134	876	252	8	92	1,551	106	9	590	328	266	1	54	102	61	4,441	0
Peak Hour All	**7**	**84**	**555**	**165**	**5**	**49**	**912**	**77**	**5**	**347**	**181**	**168**	**1**	**41**	**64**	**40**	**2,701**	**0**
Peak Hour HV	**0**	**2**	**7**	**2**	**0**	**4**	**19**	**1**	**0**	**5**	**3**	**3**	**0**	**1**	**0**	**2**	**49**	**0**
Peak Hour HV%	**0%**	**2%**	**1%**	**1%**	**0%**	**8%**	**2%**	**1%**	**0%**	**1%**	**2%**	**2%**	**0%**	**2%**	**0%**	**5%**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	3	5	0	2	*10*	0	0	0	0	*0*	1	0	0	0	*1*
7:15 AM	1	5	4	0	*10*	1	0	0	0	*1*	2	1	3	0	*6*
7:30 AM	5	6	1	1	*13*	0	0	1	0	*1*	4	4	3	1	*12*
7:45 AM	**1**	**6**	**1**	**1**	***9***	**0**	**2**	**0**	**0**	***2***	**3**	**2**	**0**	**5**	*10*
8:00 AM	**4**	**7**	**2**	**1**	***14***	**1**	**1**	**1**	**0**	***3***	**2**	**1**	**4**	**2**	*9*
8:15 AM	**4**	**7**	**6**	**1**	***18***	**5**	**0**	**1**	**0**	***6***	**1**	**0**	**0**	**5**	*6*
8:30 AM	**2**	**4**	**2**	**0**	***8***	**1**	**1**	**0**	**0**	***2***	**8**	**2**	**4**	**5**	***19***
8:45 AM	3	1	1	2	*7*	0	0	2	0	*2*	4	5	2	3	*14*
Count Total	23	41	17	8	*89*	8	4	5	0	*17*	25	15	16	21	*77*
Peak Hour	**11**	**24**	**11**	**3**	***49***	**7**	**4**	**2**	**0**	***13***	**14**	**5**	**8**	**17**	***44***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Hillsdale Blvd Eastbound UT	LT	TH	RT	E Hillsdale Blvd Westbound UT	LT	TH	RT	Shell Blvd Northbound UT	LT	TH	RT	Shell Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	2	1	0	2	3	0	0	0	0	0	0	0	2	0	10	0
7:15 AM	0	0	1	0	0	2	3	0	0	2	0	2	0	0	0	0	10	0
7:30 AM	0	1	3	1	0	1	5	0	0	1	0	0	0	0	1	0	13	0
7:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**9**	42
8:00 AM	**0**	**0**	**2**	**2**	**0**	**3**	**3**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**14**	46
8:15 AM	**0**	**1**	**3**	**0**	**0**	**1**	**6**	**0**	**0**	**3**	**1**	**2**	**0**	**0**	**0**	**1**	**18**	54
8:30 AM	**0**	**1**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**8**	**49**
8:45 AM	0	0	3	0	0	0	1	0	0	0	1	0	0	1	1	0	7	47
Count Total	0	3	16	4	0	9	31	1	0	8	4	5	0	2	4	2	89	0
Peak Hour	**0**	**2**	**7**	**2**	**0**	**4**	**19**	**1**	**0**	**5**	**3**	**3**	**0**	**1**	**0**	**2**	**49**	**0**

Two-Hour Count Summaries - Bikes

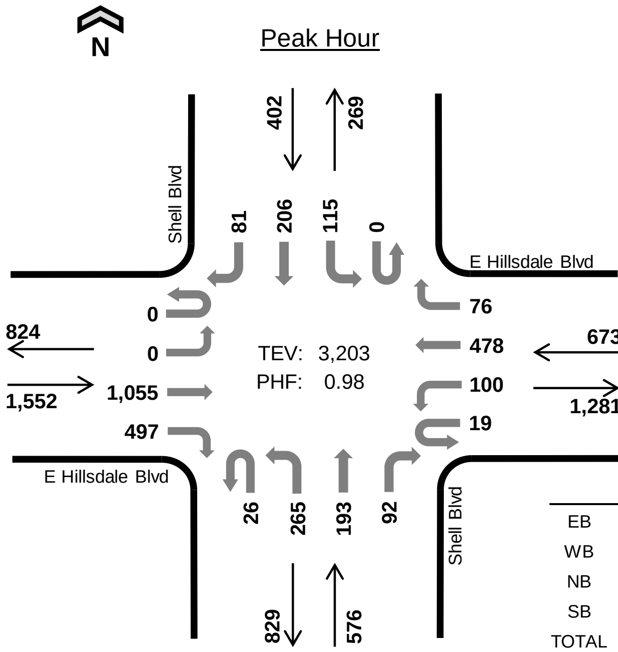
Interval Start	E Hillsdale Blvd Eastbound LT	TH	RT	E Hillsdale Blvd Westbound LT	TH	RT	Shell Blvd Northbound LT	TH	RT	Shell Blvd Southbound LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	1	0
7:45 AM	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	4
8:00 AM	**0**	**1**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	7
8:15 AM	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**6**	12
8:30 AM	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**13**
8:45 AM	0	0	0	0	0	0	1	1	0	0	0	0	2	13
Count Total	0	8	0	0	4	0	3	1	1	0	0	0	17	0
Peak Hour	**0**	**7**	**0**	**0**	**4**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**13**	**0**

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

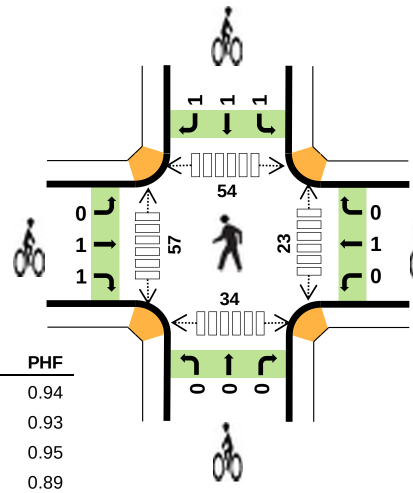
Shell Blvd
E Hillsdale Blvd

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour



	HV %:	PHF
EB	0.5%	0.94
WB	0.7%	0.93
NB	0.0%	0.95
SB	1.2%	0.89
TOTAL	0.6%	0.98



Two-Hour Count Summaries

Interval Start	E Hillsdale Blvd Eastbound UT	LT	TH	RT	E Hillsdale Blvd Westbound UT	LT	TH	RT	Shell Blvd Northbound UT	LT	TH	RT	Shell Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	226	100	0	13	96	19	3	58	44	19	0	17	36	18	649	0
4:15 PM	0	0	263	83	0	10	95	11	2	53	57	15	1	17	28	13	648	0
4:30 PM	0	0	267	82	2	18	105	14	3	71	30	18	0	22	36	23	691	0
4:45 PM	0	0	231	107	6	18	99	19	1	65	33	16	0	31	36	10	672	2,660
5:00 PM	**0**	**0**	**285**	**125**	**8**	**26**	**118**	**21**	**5**	**59**	**51**	**17**	**0**	**30**	**51**	**20**	**816**	2,827
5:15 PM	**0**	**0**	**260**	**115**	**4**	**22**	**114**	**20**	**3**	**67**	**51**	**26**	**0**	**40**	**52**	**21**	**795**	2,974
5:30 PM	**0**	**0**	**251**	**105**	**3**	**22**	**134**	**22**	**4**	**74**	**50**	**24**	**0**	**21**	**45**	**19**	**774**	3,057
5:45 PM	**0**	**0**	**259**	**152**	**4**	**30**	**112**	**13**	**14**	**65**	**41**	**25**	**0**	**24**	**58**	**21**	**818**	**3,203**
Count Total	0	0	2,042	869	27	159	873	139	35	512	357	160	1	202	342	145	5,863	0
Peak Hour All	**0**	**0**	**1,055**	**497**	**19**	**100**	**478**	**76**	**26**	**265**	**193**	**92**	**0**	**115**	**206**	**81**	**3,203**	**0**
Peak Hour HV	**0**	**0**	**6**	**2**	**0**	**1**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**18**	**0**
Peak Hour HV%	**-**	**-**	**1%**	**0%**	**0%**	**1%**	**1%**	**1%**	**0%**	**0%**	**0%**	**0%**	**-**	**2%**	**0%**	**4%**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	9	4	4	1	*18*	0	2	0	0	*2*	6	8	4	6	*24*
4:15 PM	3	2	1	0	*6*	1	0	0	0	*1*	4	9	6	5	*24*
4:30 PM	4	2	0	2	*8*	1	0	0	0	*1*	4	12	17	11	*44*
4:45 PM	0	2	0	1	*3*	0	0	0	0	*0*	5	4	9	8	*26*
5:00 PM	**3**	**1**	**0**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**2**	**16**	**20**	**7**	*45*
5:15 PM	**2**	**1**	**0**	**2**	***5***	**0**	**1**	**0**	**1**	***2***	**9**	**13**	**18**	**8**	*48*
5:30 PM	**3**	**1**	**0**	**0**	***4***	**1**	**0**	**0**	**1**	***2***	**5**	**12**	**6**	**9**	*32*
5:45 PM	**0**	**2**	**0**	**1**	***3***	**1**	**0**	**0**	**1**	***2***	**7**	**16**	**10**	**10**	*43*
Count Total	24	15	5	9	*53*	4	3	0	3	*10*	42	90	90	64	*286*
Peak Hour	**8**	**5**	**0**	**5**	***18***	**2**	**1**	**0**	**3**	***6***	**23**	**57**	**54**	**34**	***168***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Hillsdale Blvd				E Hillsdale Blvd				Shell Blvd				Shell Blvd				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		
4:00 PM	0	0	4	5	0	0	2	2	0	0	2	2	0	1	0	0	18	0
4:15 PM	0	0	2	1	0	0	1	1	0	0	1	0	0	0	0	0	6	0
4:30 PM	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	2	8	0
4:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	3	35
5:00 PM	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**6**	23
5:15 PM	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**5**	22
5:30 PM	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	18
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**18**
Count Total	0	0	16	8	0	1	9	5	0	0	3	2	0	3	0	6	53	0
Peak Hour	**0**	**0**	**6**	**2**	**0**	**1**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**18**	**0**

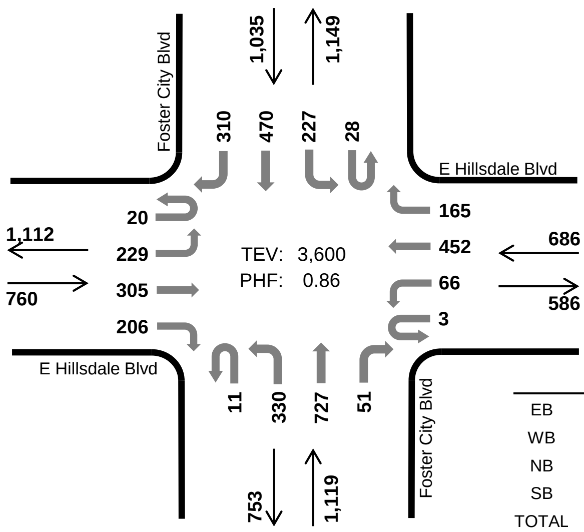
Two-Hour Count Summaries - Bikes

Interval Start	E Hillsdale Blvd			E Hillsdale Blvd			Shell Blvd			Shell Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	2	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	1	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	4
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:15 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	3
5:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	4
5:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**6**
Count Total	0	2	2	0	3	0	0	0	0	1	1	1	10	0
Peak Hour	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**6**	**0**

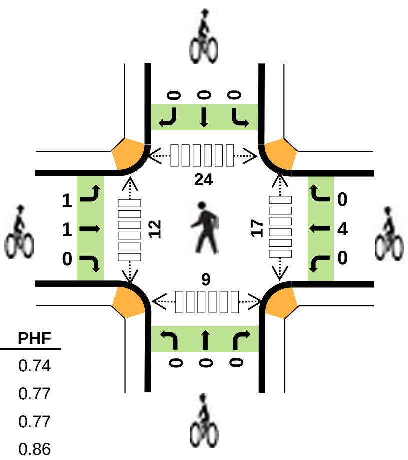
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Foster City Blvd
E Hillsdale Blvd

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	1.3%	0.74
WB	1.2%	0.77
NB	0.8%	0.77
SB	2.4%	0.86
TOTAL	1.4%	0.86



Two-Hour Count Summaries

Interval Start	E Hillsdale Blvd Eastbound UT	LT	TH	RT	E Hillsdale Blvd Westbound UT	LT	TH	RT	Foster City Blvd Northbound UT	LT	TH	RT	Foster City Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	2	20	18	7	0	5	53	10	1	62	123	4	3	16	42	37	403	0
7:15 AM	3	47	20	32	0	11	60	26	2	52	164	6	3	18	51	48	543	0
7:30 AM	5	36	33	37	0	9	91	19	2	71	199	6	4	25	105	83	725	0
7:45 AM	**4**	**48**	**67**	**51**	**0**	**8**	**75**	**29**	**6**	**78**	**165**	**5**	**6**	**59**	**118**	**90**	**809**	2,480
8:00 AM	**5**	**72**	**119**	**60**	**1**	**17**	**106**	**31**	**2**	**69**	**150**	**19**	**8**	**83**	**120**	**90**	**952**	3,029
8:15 AM	**3**	**47**	**74**	**51**	**2**	**15**	**148**	**59**	**0**	**109**	**232**	**20**	**7**	**61**	**156**	**65**	**1,049**	3,535
8:30 AM	**8**	**62**	**45**	**44**	**0**	**26**	**123**	**46**	**3**	**74**	**180**	**7**	**7**	**24**	**76**	**65**	**790**	**3,600**
8:45 AM	5	39	44	62	0	15	88	34	1	57	162	8	5	32	95	55	702	3,493
Count Total	35	371	420	344	3	106	744	254	17	572	1,375	75	43	318	763	533	5,973	0
Peak Hour All	**20**	**229**	**305**	**206**	**3**	**66**	**452**	**165**	**11**	**330**	**727**	**51**	**28**	**227**	**470**	**310**	**3,600**	**0**
Peak Hour HV	**0**	**7**	**2**	**1**	**0**	**0**	**5**	**3**	**0**	**7**	**2**	**0**	**0**	**6**	**12**	**7**	**52**	**0**
Peak Hour HV%	**0%**	**3%**	**1%**	**0%**	**0%**	**0%**	**1%**	**2%**	**0%**	**2%**	**0%**	**0%**	**0%**	**3%**	**3%**	**2%**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	4	2	3	6	*15*	0	0	0	0	*0*	2	1	3	0	*6*
7:15 AM	3	1	6	4	*14*	1	0	0	0	*1*	0	1	4	0	*5*
7:30 AM	3	2	2	7	*14*	1	1	0	0	*2*	2	0	2	1	*5*
7:45 AM	**2**	**2**	**0**	**8**	***12***	**0**	**2**	**0**	**0**	***2***	**3**	**3**	**3**	**2**	*11*
8:00 AM	**2**	**2**	**2**	**9**	***15***	**0**	**1**	**0**	**0**	***1***	**0**	**1**	**6**	**2**	*9*
8:15 AM	**3**	**1**	**3**	**6**	***13***	**2**	**1**	**0**	**0**	***3***	**6**	**0**	**5**	**3**	*14*
8:30 AM	**3**	**3**	**4**	**2**	***12***	**0**	**0**	**0**	**0**	***0***	**8**	**8**	**10**	**2**	***28***
8:45 AM	3	3	3	3	*12*	0	0	0	0	*0*	2	1	2	0	*5*
Count Total	23	16	23	45	*107*	4	5	0	0	*9*	23	15	35	10	*83*
Peak Hour	**10**	**8**	**9**	**25**	***52***	**2**	**4**	**0**	**0**	***6***	**17**	**12**	**24**	**9**	***62***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Hillsdale Blvd				E Hillsdale Blvd				Foster City Blvd				Foster City Blvd				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	2	1	1	0	0	1	1	0	3	0	0	0	3	2	1	15	0
7:15 AM	0	2	0	1	0	0	0	1	0	2	4	0	0	1	0	3	14	0
7:30 AM	0	1	2	0	0	0	1	1	0	2	0	0	0	2	2	3	14	0
7:45 AM	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**3**	**12**	55
8:00 AM	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**2**	**0**	**0**	**0**	**2**	**5**	**2**	**15**	55
8:15 AM	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**1**	**0**	**0**	**2**	**2**	**2**	**13**	54
8:30 AM	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**3**	**1**	**0**	**0**	**0**	**2**	**0**	**12**	**52**
8:45 AM	0	0	2	1	0	0	1	2	0	1	2	0	0	2	1	0	12	52
Count Total	0	12	7	4	0	0	8	8	0	15	8	0	0	14	17	14	107	0
Peak Hour	**0**	**7**	**2**	**1**	**0**	**0**	**5**	**3**	**0**	**7**	**2**	**0**	**0**	**6**	**12**	**7**	**52**	**0**

Two-Hour Count Summaries - Bikes

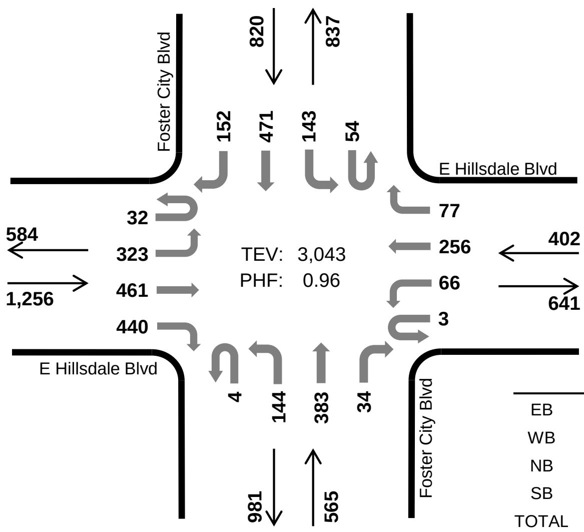
Interval Start	E Hillsdale Blvd			E Hillsdale Blvd			Foster City Blvd			Foster City Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	2	0
7:45 AM	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	5
8:00 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	6
8:15 AM	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	8
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Count Total	1	3	0	0	5	0	0	0	0	0	0	0	9	0
Peak Hour	**1**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**

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

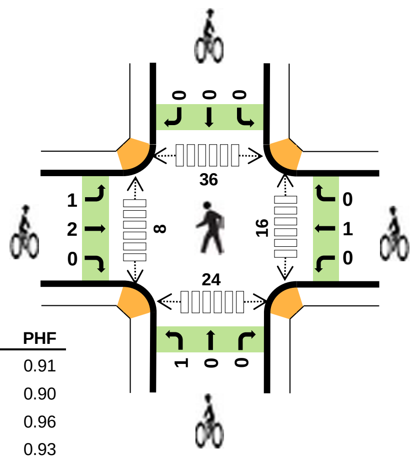
Foster City Blvd
E Hillsdale Blvd

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour



	HV %:	PHF
EB	0.6%	0.91
WB	0.0%	0.90
NB	0.4%	0.96
SB	0.4%	0.93
TOTAL	0.4%	0.96



Two-Hour Count Summaries

Interval Start	E Hillsdale Blvd Eastbound UT	LT	TH	RT	E Hillsdale Blvd Westbound UT	LT	TH	RT	Foster City Blvd Northbound UT	LT	TH	RT	Foster City Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	4	78	81	82	3	23	42	32	3	31	133	11	9	29	99	26	686	0
4:15 PM	5	93	115	95	2	13	48	22	0	48	89	4	6	25	84	26	675	0
4:30 PM	4	104	92	96	1	15	49	23	1	29	101	4	17	37	94	40	707	0
4:45 PM	7	58	84	109	1	16	53	16	1	39	112	11	16	35	108	30	696	2,764
5:00 PM	**11**	**94**	**120**	**121**	**0**	**19**	**51**	**23**	**1**	**31**	**110**	**5**	**19**	**27**	**117**	**41**	**790**	2,868
5:15 PM	**4**	**74**	**122**	**116**	**1**	**12**	**73**	**26**	**2**	**41**	**94**	**10**	**8**	**41**	**105**	**49**	**778**	2,971
5:30 PM	**8**	**84**	**114**	**98**	**1**	**17**	**62**	**18**	**0**	**35**	**82**	**10**	**15**	**36**	**138**	**32**	**750**	3,014
5:45 PM	**9**	**71**	**105**	**105**	**1**	**18**	**70**	**10**	**1**	**37**	**97**	**9**	**12**	**39**	**111**	**30**	**725**	**3,043**
Count Total	52	656	833	822	10	133	448	170	9	291	818	64	102	269	856	274	5,807	0
Peak Hour All	**32**	**323**	**461**	**440**	**3**	**66**	**256**	**77**	**4**	**144**	**383**	**34**	**54**	**143**	**471**	**152**	**3,043**	**0**
Peak Hour HV	**0**	**6**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**2**	**12**	**0**
Peak Hour HV%	**0%**	**2%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**1%**	**0%**	**1%**	**0%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	10	2	0	2	*14*	0	3	0	1	*4*	0	4	3	5	*12*
4:15 PM	2	1	3	1	*7*	0	0	0	0	*0*	3	0	4	6	*13*
4:30 PM	4	1	1	1	*7*	0	1	0	0	*1*	3	1	4	4	*12*
4:45 PM	0	1	4	0	*5*	0	0	0	0	*0*	3	3	10	10	*26*
5:00 PM	**3**	**0**	**1**	**1**	***5***	**1**	**0**	**0**	**0**	***1***	**5**	**1**	**7**	**7**	*20*
5:15 PM	**2**	**0**	**0**	**0**	***2***	**0**	**1**	**1**	**0**	***2***	**3**	**0**	**6**	**1**	*10*
5:30 PM	**2**	**0**	**1**	**1**	***4***	**1**	**0**	**0**	**0**	***1***	**3**	**5**	**15**	**2**	*25*
5:45 PM	**0**	**0**	**0**	**1**	***1***	**1**	**0**	**0**	**0**	***1***	**5**	**2**	**8**	**14**	*29*
Count Total	23	5	10	7	*45*	3	5	1	1	*10*	25	16	57	49	*147*
Peak Hour	**7**	**0**	**2**	**3**	***12***	**3**	**1**	**1**	**0**	**5**	**16**	**8**	**36**	**24**	***84***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Hillsdale Blvd Eastbound UT	LT	TH	RT	E Hillsdale Blvd Westbound UT	LT	TH	RT	Foster City Blvd Northbound UT	LT	TH	RT	Foster City Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	5	4	1	0	1	1	0	0	0	0	0	0	0	0	2	14	0
4:15 PM	0	1	0	1	0	0	1	0	0	2	1	0	0	0	1	0	7	0
4:30 PM	0	1	3	0	0	0	1	0	0	0	1	0	0	0	0	1	7	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	2	2	0	0	0	0	5	33
5:00 PM	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	24
5:15 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	19
5:30 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	16
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**12**
Count Total	0	13	8	2	0	1	4	0	0	4	4	2	0	1	1	5	45	0
Peak Hour	**0**	**6**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**2**	**12**	**0**

Two-Hour Count Summaries - Bikes

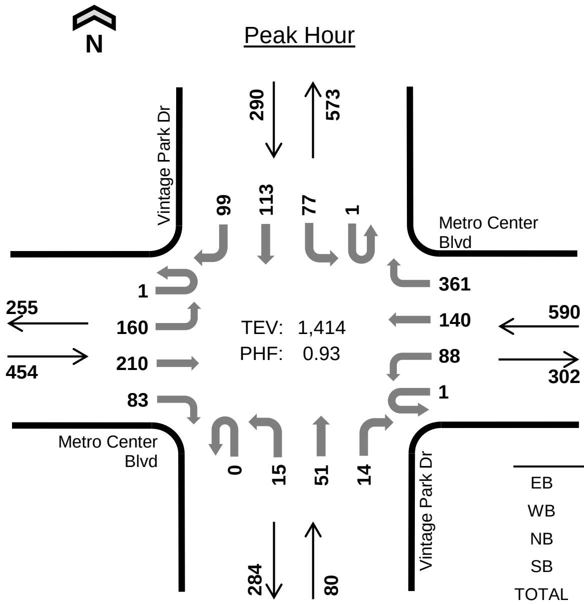
Interval Start	E Hillsdale Blvd Eastbound LT	TH	RT	E Hillsdale Blvd Westbound LT	TH	RT	Foster City Blvd Northbound LT	TH	RT	Foster City Blvd Southbound LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	0	3	0	0	0	0	0	0	1	4	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:00 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	2
5:15 PM	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	4
5:30 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	4
5:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**
Count Total	1	2	0	0	5	0	1	0	0	0	0	1	10	0
Peak Hour	**1**	**2**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**5**	**0**

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

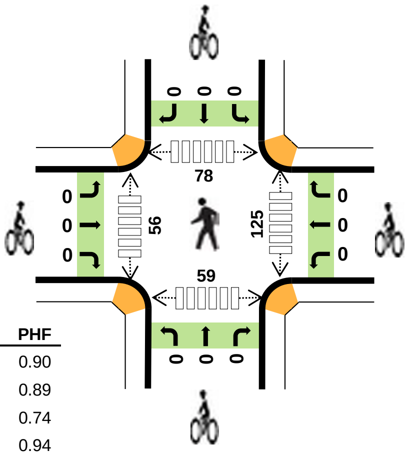
Vintage Park Dr
Metro Center Blvd

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	HV %:	PHF
EB	2.4%	0.90
WB	1.5%	0.89
NB	6.3%	0.74
SB	4.8%	0.94
TOTAL	2.8%	0.93



Two-Hour Count Summaries

Interval Start	Metro Center Blvd Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Vintage Park Dr Northbound UT	LT	TH	RT	Vintage Park Dr Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	27	26	9	0	11	14	43	0	1	4	5	0	7	9	6	162	0
7:15 AM	0	20	33	9	0	12	18	49	0	3	12	5	0	11	16	23	211	0
7:30 AM	1	35	31	19	0	13	26	63	0	3	13	0	1	10	18	16	249	0
7:45 AM	0	34	43	26	0	20	41	72	0	1	13	2	0	7	22	24	305	927
8:00 AM	**0**	**32**	**58**	**15**	**1**	**18**	**31**	**65**	**0**	**3**	**5**	**3**	**0**	**20**	**24**	**32**	**307**	1,072
8:15 AM	**0**	**45**	**56**	**25**	**0**	**27**	**28**	**102**	**0**	**5**	**13**	**4**	**0**	**21**	**29**	**21**	**376**	1,237
8:30 AM	**1**	**40**	**42**	**17**	**0**	**17**	**40**	**95**	**0**	**2**	**14**	**4**	**0**	**18**	**33**	**26**	**349**	1,337
8:45 AM	**0**	**43**	**54**	**26**	**0**	**26**	**41**	**99**	**0**	**5**	**19**	**3**	**1**	**18**	**27**	**20**	**382**	**1,414**
Count Total	2	276	343	146	1	144	239	588	0	23	93	26	2	112	178	168	2,341	0
Peak Hour All	**1**	**160**	**210**	**83**	**1**	**88**	**140**	**361**	**0**	**15**	**51**	**14**	**1**	**77**	**113**	**99**	**1,414**	**0**
Peak Hour HV	**0**	**1**	**10**	**0**	**0**	**2**	**2**	**5**	**0**	**0**	**3**	**2**	**0**	**2**	**3**	**9**	**39**	**0**
Peak Hour HV%	**0%**	**1%**	**5%**	**0%**	**0%**	**2%**	**1%**	**1%**	**-**	**0%**	**6%**	**14%**	**0%**	**3%**	**3%**	**9%**	**3%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	3	1	0	0	*4*	1	0	0	0	*1*	6	5	3	11	*25*
7:15 AM	5	1	1	3	*10*	0	0	0	0	*0*	19	19	6	36	*80*
7:30 AM	1	7	0	1	*9*	0	0	0	0	*0*	9	20	7	21	*57*
7:45 AM	3	1	0	5	*9*	1	0	0	0	*1*	24	35	20	27	*106*
8:00 AM	**3**	**3**	**1**	**4**	***11***	**0**	**0**	**0**	**0**	***0***	**23**	**16**	**21**	**15**	*75*
8:15 AM	**3**	**2**	**1**	**2**	***8***	**0**	**0**	**0**	**0**	***0***	**38**	**11**	**9**	**10**	*68*
8:30 AM	**3**	**2**	**1**	**2**	***8***	**0**	**0**	**0**	**0**	***0***	**44**	**9**	**22**	**18**	*93*
8:45 AM	**2**	**2**	**2**	**6**	***12***	**0**	**0**	**0**	**0**	***0***	**20**	**20**	**26**	**16**	***82***
Count Total	23	19	6	23	*71*	2	0	0	0	*2*	183	135	114	154	*586*
Peak Hour	**11**	**9**	**5**	**14**	***39***	**0**	**0**	**0**	**0**	***0***	**125**	**56**	**78**	**59**	***318***

Project Manager: (415) 310-6469 project.manager.ca@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Metro Center Blvd				Metro Center Blvd				Vintage Park Dr				Vintage Park Dr				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	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0
7:15 AM	0	0	4	1	0	0	0	1	0	1	0	0	0	1	0	2	10	0
7:30 AM	0	1	0	0	0	2	2	3	0	0	0	0	0	0	0	1	9	0
7:45 AM	0	1	2	0	0	0	0	1	0	0	0	0	0	3	0	2	9	32
8:00 AM	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**3**	**11**	39
8:15 AM	**0**	**0**	**3**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**1**	**8**	37
8:30 AM	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**8**	36
8:45 AM	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**4**	**12**	**39**
Count Total	0	4	18	1	0	4	4	11	0	1	3	2	0	6	3	14	71	0
Peak Hour	**0**	**1**	**10**	**0**	**0**	**2**	**2**	**5**	**0**	**0**	**3**	**2**	**0**	**2**	**3**	**9**	**39**	**0**

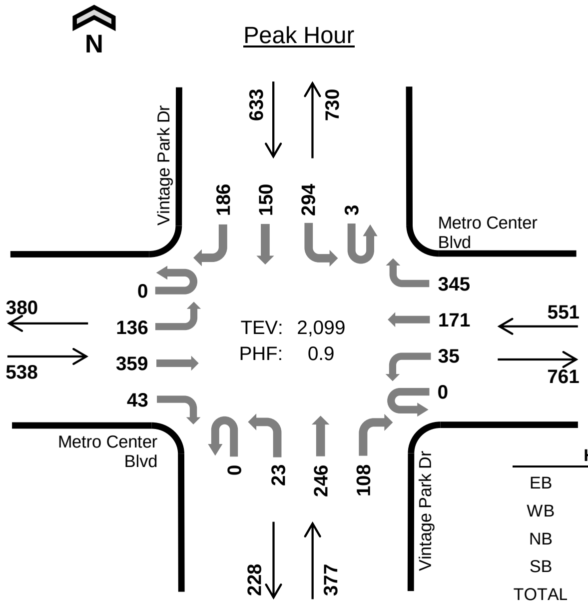
Two-Hour Count Summaries - Bikes

Interval Start	Metro Center Blvd			Metro Center Blvd			Vintage Park Dr			Vintage Park Dr			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	1	0	0	0	0	0	0	0	0	0	1	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	1	0	0	0	0	0	0	0	0	0	0	0	1	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	1	0	1	0	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

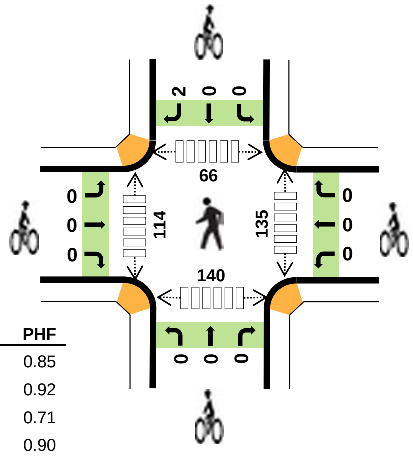
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Vintage Park Dr
Metro Center Blvd

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	0.6%	0.85
WB	0.0%	0.92
NB	0.5%	0.71
SB	3.5%	0.90
TOTAL	1.3%	0.90



Two-Hour Count Summaries

Interval Start	Metro Center Blvd Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Vintage Park Dr Northbound UT	LT	TH	RT	Vintage Park Dr Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	30	76	13	0	4	34	75	0	3	44	17	0	64	23	30	413	0
4:15 PM	0	23	83	13	0	13	48	92	0	3	44	26	1	68	20	35	469	0
4:30 PM	0	27	90	15	0	4	39	79	0	7	48	12	1	71	26	41	460	0
4:45 PM	**0**	**38**	**106**	**14**	**0**	**5**	**45**	**84**	**0**	**7**	**35**	**20**	**2**	**64**	**29**	**51**	**500**	1,842
5:00 PM	**0**	**35**	**90**	**10**	**0**	**6**	**40**	**93**	**0**	**5**	**93**	**34**	**1**	**78**	**42**	**55**	**582**	2,011
5:15 PM	**0**	**33**	**91**	**10**	**0**	**13**	**48**	**89**	**0**	**6**	**56**	**29**	**0**	**65**	**39**	**41**	**520**	2,062
5:30 PM	**0**	**30**	**72**	**9**	**0**	**11**	**38**	**79**	**0**	**5**	**62**	**25**	**0**	**87**	**40**	**39**	**497**	**2,099**
5:45 PM	0	27	78	7	0	4	35	89	0	7	52	26	1	61	22	41	450	2,049
Count Total	0	243	686	91	0	60	327	680	0	43	434	189	6	558	241	333	3,891	0
Peak Hour All	**0**	**136**	**359**	**43**	**0**	**35**	**171**	**345**	**0**	**23**	**246**	**108**	**3**	**294**	**150**	**186**	**2,099**	**0**
Peak Hour HV	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**11**	**1**	**10**	**27**	**0**
Peak Hour HV%	**-**	**0%**	**1%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**2%**	**0%**	**4%**	**1%**	**5%**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	3	2	0	2	*7*	0	0	0	0	*0*	50	56	34	43	*183*
4:15 PM	2	1	1	4	*8*	0	0	0	0	*0*	70	51	27	72	*220*
4:30 PM	1	0	0	4	*5*	0	0	0	1	*1*	30	47	30	25	*132*
4:45 PM	**1**	**0**	**0**	**8**	***9***	**0**	**0**	**0**	**0**	***0***	**24**	**25**	**23**	**26**	*98*
5:00 PM	**1**	**0**	**1**	**7**	***9***	**0**	**0**	**0**	**2**	***2***	**46**	**56**	**31**	**54**	*187*
5:15 PM	**0**	**0**	**0**	**6**	***6***	**0**	**0**	**0**	**0**	***0***	**19**	**15**	**6**	**32**	*72*
5:30 PM	**1**	**0**	**1**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**46**	**18**	**6**	**28**	***98***
5:45 PM	1	0	1	4	*6*	0	0	0	0	*0*	29	14	11	20	*74*
Count Total	10	3	4	36	*53*	0	0	0	3	*3*	314	282	168	300	*1,064*
Peak Hour	**3**	**0**	**2**	**22**	***27***	**0**	**0**	**0**	**2**	***2***	**135**	**114**	**66**	**140**	***455***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Metro Center Blvd Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Vintage Park Dr Northbound UT	LT	TH	RT	Vintage Park Dr Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	1	2	0	0	0	2	0	0	0	0	0	0	0	2	7	0
4:15 PM	0	0	2	0	0	0	0	1	0	0	0	1	0	3	0	1	8	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	2	5	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**6**	**9**	29
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**1**	**3**	**9**	31
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**1**	**6**	29
5:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**3**	**27**
5:45 PM	0	0	1	0	0	0	0	0	0	0	1	0	0	2	0	2	6	24
Count Total	0	0	8	2	0	0	0	3	0	0	1	3	0	18	1	17	53	0
Peak Hour	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**11**	**1**	**10**	**27**	**0**

Two-Hour Count Summaries - Bikes

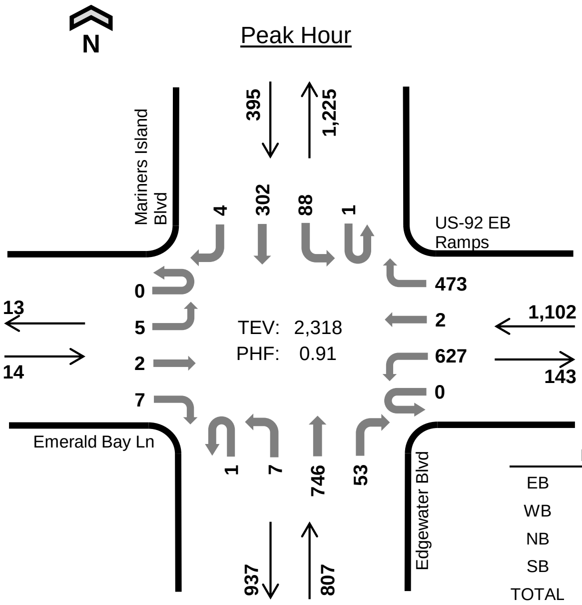
Interval Start	Metro Center Blvd Eastbound LT	TH	RT	Metro Center Blvd Westbound LT	TH	RT	Vintage Park Dr Northbound LT	TH	RT	Vintage Park Dr Southbound LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0
4:45 PM	**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**	**2**	**2**	3
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	0	0	0	0	0	0	0	0	3	3	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**

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

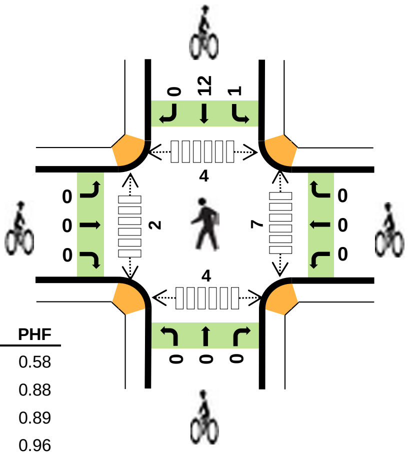
Mariners Island Blvd
Edgewater Blvd

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	HV %:	PHF
EB	0.0%	0.58
WB	1.5%	0.88
NB	1.7%	0.89
SB	2.0%	0.96
TOTAL	1.6%	0.91



Two-Hour Count Summaries

Interval Start	Emerald Bay Ln Eastbound UT	LT	TH	RT	US-92 EB Ramps Westbound UT	LT	TH	RT	Edgewater Blvd Northbound UT	LT	TH	RT	Mariners Island Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	1	0	0	0	80	0	72	1	1	80	15	0	15	39	0	304	0
7:15 AM	0	2	0	0	0	105	0	79	1	0	148	18	0	10	40	0	403	0
7:30 AM	0	4	0	2	0	123	0	79	0	0	177	15	1	22	51	0	474	0
7:45 AM	0	4	3	7	0	145	0	86	0	0	145	13	0	17	70	2	492	1,673
8:00 AM	**0**	**0**	**2**	**1**	**0**	**148**	**1**	**110**	**1**	**1**	**154**	**9**	**0**	**29**	**69**	**3**	**528**	1,897
8:15 AM	**0**	**2**	**0**	**4**	**0**	**168**	**0**	**120**	**0**	**2**	**193**	**17**	**1**	**20**	**81**	**1**	**609**	2,103
8:30 AM	**0**	**1**	**0**	**0**	**0**	**134**	**1**	**107**	**0**	**1**	**191**	**11**	**0**	**20**	**78**	**0**	**544**	2,173
8:45 AM	**0**	**2**	**0**	**2**	**0**	**177**	**0**	**136**	**0**	**3**	**208**	**16**	**0**	**19**	**74**	**0**	**637**	**2,318**
Count Total	0	16	5	16	0	1,080	2	789	3	8	1,296	114	2	152	502	6	3,991	0
Peak Hour All	**0**	**5**	**2**	**7**	**0**	**627**	**2**	**473**	**1**	**7**	**746**	**53**	**1**	**88**	**302**	**4**	**2,318**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**5**	**0**	**0**	**9**	**5**	**0**	**3**	**5**	**0**	**38**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**0%**	**-**	**2%**	**0%**	**1%**	**0%**	**0%**	**1%**	**9%**	**0%**	**3%**	**2%**	**0%**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	0	8	0	0	*8*	0	0	2	0	*2*	3	1	3	0	*7*
7:15 AM	0	6	3	1	*10*	0	0	1	1	*2*	1	0	1	0	*2*
7:30 AM	0	3	3	2	*8*	0	0	0	0	*0*	3	1	3	1	*8*
7:45 AM	0	3	2	1	*6*	0	0	0	2	*2*	0	0	0	0	*0*
8:00 AM	**0**	**6**	**4**	**1**	***11***	**0**	**0**	**0**	**7**	***7***	**2**	**0**	**0**	**2**	*4*
8:15 AM	**0**	**5**	**5**	**4**	***14***	**0**	**0**	**0**	**3**	***3***	**2**	**0**	**2**	**0**	*4*
8:30 AM	**0**	**2**	**1**	**2**	***5***	**0**	**0**	**0**	**3**	***3***	**1**	**0**	**0**	**1**	*2*
8:45 AM	**0**	**3**	**4**	**1**	***8***	**0**	**0**	**0**	**0**	***0***	**2**	**2**	**2**	**1**	*7*
Count Total	0	36	22	12	*70*	0	0	3	16	*19*	14	4	11	5	*34*
Peak Hour	**0**	**16**	**14**	**8**	***38***	**0**	**0**	**0**	**13**	***13***	**7**	**2**	**4**	**4**	***17***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Emerald Bay Ln				US-92 EB Ramps				Edgewater Blvd				Mariners Island Blvd				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	7	0	1	0	0	0	0	0	0	0	0	8	0
7:15 AM	0	0	0	0	0	5	0	1	0	0	1	2	0	1	0	0	10	0
7:30 AM	0	0	0	0	0	1	0	2	0	0	3	0	0	0	2	0	8	0
7:45 AM	0	0	0	0	0	2	0	1	0	0	1	1	0	0	1	0	6	32
8:00 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**2**	**0**	**0**	**3**	**1**	**0**	**0**	**1**	**0**	**11**	35
8:15 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**2**	**0**	**0**	**3**	**2**	**0**	**2**	**2**	**0**	**14**	39
8:30 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**5**	36
8:45 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**2**	**2**	**0**	**0**	**1**	**0**	**8**	**38**
Count Total	0	0	0	0	0	26	0	10	0	0	14	8	0	4	8	0	70	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**5**	**0**	**0**	**9**	**5**	**0**	**3**	**5**	**0**	**38**	**0**

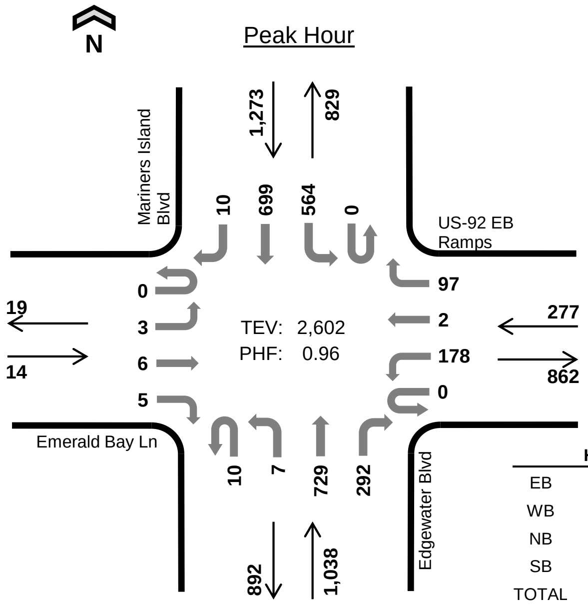
Two-Hour Count Summaries - Bikes

Interval Start	Emerald Bay Ln			US-92 EB Ramps			Edgewater Blvd			Mariners Island Blvd			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	2	0	0	0	0	2	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	2	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	2	0	2	6
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**7**	11
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	12
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**3**	15
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**
Count Total	0	0	0	0	0	0	0	3	0	1	15	0	19	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**12**	**0**	**13**	**0**

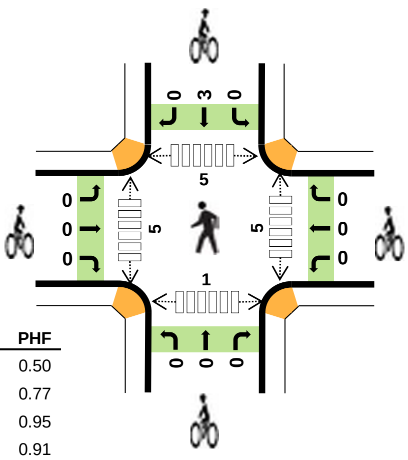
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Mariners Island Blvd
Edgewater Blvd

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	0.0%	0.50
WB	0.4%	0.77
NB	1.3%	0.95
SB	0.5%	0.91
TOTAL	0.8%	0.96



Two-Hour Count Summaries

Interval Start		Emerald Bay Ln Eastbound				US-92 EB Ramps Westbound				Edgewater Blvd Northbound				Mariners Island Blvd 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	1	4	0	52	0	32	0	0	123	53	0	95	134	0	497	0
4:15 PM		0	0	2	1	0	34	0	25	1	3	162	87	0	115	154	0	584	0
4:30 PM		0	0	2	0	0	43	0	29	3	2	172	107	0	137	143	2	640	0
4:45 PM		0	0	0	0	0	42	1	28	1	1	165	84	0	139	159	2	622	2,343
5:00 PM		**0**	**0**	**0**	**0**	**0**	**38**	**0**	**23**	**3**	**3**	**167**	**74**	**0**	**151**	**150**	**2**	**611**	2,457
5:15 PM		**0**	**1**	**1**	**1**	**0**	**37**	**0**	**17**	**5**	**0**	**165**	**85**	**0**	**161**	**187**	**2**	**662**	2,535
5:30 PM		**0**	**1**	**3**	**3**	**0**	**48**	**2**	**22**	**1**	**1**	**204**	**67**	**0**	**154**	**170**	**4**	**680**	2,575
5:45 PM		**0**	**1**	**2**	**1**	**0**	**55**	**0**	**35**	**1**	**3**	**193**	**66**	**0**	**98**	**192**	**2**	**649**	**2,602**
Count Total		0	6	11	10	0	349	3	211	15	13	1,351	623	0	1,050	1,289	14	4,945	0
Peak Hour	**All**	**0**	**3**	**6**	**5**	**0**	**178**	**2**	**97**	**10**	**7**	**729**	**292**	**0**	**564**	**699**	**10**	**2,602**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**12**	**0**	**4**	**3**	**0**	**22**	**0**
	HV%	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**4%**	**-**	**1%**	**0%**	**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	2	4	*6*	0	0	1	1	*2*	0	3	0	1	*4*
4:15 PM	0	2	1	2	*5*	0	0	0	0	*0*	1	0	1	1	*3*
4:30 PM	0	3	3	4	*10*	0	0	0	0	*0*	1	1	1	0	*3*
4:45 PM	0	0	8	3	*11*	0	0	1	0	*1*	1	1	1	0	*3*
5:00 PM	**0**	**0**	**3**	**3**	***6***	**0**	**0**	**0**	**1**	***1***	**0**	**2**	**0**	**0**	*2*
5:15 PM	**0**	**1**	**7**	**0**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**0**	**1**	**2**	***3***	**0**	**0**	**0**	**0**	***0***	**2**	**1**	**2**	**0**	*5*
5:45 PM	**0**	**0**	**3**	**2**	***5***	**0**	**0**	**0**	**2**	***2***	**3**	**2**	**3**	**1**	***9***
Count Total	0	6	28	20	*54*	0	0	2	4	*6*	8	10	8	3	*29*
Peak Hour	**0**	**1**	**14**	**7**	***22***	**0**	**0**	**0**	**3**	***3***	**5**	**5**	**5**	**1**	***16***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Emerald Bay Ln				US-92 EB Ramps				Edgewater Blvd				Mariners Island Blvd				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		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2	0	6	0
4:15 PM	0	0	0	0	0	2	0	0	0	0	0	1	0	2	0	0	5	0
4:30 PM	0	0	0	0	0	3	0	0	0	0	1	2	0	3	1	0	10	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	3	5	0	3	0	0	11	32
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**2**	**1**	**0**	**6**	32
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**6**	**0**	**0**	**0**	**0**	**8**	35
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**3**	28
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**2**	**0**	**5**	**22**
Count Total	0	0	0	0	0	5	0	1	0	0	7	21	0	14	6	0	54	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**12**	**0**	**4**	**3**	**0**	**22**	**0**

Two-Hour Count Summaries - Bikes

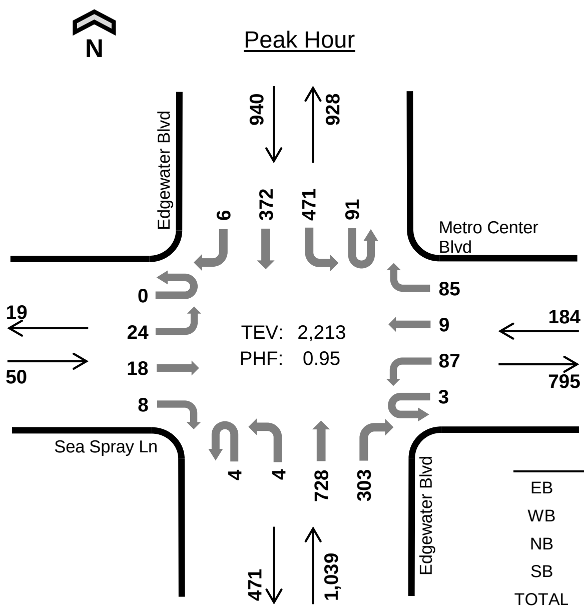
Interval Start	Emerald Bay Ln			US-92 EB Ramps			Edgewater Blvd			Mariners Island Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	3
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**3**
Count Total	0	0	0	0	0	0	0	2	0	0	4	0	6	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	**0**

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

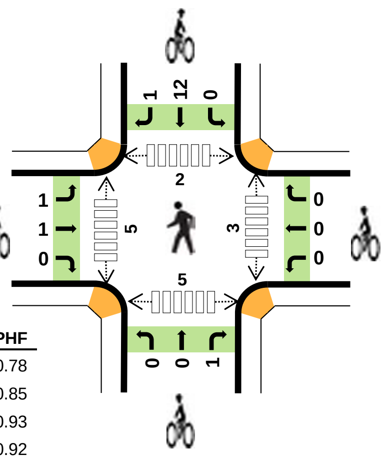
Edgewater Blvd
Metro Center Blvd

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	HV %:	PHF
EB	0.0%	0.78
WB	6.5%	0.85
NB	0.9%	0.93
SB	1.7%	0.92
TOTAL	1.7%	0.95



Two-Hour Count Summaries

Interval Start	Sea Spray Ln				Metro Center Blvd				Edgewater Blvd				Edgewater Blvd				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	2	1	0	1	6	0	9	1	0	90	41	9	51	61	0	272	0
7:15 AM	0	5	1	0	0	19	0	15	1	1	154	38	15	65	62	4	380	0
7:30 AM	0	1	3	2	0	21	2	13	1	0	175	54	28	71	78	0	449	0
7:45 AM	0	2	3	0	2	19	2	25	1	1	133	64	24	90	102	2	470	1,571
8:00 AM	**0**	**3**	**7**	**4**	**0**	**32**	**3**	**19**	**1**	**0**	**159**	**58**	**20**	**105**	**96**	**0**	**507**	1,806
8:15 AM	**0**	**5**	**4**	**1**	**0**	**21**	**2**	**25**	**2**	**1**	**184**	**82**	**31**	**121**	**102**	**2**	**583**	2,009
8:30 AM	**0**	**8**	**1**	**1**	**2**	**15**	**1**	**20**	**0**	**1**	**197**	**81**	**17**	**102**	**91**	**2**	**539**	2,099
8:45 AM	**0**	**8**	**6**	**2**	**1**	**19**	**3**	**21**	**1**	**2**	**188**	**82**	**23**	**143**	**83**	**2**	**584**	**2,213**
Count Total	0	34	26	10	6	152	13	147	8	6	1,280	500	167	748	675	12	3,784	0
Peak Hour All	**0**	**24**	**18**	**8**	**3**	**87**	**9**	**85**	**4**	**4**	**728**	**303**	**91**	**471**	**372**	**6**	**2,213**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**7**	**0**	**0**	**7**	**2**	**0**	**8**	**8**	**0**	**37**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**0%**	**0%**	**6%**	**0%**	**8%**	**0%**	**0%**	**1%**	**1%**	**0%**	**2%**	**2%**	**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	3	7	*10*	0	0	3	0	*3*	2	2	0	0	*4*
7:15 AM	0	2	2	5	*9*	1	0	0	0	*1*	1	5	2	1	*9*
7:30 AM	0	1	4	3	*8*	0	0	0	0	*0*	3	0	0	3	*6*
7:45 AM	0	2	4	1	*7*	0	0	0	2	*2*	0	2	1	2	*5*
8:00 AM	**0**	**3**	**1**	**5**	***9***	**2**	**0**	**0**	**8**	***10***	**0**	**2**	**0**	**1**	*3*
8:15 AM	**0**	**3**	**2**	**5**	***10***	**0**	**0**	**0**	**3**	***3***	**0**	**1**	**0**	**2**	*3*
8:30 AM	**0**	**2**	**3**	**3**	***8***	**0**	**0**	**0**	**2**	***2***	**2**	**1**	**0**	**2**	*5*
8:45 AM	**0**	**4**	**3**	**3**	***10***	**0**	**0**	**1**	**0**	***1***	**1**	**1**	**2**	**0**	*4*
Count Total	0	17	22	32	*71*	3	0	4	15	*22*	9	14	5	11	*39*
Peak Hour	**0**	**12**	**9**	**16**	***37***	**2**	**0**	**1**	**13**	***16***	**3**	**5**	**2**	**5**	***15***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Sea Spray Ln				Metro Center Blvd				Edgewater Blvd				Edgewater Blvd				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	2	1	0	3	4	0	10	0
7:15 AM	0	0	0	0	0	0	0	2	0	1	1	0	0	5	0	0	9	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	3	1	0	0	3	0	8	0
7:45 AM	0	0	0	0	0	0	0	2	0	0	2	2	0	1	0	0	7	34
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**3**	**2**	**0**	**9**	33
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**2**	**0**	**0**	**2**	**3**	**0**	**10**	34
8:30 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**2**	**1**	**0**	**8**	34
8:45 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**2**	**1**	**0**	**1**	**2**	**0**	**10**	**37**
Count Total	0	0	0	0	0	5	0	12	0	1	15	6	0	17	15	0	71	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**7**	**0**	**0**	**7**	**2**	**0**	**8**	**8**	**0**	**37**	**0**

Two-Hour Count Summaries - Bikes

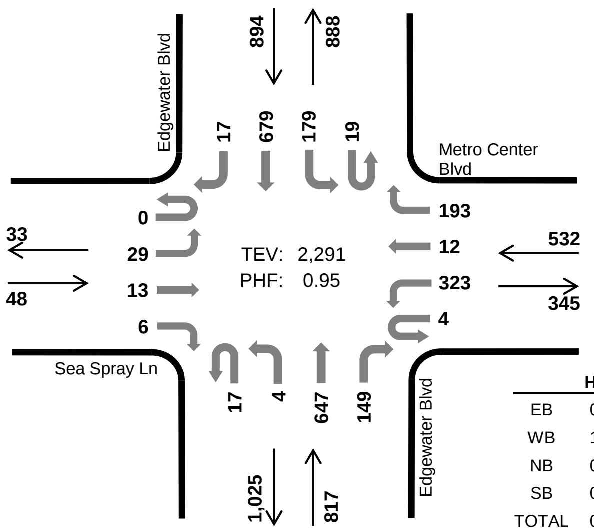
Interval Start	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	3	0	0	0	0	3	0
7:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	1	0	2	6
8:00 AM	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**1**	**10**	13
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	15
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	17
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**16**
Count Total	2	1	0	0	0	0	0	3	1	1	13	1	22	0
Peak Hour	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**12**	**1**	**16**	**0**

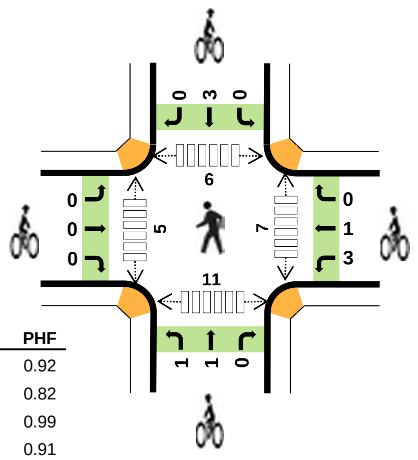
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Edgewater Blvd
Metro Center Blvd

idax

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	0.0%	0.92
WB	1.5%	0.82
NB	0.9%	0.99
SB	0.3%	0.91
TOTAL	0.8%	0.95

Two-Hour Count Summaries

Interval Start		Sea Spray Ln Eastbound UT	LT	TH	RT	Metro Center Blvd Westbound UT	LT	TH	RT	Edgewater Blvd Northbound UT	LT	TH	RT	Edgewater Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM		0	6	1	2	1	51	1	41	2	0	98	42	2	41	137	5	430	0
4:15 PM		0	2	1	1	1	52	3	59	2	3	160	34	2	50	133	4	507	0
4:30 PM		0	9	1	0	1	66	5	57	3	2	193	41	6	34	128	4	550	0
4:45 PM		0	6	6	4	1	68	2	61	7	2	149	35	2	53	158	6	560	2,047
5:00 PM		**0**	**7**	**3**	**2**	**1**	**67**	**6**	**48**	**6**	**1**	**159**	**37**	**6**	**43**	**139**	**1**	**526**	2,143
5:15 PM		**0**	**4**	**5**	**2**	**1**	**103**	**1**	**58**	**5**	**3**	**158**	**34**	**3**	**32**	**192**	**4**	**605**	2,241
5:30 PM		**0**	**9**	**3**	**0**	**1**	**78**	**1**	**51**	**4**	**0**	**164**	**39**	**6**	**48**	**172**	**2**	**578**	2,269
5:45 PM		**0**	**9**	**2**	**2**	**1**	**75**	**4**	**36**	**2**	**0**	**166**	**39**	**4**	**56**	**176**	**10**	**582**	**2,291**
Count Total		0	52	22	13	8	560	23	411	31	11	1,247	301	31	357	1,235	36	4,338	0
Peak Hour	**All**	**0**	**29**	**13**	**6**	**4**	**323**	**12**	**193**	**17**	**4**	**647**	**149**	**19**	**179**	**679**	**17**	**2,291**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**7**	**0**	**0**	**2**	**1**	**0**	**18**	**0**
	HV%	**-**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**4%**	**0%**	**0%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0%**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	1	2	2	*5*	0	1	0	1	*2*	0	4	0	6	*10*
4:15 PM	0	2	0	2	*4*	0	0	0	0	*0*	4	0	0	3	*7*
4:30 PM	0	1	2	3	*6*	0	1	0	0	*1*	1	1	0	2	*4*
4:45 PM	0	6	6	0	*12*	0	4	0	0	*4*	1	1	1	2	*5*
5:00 PM	**0**	**1**	**1**	**1**	***3***	**0**	**1**	**0**	**1**	***2***	**0**	**3**	**1**	**6**	*10*
5:15 PM	**0**	**5**	**2**	**0**	***7***	**0**	**1**	**2**	**0**	***3***	**2**	**0**	**0**	**2**	*4*
5:30 PM	**0**	**0**	**2**	**0**	***2***	**0**	**1**	**0**	**0**	***1***	**0**	**2**	**2**	**1**	*5*
5:45 PM	**0**	**2**	**2**	**2**	***6***	**0**	**1**	**0**	**2**	***3***	**5**	**0**	**3**	**2**	***10***
Count Total	0	18	17	10	*45*	0	10	2	4	*16*	13	11	7	24	*55*
Peak Hour	**0**	**8**	**7**	**3**	***18***	**0**	**4**	**2**	**3**	***9***	**7**	**5**	**6**	**11**	***29***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Sea Spray Ln				Metro Center Blvd				Edgewater Blvd				Edgewater Blvd				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		
4:00 PM	0	0	0	0	0	0	0	1	0	0	2	0	0	2	0	0	5	0
4:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	4	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	0	1	2	0	6	0
4:45 PM	0	0	0	0	0	0	0	6	0	0	3	3	0	0	0	0	12	27
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**3**	25
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**7**	28
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	24
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**6**	**18**
Count Total	0	0	0	0	0	1	0	17	0	0	14	3	0	5	5	0	45	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**7**	**0**	**0**	**2**	**1**	**0**	**18**	**0**

Two-Hour Count Summaries - Bikes

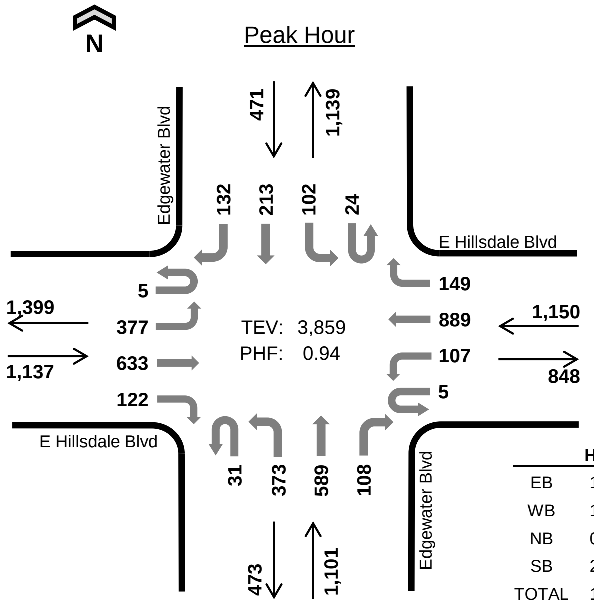
Interval Start	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	2	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	1	2	1	0	0	0	0	0	0	4	7
5:00 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	7
5:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**3**	10
5:30 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	10
5:45 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**9**
Count Total	0	0	0	5	3	2	1	1	0	1	3	0	16	0
Peak Hour	**0**	**0**	**0**	**3**	**1**	**0**	**1**	**1**	**0**	**0**	**3**	**0**	**9**	**0**

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

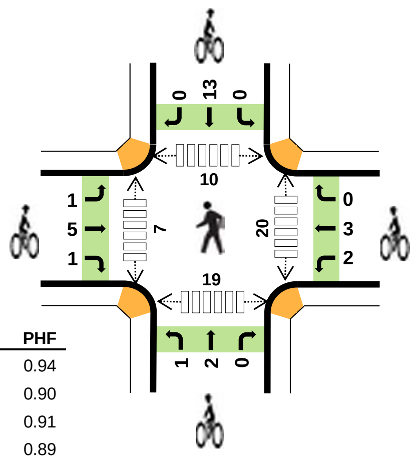
Edgewater Blvd
E Hillsdale Blvd

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	HV %:	PHF
EB	1.9%	0.94
WB	1.8%	0.90
NB	0.9%	0.91
SB	2.5%	0.89
TOTAL	1.7%	0.94



Two-Hour Count Summaries

Interval Start	E Hillsdale Blvd Eastbound UT	LT	TH	RT	E Hillsdale Blvd Westbound UT	LT	TH	RT	Edgewater Blvd Northbound UT	LT	TH	RT	Edgewater Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	1	54	48	21	0	4	180	11	1	91	66	7	2	7	30	25	548	0
7:15 AM	1	44	89	17	0	15	168	19	2	139	143	11	4	10	32	37	731	0
7:30 AM	1	66	111	16	0	18	247	15	3	141	151	13	4	13	41	36	876	0
7:45 AM	0	83	182	37	0	19	248	21	6	84	80	21	2	22	71	35	911	3,066
8:00 AM	**2**	**86**	**189**	**25**	**2**	**28**	**254**	**36**	**8**	**105**	**118**	**34**	**5**	**19**	**61**	**47**	**1,019**	3,537
8:15 AM	**1**	**88**	**157**	**32**	**1**	**25**	**251**	**34**	**4**	**112**	**164**	**21**	**4**	**31**	**58**	**38**	**1,021**	3,827
8:30 AM	**1**	**112**	**119**	**29**	**1**	**34**	**195**	**33**	**8**	**72**	**148**	**21**	**4**	**29**	**47**	**24**	**877**	3,828
8:45 AM	**1**	**91**	**168**	**36**	**1**	**20**	**189**	**46**	**11**	**84**	**159**	**32**	**11**	**23**	**47**	**23**	**942**	**3,859**
Count Total	8	624	1,063	213	5	163	1,732	215	43	828	1,029	160	36	154	387	265	6,925	0
Peak Hour All	**5**	**377**	**633**	**122**	**5**	**107**	**889**	**149**	**31**	**373**	**589**	**108**	**24**	**102**	**213**	**132**	**3,859**	**0**
Peak Hour HV	**0**	**2**	**14**	**6**	**0**	**0**	**17**	**4**	**0**	**7**	**3**	**0**	**0**	**1**	**8**	**3**	**65**	**0**
Peak Hour HV%	**0%**	**1%**	**2%**	**5%**	**0%**	**0%**	**2%**	**3%**	**0%**	**2%**	**1%**	**0%**	**0%**	**1%**	**4%**	**2%**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	6	3	5	3	*17*	0	0	3	0	*3*	4	4	3	1	*12*
7:15 AM	0	3	2	0	*5*	0	0	0	1	*1*	5	0	2	3	*10*
7:30 AM	6	7	1	3	*17*	1	2	1	0	*4*	3	3	2	5	*13*
7:45 AM	7	5	2	2	*16*	0	0	1	2	*3*	2	1	5	2	*10*
8:00 AM	**7**	**6**	**1**	**4**	***18***	**1**	**3**	**0**	**8**	***12***	**7**	**3**	**3**	**8**	*21*
8:15 AM	**4**	**7**	**2**	**3**	***16***	**3**	**1**	**0**	**3**	***7***	**8**	**0**	**4**	**2**	*14*
8:30 AM	**5**	**5**	**2**	**2**	***14***	**1**	**1**	**2**	**2**	***6***	**4**	**4**	**2**	**5**	*15*
8:45 AM	**6**	**3**	**5**	**3**	***17***	**2**	**0**	**1**	**0**	***3***	**1**	**0**	**1**	**4**	***6***
Count Total	41	39	20	20	*120*	8	7	8	16	*39*	34	15	22	30	*101*
Peak Hour	**22**	**21**	**10**	**12**	***65***	**7**	**5**	**3**	**13**	***28***	**20**	**7**	**10**	**19**	***56***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Hillsdale Blvd				E Hillsdale Blvd				Edgewater Blvd				Edgewater Blvd				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	3	2	1	0	0	3	0	0	4	0	1	0	1	2	0	17	0
7:15 AM	0	0	0	0	0	0	1	2	0	2	0	0	0	0	0	0	5	0
7:30 AM	0	1	3	2	0	0	6	1	0	0	1	0	0	2	1	0	17	0
7:45 AM	0	3	3	1	0	0	5	0	0	2	0	0	0	0	1	1	16	55
8:00 AM	**0**	**0**	**5**	**2**	**0**	**0**	**5**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**4**	**0**	**18**	56
8:15 AM	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**1**	**16**	67
8:30 AM	**0**	**2**	**1**	**2**	**0**	**0**	**4**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**2**	**14**	64
8:45 AM	**0**	**0**	**4**	**2**	**0**	**0**	**3**	**0**	**0**	**3**	**2**	**0**	**0**	**1**	**2**	**0**	**17**	**65**
Count Total	0	9	22	10	0	0	32	7	0	15	4	1	0	4	12	4	120	0
Peak Hour	**0**	**2**	**14**	**6**	**0**	**0**	**17**	**4**	**0**	**7**	**3**	**0**	**0**	**1**	**8**	**3**	**65**	**0**

Two-Hour Count Summaries - Bikes

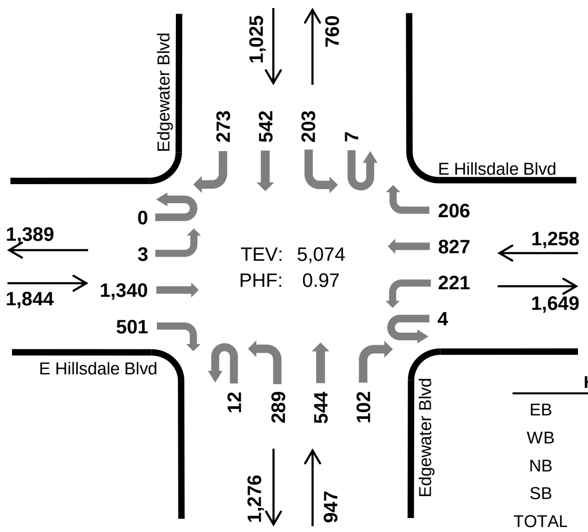
Interval Start	E Hillsdale Blvd			E Hillsdale Blvd			Edgewater Blvd			Edgewater Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	3	0	0	0	0	3	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:30 AM	0	1	0	0	2	0	0	1	0	0	0	0	4	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	2	0	3	11
8:00 AM	**0**	**1**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**12**	20
8:15 AM	**0**	**2**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**7**	26
8:30 AM	**0**	**1**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**6**	28
8:45 AM	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**28**
Count Total	1	6	1	2	5	0	1	7	0	0	16	0	39	0
Peak Hour	**1**	**5**	**1**	**2**	**3**	**0**	**1**	**2**	**0**	**0**	**13**	**0**	**28**	**0**

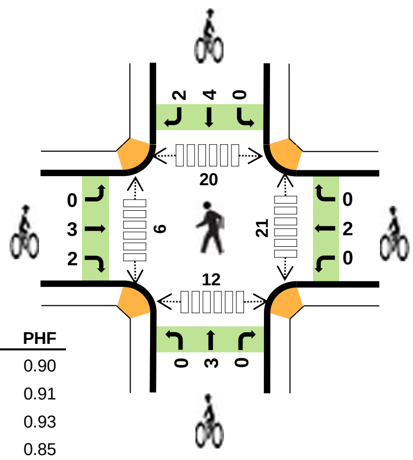
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Edgewater Blvd
E Hillsdale Blvd

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour





	HV %:	PHF
EB	0.7%	0.90
WB	0.6%	0.91
NB	0.7%	0.93
SB	0.1%	0.85
TOTAL	0.6%	0.97

Two-Hour Count Summaries

Interval Start	E Hillsdale Blvd				E Hillsdale Blvd				Edgewater Blvd				Edgewater Blvd				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		
4:00 PM	0	17	294	108	0	41	150	30	1	61	114	27	3	39	104	51	1,040	0
4:15 PM	0	0	320	129	0	34	150	58	4	48	111	27	4	47	85	48	1,065	0
4:30 PM	0	5	314	132	0	40	166	56	4	47	144	26	1	41	95	66	1,137	0
4:45 PM	0	3	284	106	2	47	143	49	2	70	151	23	2	34	146	61	1,123	4,365
5:00 PM	**0**	**0**	**404**	**111**	**0**	**42**	**208**	**47**	**1**	**70**	**135**	**18**	**2**	**42**	**108**	**65**	**1,253**	4,578
5:15 PM	**0**	**1**	**303**	**128**	**2**	**62**	**205**	**49**	**4**	**90**	**136**	**25**	**1**	**59**	**153**	**89**	**1,307**	4,820
5:30 PM	**0**	**1**	**297**	**138**	**1**	**68**	**222**	**56**	**5**	**76**	**139**	**30**	**1**	**53**	**135**	**67**	**1,289**	4,972
5:45 PM	**0**	**1**	**336**	**124**	**1**	**49**	**192**	**54**	**2**	**53**	**134**	**29**	**3**	**49**	**146**	**52**	**1,225**	**5,074**
Count Total	0	28	2,552	976	6	383	1,436	399	23	515	1,064	205	17	364	972	499	9,439	0
Peak Hour All	**0**	**3**	**1,340**	**501**	**4**	**221**	**827**	**206**	**12**	**289**	**544**	**102**	**7**	**203**	**542**	**273**	**5,074**	**0**
HV	**0**	**2**	**8**	**3**	**0**	**0**	**8**	**0**	**0**	**3**	**4**	**0**	**0**	**0**	**1**	**0**	**29**	**0**
HV%	**-**	**67%**	**1%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0%**	**1%**	**1%**	**0%**	**0%**	**0%**	**0%**	**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	9	2	2	1	*14*	1	2	0	0	*3*	0	1	6	0	*7*
4:15 PM	2	1	1	4	*8*	0	0	0	0	*0*	9	2	5	3	*19*
4:30 PM	5	2	3	1	*11*	0	0	0	2	*2*	2	3	9	3	*17*
4:45 PM	2	3	5	0	*10*	1	0	0	1	*2*	2	5	2	3	*12*
5:00 PM	**3**	**3**	**1**	**1**	***8***	**0**	**0**	**1**	**2**	***3***	**3**	**3**	**8**	**1**	*15*
5:15 PM	**4**	**1**	**3**	**0**	***8***	**1**	**2**	**1**	**1**	***5***	**11**	**1**	**6**	**4**	*22*
5:30 PM	**4**	**1**	**1**	**0**	***6***	**2**	**0**	**1**	**0**	***3***	**3**	**0**	**2**	**1**	*6*
5:45 PM	**2**	**3**	**2**	**0**	***7***	**2**	**0**	**0**	**3**	***5***	**4**	**2**	**4**	**6**	*16*
Count Total	31	16	18	7	*72*	7	4	3	9	*23*	34	17	42	21	*114*
Peak Hour	**13**	**8**	**7**	**1**	***29***	**5**	**2**	**3**	**6**	***16***	**21**	**6**	**20**	**12**	***59***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Hillsdale Blvd				E Hillsdale Blvd				Edgewater Blvd				Edgewater Blvd				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		
4:00 PM	0	2	6	1	0	1	0	1	0	2	0	0	0	1	0	0	14	0
4:15 PM	0	0	2	0	0	0	1	0	0	1	0	0	0	1	2	1	8	0
4:30 PM	0	1	4	0	0	0	2	0	0	1	2	0	0	0	1	0	11	0
4:45 PM	0	0	1	1	0	1	1	1	0	3	2	0	0	0	0	0	10	43
5:00 PM	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**8**	37
5:15 PM	**0**	**0**	**2**	**2**	**0**	**0**	**1**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**8**	37
5:30 PM	**0**	**1**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**6**	32
5:45 PM	**0**	**1**	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**7**	**29**
Count Total	0	5	21	5	0	2	12	2	0	10	8	0	0	2	4	1	72	0
Peak Hour	**0**	**2**	**8**	**3**	**0**	**0**	**8**	**0**	**0**	**3**	**4**	**0**	**0**	**0**	**1**	**0**	**29**	**0**

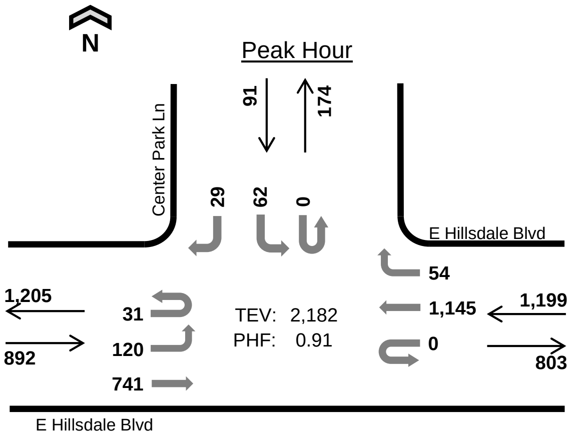
Two-Hour Count Summaries - Bikes

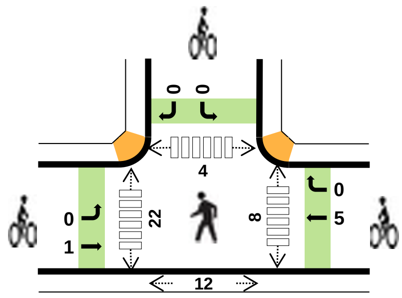
Interval Start	E Hillsdale Blvd			E Hillsdale Blvd			Edgewater Blvd			Edgewater Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	1	0	0	2	0	0	0	0	0	0	0	3	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	0
4:45 PM	0	0	1	0	0	0	0	0	0	0	1	0	2	7
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**3**	7
5:15 PM	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**5**	12
5:30 PM	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	13
5:45 PM	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**5**	**16**
Count Total	0	4	3	0	4	0	0	3	0	0	7	2	23	0
Peak Hour	**0**	**3**	**2**	**0**	**2**	**0**	**0**	**3**	**0**	**0**	**4**	**2**	**16**	**0**

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

Center Park Ln
E Hillsdale Blvd

Date: 05-22-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	1.2%	0.89
WB	2.3%	0.92
NB	-	-
SB	1.1%	0.63
TOTAL	1.8%	0.91

Two-Hour Count Summaries

Interval Start		E Hillsdale Blvd Eastbound UT	LT	TH	RT	E Hillsdale Blvd Westbound UT	LT	TH	RT	n/a Northbound UT	LT	TH	RT	Center Park Ln Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM		2	14	47	0	0	0	188	8	0	0	0	0	0	12	0	5	276	0
7:15 AM		4	26	85	0	0	0	173	12	0	0	0	0	0	13	0	18	331	0
7:30 AM		7	18	116	0	0	0	263	12	0	0	0	0	0	9	0	5	430	0
7:45 AM		**8**	**27**	**188**	**0**	**0**	**0**	**261**	**13**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**1**	**510**	1,547
8:00 AM		**6**	**24**	**220**	**0**	**0**	**0**	**317**	**8**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**6**	**598**	1,869
8:15 AM		**8**	**32**	**196**	**0**	**0**	**0**	**295**	**13**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**9**	**563**	2,101
8:30 AM		**9**	**37**	**137**	**0**	**0**	**0**	**272**	**20**	**0**	**0**	**0**	**0**	**0**	**23**	**0**	**13**	**511**	**2,182**
8:45 AM		16	30	170	0	0	0	194	8	0	0	0	0	0	17	0	11	446	2,118
Count Total		60	208	1,159	0	0	0	1,963	94	0	0	0	0	0	113	0	68	3,665	0
Peak Hour	**All**	**31**	**120**	**741**	**0**	**0**	**0**	**1,145**	**54**	**0**	**0**	**0**	**0**	**0**	**62**	**0**	**29**	**2,182**	**0**
	HV	**0**	**3**	**8**	**0**	**0**	**0**	**26**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**39**	**0**
	HV%	**0%**	**3%**	**1%**	**-**	**-**	**-**	**2%**	**2%**	**-**	**-**	**-**	**-**	**-**	**2%**	**-**	**0%**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	4	3	0	0	*7*	0	0	0	0	*0*	2	2	0	6	*10*
7:15 AM	0	3	0	1	*4*	0	0	0	0	*0*	0	1	0	2	*3*
7:30 AM	3	7	0	1	*11*	1	2	0	0	*3*	6	3	1	2	*12*
7:45 AM	**1**	**4**	**0**	**0**	***5***	**0**	**1**	**0**	**0**	***1***	**5**	**11**	**0**	**4**	*20*
8:00 AM	**5**	**7**	**0**	**1**	***13***	**0**	**2**	**0**	**0**	***2***	**1**	**2**	**2**	**1**	*6*
8:15 AM	**4**	**9**	**0**	**0**	***13***	**0**	**1**	**0**	**0**	***1***	**0**	**5**	**0**	**3**	*8*
8:30 AM	**1**	**7**	**0**	**0**	***8***	**1**	**1**	**0**	**0**	***2***	**2**	**4**	**2**	**4**	*12*
8:45 AM	4	2	0	0	*6*	0	0	0	0	*0*	3	7	0	4	*14*
Count Total	22	42	0	3	*67*	2	7	0	0	*9*	19	35	5	26	*85*
Peak Hr	**11**	**27**	**0**	**1**	***39***	**1**	**5**	**0**	**0**	***6***	**8**	**22**	**4**	**12**	***46***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Hillsdale Blvd				E Hillsdale Blvd				n/a				Center Park Ln				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	1	3	0	0	0	3	0	0	0	0	0	0	0	0	0	7	0
7:15 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	4	0
7:30 AM	0	0	3	0	0	0	7	0	0	0	0	0	0	0	0	1	11	0
7:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	27
8:00 AM	**0**	**2**	**3**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**13**	33
8:15 AM	**0**	**1**	**3**	**0**	**0**	**0**	**8**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	42
8:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**39**
8:45 AM	0	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0	6	40
Count Total	0	5	17	0	0	0	41	1	0	0	0	0	0	2	0	1	67	0
Peak Hour	**0**	**3**	**8**	**0**	**0**	**0**	**26**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**39**	**0**

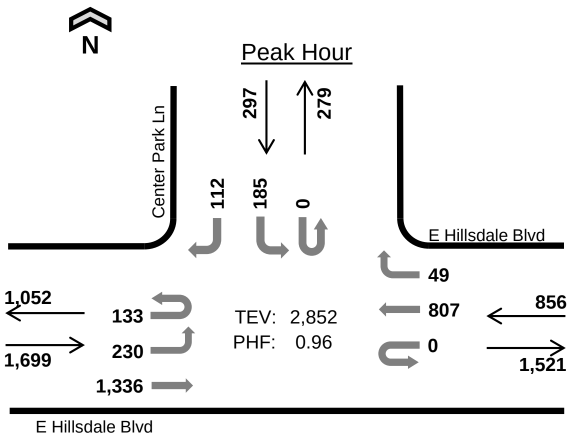
Two-Hour Count Summaries - Bikes

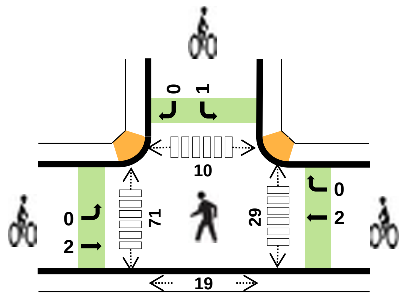
Interval Start	E Hillsdale Blvd			E Hillsdale Blvd			n/a			Center Park Ln			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	2	0	0	0	0	0	0	0	3	0
7:45 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	4
8:00 AM	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	6
8:15 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	7
8:30 AM	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**6**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Count Total	0	2	0	0	7	0	0	0	0	0	0	0	9	0
Peak Hour	**0**	**1**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**

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

Center Park Ln
E Hillsdale Blvd

Date: 05-22-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	0.4%	0.94
WB	0.8%	0.92
NB	-	-
SB	0.0%	0.95
TOTAL	0.5%	0.96

Two-Hour Count Summaries

Interval Start		E Hillsdale Blvd				E Hillsdale Blvd				n/a				Center Park Ln				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		
4:00 PM		20	73	295	0	0	0	147	12	0	0	0	0	0	36	0	22	605	0
4:15 PM		32	45	319	0	0	0	170	15	0	0	0	0	0	31	0	29	641	0
4:30 PM		31	59	302	0	0	0	150	21	0	0	0	0	1	35	0	22	621	0
4:45 PM		26	46	319	0	0	0	179	12	0	0	0	0	0	40	0	18	640	2,507
5:00 PM		**40**	**53**	**349**	**0**	**0**	**0**	**182**	**13**	**0**	**0**	**0**	**0**	**0**	**48**	**0**	**24**	**709**	2,611
5:15 PM		**27**	**62**	**323**	**0**	**0**	**0**	**201**	**9**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**37**	**698**	2,668
5:30 PM		**38**	**55**	**299**	**0**	**0**	**0**	**221**	**11**	**0**	**0**	**0**	**0**	**0**	**51**	**0**	**27**	**702**	2,749
5:45 PM		**28**	**60**	**365**	**0**	**0**	**0**	**203**	**16**	**0**	**0**	**0**	**0**	**0**	**47**	**0**	**24**	**743**	**2,852**
Count Total		242	453	2,571	0	0	0	1,453	109	0	0	0	0	1	327	0	203	5,359	0
Peak Hour	**All**	**133**	**230**	**1,336**	**0**	**0**	**0**	**807**	**49**	**0**	**0**	**0**	**0**	**0**	**185**	**0**	**112**	**2,852**	**0**
	HV	**0**	**1**	**6**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**
	HV%	**0%**	**0%**	**0%**	**-**	**-**	**-**	**1%**	**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	7	2	0	1	*10*	0	2	0	0	*2*	14	9	0	1	*24*
4:15 PM	3	1	0	0	*4*	0	0	0	0	*0*	8	6	3	5	*22*
4:30 PM	5	2	0	0	*7*	0	0	0	0	*0*	4	13	5	1	*23*
4:45 PM	1	3	0	0	*4*	0	0	0	0	*0*	9	15	1	8	*33*
5:00 PM	**2**	**3**	**0**	**0**	***5***	**0**	**1**	**0**	**1**	***2***	**11**	**36**	**4**	**3**	***54***
5:15 PM	**2**	**1**	**0**	**0**	***3***	**2**	**1**	**0**	**0**	***3***	**5**	**7**	**3**	**6**	***21***
5:30 PM	**2**	**1**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**8**	**18**	**2**	**5**	***33***
5:45 PM	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**5**	**10**	**1**	**5**	***21***
Count Total	23	15	0	1	*39*	2	4	0	1	*7*	64	114	19	34	*231*
Peak Hr	**7**	**7**	**0**	**0**	***14***	**2**	**2**	**0**	**1**	***5***	**29**	**71**	**10**	**19**	***129***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Hillsdale Blvd Eastbound				E Hillsdale Blvd Westbound				n/a Northbound				Center Park Ln 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	7	0	0	0	2	0	0	0	0	0	0	1	0	0	10	0
4:15 PM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	4	0
4:30 PM	0	1	4	0	0	0	2	0	0	0	0	0	0	0	0	0	7	0
4:45 PM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	25
5:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	20
5:15 PM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	19
5:30 PM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	15
5:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**14**
Count Total	0	2	21	0	0	0	15	0	0	0	0	0	0	1	0	0	39	0
Peak Hour	**0**	**1**	**6**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	E Hillsdale Blvd Eastbound			E Hillsdale Blvd Westbound			n/a Northbound			Center Park Ln 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	2	0	0	0	0	0	0	0	2	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	2
5:00 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	2
5:15 PM	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	5
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	5
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**
Count Total	0	2	0	0	4	0	0	0	0	1	0	0	7	0
Peak Hour	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**5**	**0**

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

VISTRO INTERSECTION LOS CALCULATIONS

Foster City Metro Center Hotel EIR

Vistro File: \...\FC Metro Center Hotel 9.26.19.vistro

Report File: \...\Existing AM Report.pdf

Scenario 2 Existing AM

12/10/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Vintage Park Dr and Chess Dr	Signalized	HCM 6th Edition	SB Left	0.426	14.8	B
2	Chess Dr and Route 92 West Ramp	Signalized	HCM 6th Edition	NB Right	0.893	177.9	F
3	Foster City Blvd and Chess Dr	Signalized	HCM 6th Edition	EB Right	0.763	67.7	E
4	Metro Center Blvd and Shell Blvd	Signalized	HCM 6th Edition	SB Left	0.388	13.7	B
5	Metro Center Blvd and Route 92 East Ramp	Signalized	HCM 6th Edition	NB Right	0.442	23.4	C
6	Foster City Blvd and Metro Center Blvd	Signalized	HCM 6th Edition	WB Right	0.798	84.2	F
7	Shell Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	SB Left	0.503	28.8	C
8	Foster City Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	WB Left	0.647	38.9	D
9	Metro Center Blvd and Vintage Park Dr	Signalized	HCM 6th Edition	NB Left	0.523	26.6	C
10	Edgewater Blvd and Mariners Island Blvd	Signalized	HCM 6th Edition	WB Left	0.515	30.3	C
11	Metro Center Blvd and Edgewater Blvd	Signalized	HCM 6th Edition	WB Left	0.485	44.4	D
12	Edgewater Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	WB Left	0.621	28.4	C
13	Center Park Ln and E Hillsdale Blvd	Signalized	HCM 6th Edition	SB Left	0.405	10.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Vintage Park Dr and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.426

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	280.00	100.00	100.00	265.00	100.00	100.00	140.00	100.00	100.00	215.00	100.00	100.00
Speed [mph]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	109	314	145	14	43	29	64	147	76	180	254	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	109	314	145	14	43	29	64	147	76	180	254	119
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	84	39	4	12	8	17	40	20	48	68	32
Total Analysis Volume [veh/h]	117	338	156	15	46	31	69	158	82	194	273	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	11			4			10			3		
v_di, Inbound Pedestrian Volume crossing m	10			3			11			4		
v_co, Outbound Pedestrian Volume crossing	3			9			10			3		
v_ci, Inbound Pedestrian Volume crossing mi	3			10			9			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	4	0	4	4	0	4	4	0	4	4	0
Maximum Green [s]	40	50	0	30	40	0	20	40	0	20	40	0
Amber [s]	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0
All red [s]	0.5	0.5	0.0	1.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	23	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	1.7	0.0	2.1	2.2	0.0	1.6	2.2	0.0	1.6	2.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	37	37	37	37	37	37	37	37	37	37	37	37	37
L, Total Lost Time per Cycle [s]	3.60	3.70	3.70	3.70	4.10	4.20	4.20	3.60	4.20	4.20	3.60	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.70	1.70	1.70	2.10	2.20	2.20	1.60	2.20	2.20	1.60	2.20	2.20
g_i, Effective Green Time [s]	3	8	8	8	1	5	5	2	7	7	6	11	11
g / C, Green / Cycle	0.09	0.21	0.21	0.21	0.02	0.13	0.13	0.06	0.20	0.20	0.15	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.07	0.09	0.09	0.10	0.01	0.02	0.02	0.04	0.07	0.07	0.11	0.11	0.12
s, saturation flow rate [veh/h]	1765	1853	1841	1562	1765	1853	1542	1765	1853	1609	1765	1853	1649
c, Capacity [veh/h]	163	387	385	326	28	246	204	99	367	318	269	545	485
d1, Uniform Delay [s]	16.20	12.66	12.66	12.69	17.93	14.10	14.15	17.02	12.65	12.72	14.82	10.31	10.34
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.85	0.80	0.81	1.01	15.22	0.30	0.43	8.66	0.54	0.70	3.66	0.45	0.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.45	0.45	0.46	0.54	0.16	0.19	0.70	0.34	0.36	0.72	0.39	0.39
d, Delay for Lane Group [s/veh]	22.04	13.46	13.47	13.69	33.15	14.40	14.59	25.68	13.19	13.42	18.47	10.75	10.85
Lane Group LOS	C	B	B	B	C	B	B	C	B	B	B	B	B
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.06	1.07	1.06	0.94	0.23	0.26	0.26	0.73	0.78	0.75	1.52	1.08	1.00
50th-Percentile Queue Length [ft/ln]	26.47	26.67	26.54	23.60	5.63	6.41	6.39	18.37	19.60	18.73	38.05	27.12	24.92
95th-Percentile Queue Length [veh/ln]	1.91	1.92	1.91	1.70	0.41	0.46	0.46	1.32	1.41	1.35	2.74	1.95	1.79
95th-Percentile Queue Length [ft/ln]	47.65	48.00	47.78	42.48	10.14	11.53	11.49	33.06	35.28	33.72	68.49	48.81	44.86

Movement, Approach, & Intersection Results

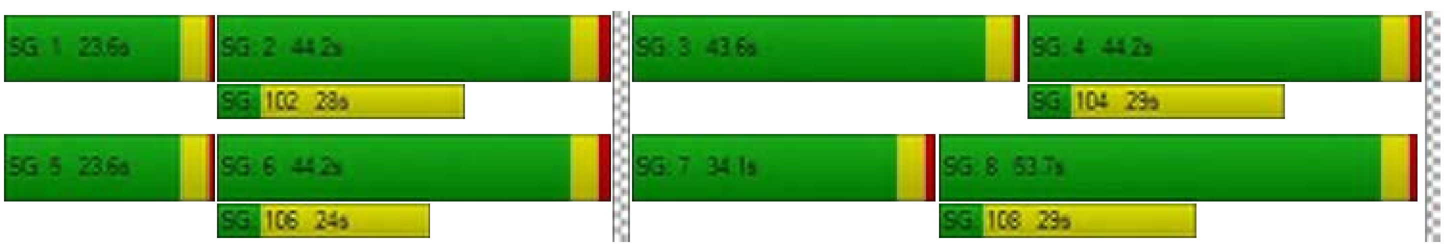
d_M, Delay for Movement [s/veh]	22.04	13.47	13.69	33.15	14.43	14.59	25.68	13.24	13.42	18.47	10.78	10.85
Movement LOS	C	B	B	C	B	B	C	B	B	B	B	B
d_A, Approach Delay [s/veh]	15.16			17.53			16.07			13.30		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.78											
Intersection LOS	B											
Intersection V/C	0.426											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	405.61	1033.62	469.53	1236.67
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.606	2.424	2.420	2.605
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1111	889	889	889
d_b, Bicycle Delay [s]	8.89	13.90	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.064	1.636	1.815	2.050
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Chess Dr and Route 92 West Ramp

Control Type:	Signalized	Delay (sec / veh):	177.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.893

Intersection Setup

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	480.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	389	35	731	2	16	5	1	130	122	708	192	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	389	35	731	2	16	5	1	130	122	708	192	11
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	105	9	197	1	4	1	0	35	33	190	52	3
Total Analysis Volume [veh/h]	418	38	786	2	17	5	1	140	131	761	206	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	35.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	4	0	0	1	6	1	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	4	0	0	6	5	6	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	30	55	0
Amber [s]	0.0	3.5	0.0	0.0	3.2	0.0	0.0	3.2	3.1	3.2	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	0.5	0.0	0.0	1.0	1.0	1.0	2.0	0.0
Split [s]	0	30	0	0	26	0	0	20	50	20	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	17	0	0	0	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.5	0.0	0.0	1.7	0.0	0.0	2.2	2.1	2.2	3.5	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		Yes	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	3.70	4.20	4.10	5.50	5.50	5.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	1.70	2.20	2.10	3.50	3.50	3.50
g_i, Effective Green Time [s]	30	30	30	2	11	46	59	59	59
g / C, Green / Cycle	0.25	0.25	0.25	0.02	0.09	0.38	0.49	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.50	0.01	0.08	0.05	0.22	0.22	0.13
s, saturation flow rate [veh/h]	1767	1781	1577	1782	1854	2791	1767	1767	1672
c, Capacity [veh/h]	441	445	394	34	175	1067	861	861	815
d1, Uniform Delay [s]	38.84	38.80	45.09	58.57	53.32	24.05	20.11	20.11	18.14
k, delay calibration	0.11	0.11	0.50	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.94	0.92	457.66	22.22	8.35	0.05	1.64	1.64	0.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.51	2.00	0.70	0.80	0.12	0.44	0.44	0.27
d, Delay for Lane Group [s/veh]	39.78	39.72	502.74	80.79	61.67	24.10	21.75	21.75	18.95
Lane Group LOS	D	D	F	F	E	C	C	C	B
Critical Lane Group	No	No	Yes	Yes	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.91	5.90	61.65	0.94	4.58	1.23	7.27	7.27	3.74
50th-Percentile Queue Length [ft/ln]	147.77	147.56	1541.17	23.47	114.44	30.64	181.84	181.84	93.47
95th-Percentile Queue Length [veh/ln]	9.90	9.89	97.29	1.69	8.09	2.21	11.70	11.70	6.73
95th-Percentile Queue Length [ft/ln]	247.46	247.17	2432.22	42.25	202.17	55.15	292.42	292.42	168.25

Movement, Approach, & Intersection Results

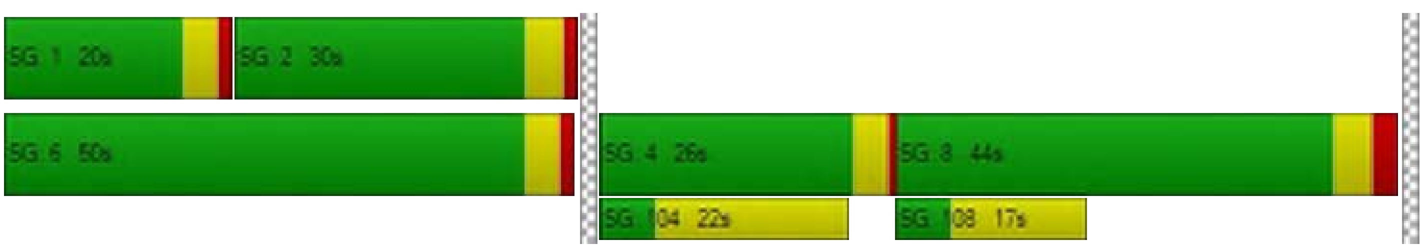
d_M, Delay for Movement [s/veh]	39.75	39.72	502.74	80.79	80.79	80.79	61.67	61.67	24.10	21.75	18.95	18.95
Movement LOS	D	D	F	F	F	F	E	E	C	C	B	B
d_A, Approach Delay [s/veh]	332.75			80.79			43.58			21.13		
Approach LOS	F			F			D			C		
d_I, Intersection Delay [s/veh]	177.89											
Intersection LOS	F											
Intersection V/C	0.893											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	1.767	2.491	0.000
Crosswalk LOS	F	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	425	372	263	642
d_b, Bicycle Delay [s]	37.21	39.79	45.24	27.68
I_b,int, Bicycle LOS Score for Intersection	3.609	1.599	2.008	2.367
Bicycle LOS	D	A	B	B

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Foster City Blvd and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	67.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.763

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	510.00	100.00	100.00	80.00	100.00	180.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		30.00			35.00			30.00			25.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No			No	
Crosswalk		No			Yes			No			Yes	

Volumes

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	819	893	194	3	299	67	322	61	480	19	25	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	819	893	194	3	299	67	322	61	480	19	25	4
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	209	228	49	1	76	17	82	16	122	5	6	1
Total Analysis Volume [veh/h]	836	911	198	3	305	68	329	62	490	19	26	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	30.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	3	3	3	0	1	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	4	4	4	0	4	4	0
Maximum Green [s]	55	65	0	20	35	30	30	30	0	55	35	0
Amber [s]	3.5	3.6	0.0	3.1	3.9	3.2	3.2	3.2	0.0	3.5	3.1	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0	1.0	0.5	0.0
Split [s]	40	45	0	16	21	27	27	27	0	40	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	0	4	0
Pedestrian Clearance [s]	0	23	0	0	0	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.6	0.0	1.6	2.9	1.7	1.7	1.7	0.0	2.5	1.6	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	Yes	Yes		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.60	4.60	3.60	4.90	3.70	3.70	3.70	3.70	3.60	3.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.60	2.60	1.60	2.90	0.00	1.70	1.70	1.70	1.60	1.60
g_i, Effective Green Time [s]	61	74	74	0	13	44	27	27	27	3	3
g / C, Green / Cycle	0.51	0.62	0.62	0.00	0.11	0.37	0.22	0.22	0.22	0.03	0.03
(v / s)_i Volume / Saturation Flow Rate	0.24	0.30	0.32	0.00	0.09	0.04	0.11	0.11	0.34	0.01	0.02
s, saturation flow rate [veh/h]	3439	1859	1749	1771	3540	1581	1771	1798	1438	1771	1817
c, Capacity [veh/h]	1741	1150	1081	6	373	582	393	399	319	49	50
d1, Uniform Delay [s]	19.34	12.46	12.81	59.72	52.56	25.03	40.79	40.79	46.68	57.38	57.71
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.95	1.45	1.74	59.46	4.45	0.09	0.96	0.95	255.72	5.06	11.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.48	0.51	0.53	0.82	0.12	0.49	0.49	1.53	0.39	0.60
d, Delay for Lane Group [s/veh]	20.29	13.91	14.54	119.18	57.01	25.12	41.75	41.73	302.41	62.44	68.86
Lane Group LOS	C	B	B	F	E	C	D	D	F	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	7.74	8.25	8.52	0.18	4.69	1.29	5.12	5.20	32.14	0.64	1.06
50th-Percentile Queue Length [ft/ln]	193.43	206.32	213.11	4.61	117.22	32.22	128.10	129.99	803.44	16.00	26.55
95th-Percentile Queue Length [veh/ln]	12.30	12.96	13.31	0.33	8.24	2.32	8.84	8.94	50.12	1.15	1.91
95th-Percentile Queue Length [ft/ln]	307.47	324.10	332.82	8.30	205.99	58.00	220.91	223.48	1252.95	28.79	47.79

Movement, Approach, & Intersection Results

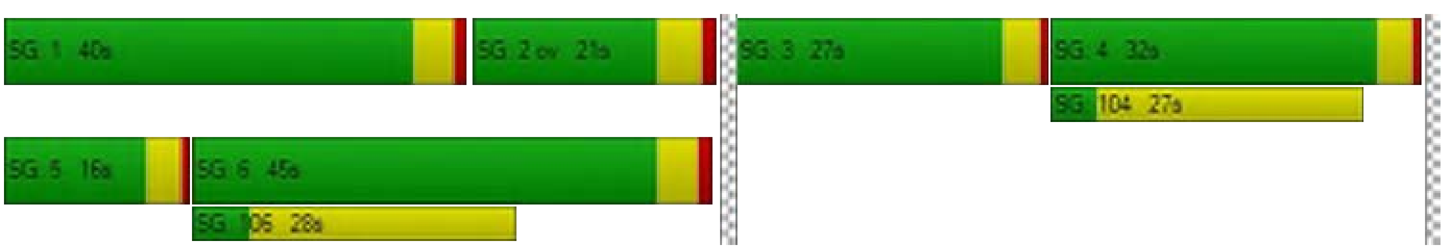
d_M, Delay for Movement [s/veh]	20.29	14.16	14.54	119.18	57.01	25.12	41.74	41.73	302.41	62.44	68.86	68.86
Movement LOS	C	B	B	F	E	C	D	D	F	E	E	E
d_A, Approach Delay [s/veh]		16.83			51.74			186.72			66.37	
Approach LOS		B			D			F			E	
d_I, Intersection Delay [s/veh]						67.66						
Intersection LOS						E						
Intersection V/C						0.763						

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	52.27	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.776	0.000	2.210
Crosswalk LOS	F	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	673	268	388	473
d_b, Bicycle Delay [s]	26.40	44.98	38.96	34.96
I_b,int, Bicycle LOS Score for Intersection	3.164	1.870	2.286	1.640
Bicycle LOS	C	A	B	A

Sequence

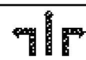
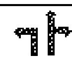
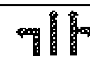
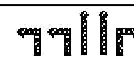
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Metro Center Blvd and Shell Blvd

Control Type:	Signalized	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.388

Intersection Setup

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	2	0	1
Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	85.00	100.00	100.00	210.00	100.00	200.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	240	26	68	3	4	9	5	87	54	166	422	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	240	26	68	3	4	9	5	87	54	166	422	41
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	7	17	1	1	2	1	22	14	42	108	10
Total Analysis Volume [veh/h]	245	27	69	3	4	9	5	89	55	169	431	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	16			7			16			6		
v_di, Inbound Pedestrian Volume crossing m	16			6			16			7		
v_co, Outbound Pedestrian Volume crossing	16			4			4			16		
v_ci, Inbound Pedestrian Volume crossing mi	16			4			4			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	6	6	0
Maximum Green [s]	40	60	0	20	35	0	20	40	0	20	40	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	28	0	0	20	0	0	21	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.5	0.0	1.5	2.5	0.0	1.5	2.5	0.0	2.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	40	40	40	40	40	40	40	40	40	40	40
L, Total Lost Time per Cycle [s]	3.50	4.50	4.50	3.50	4.50	3.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.50	2.50	1.50	2.50	1.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	8	10	10	0	2	0	9	9	5	15	15
g / C, Green / Cycle	0.19	0.24	0.24	0.00	0.05	0.01	0.21	0.21	0.13	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.14	0.01	0.05	0.00	0.01	0.00	0.04	0.05	0.05	0.12	0.03
s, saturation flow rate [veh/h]	1761	1849	1508	1761	1589	1761	1849	1566	3420	3520	1543
c, Capacity [veh/h]	338	439	358	6	78	10	394	334	433	1264	554
d1, Uniform Delay [s]	15.39	11.97	12.34	20.19	18.50	20.13	13.08	13.15	16.28	9.50	8.56
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.96	0.06	0.26	52.39	0.99	35.32	0.23	0.31	0.57	0.16	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.06	0.19	0.50	0.17	0.51	0.19	0.21	0.39	0.34	0.08
d, Delay for Lane Group [s/veh]	18.36	12.03	12.59	72.58	19.49	55.44	13.30	13.46	16.85	9.66	8.62
Lane Group LOS	B	B	B	E	B	E	B	B	B	A	A
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.98	0.16	0.42	0.11	0.12	0.14	0.46	0.45	0.63	1.03	0.19
50th-Percentile Queue Length [ft/ln]	49.45	3.92	10.50	2.79	3.02	3.42	11.56	11.32	15.74	25.81	4.63
95th-Percentile Queue Length [veh/ln]	3.56	0.28	0.76	0.20	0.22	0.25	0.83	0.81	1.13	1.86	0.33
95th-Percentile Queue Length [ft/ln]	89.01	7.05	18.90	5.03	5.43	6.16	20.81	20.37	28.33	46.46	8.34

Movement, Approach, & Intersection Results

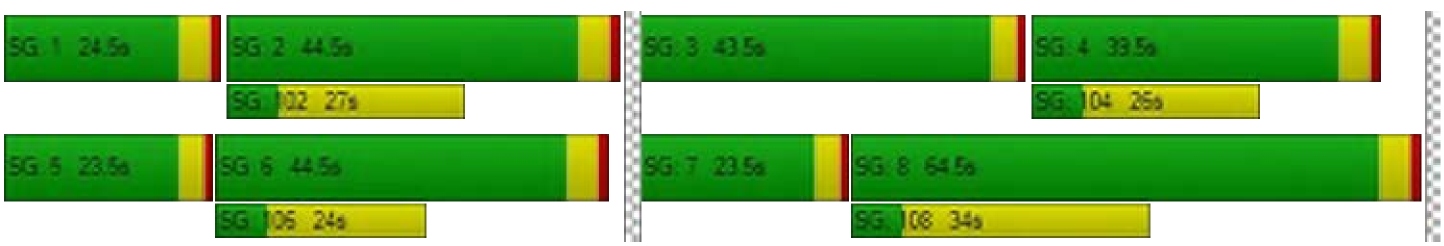
d_M, Delay for Movement [s/veh]	18.36	12.03	12.59	72.58	19.49	19.49	55.44	13.33	13.46	16.85	9.66	8.62
Movement LOS	B	B	B	E	B	B	E	B	B	B	A	A
d_A, Approach Delay [s/veh]	16.69			29.44			14.79			11.48		
Approach LOS	B			C			B			B		
d_I, Intersection Delay [s/veh]	13.71											
Intersection LOS	B											
Intersection V/C	0.388											

Other Modes

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	297.88	639.56	1297.19	317.34
d_p, Pedestrian Delay [s]	35.56	35.56	35.56	35.56
I_p,int, Pedestrian LOS Score for Intersection	2.430	1.975	2.490	2.725
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	778	889	889
d_b, Bicycle Delay [s]	5.00	16.81	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.122	1.586	1.683	2.089
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Metro Center Blvd and Route 92 East Ramp

Control Type:	Signalized	Delay (sec / veh):	23.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.442

Intersection Setup

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	2	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	600.00	100.00	640.00	290.00	100.00	100.00	90.00	100.00	100.00
Speed [mph]	15.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	2	2	21	942	48	441	61	123	4	37	177	196
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	2	21	942	48	441	61	123	4	37	177	196
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	5	243	12	114	16	32	1	10	46	51
Total Analysis Volume [veh/h]	2	2	22	971	49	455	63	127	4	38	182	202
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	50.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	10	4	4	4	0	4	4	0
Maximum Green [s]	0	40	0	0	60	30	30	40	0	25	35	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	3.1	3.1	3.5	0.0	3.1	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.5	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	18	0	0	56	18	18	30	0	16	28	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	6	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	17	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	3.0	1.6	1.6	2.5	0.0	1.6	2.5	0.0
Minimum Recall		No			No	No	No	No		No	No	
Maximum Recall		No			Yes	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.20	4.20	5.00	5.00	3.60	3.60	4.50	4.50	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	3.00	3.00	0.00	1.60	2.50	2.50	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	2	2	80	80	93	8	17	17	3	12	12	12
g / C, Green / Cycle	0.02	0.02	0.66	0.66	0.77	0.07	0.15	0.15	0.03	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.29	0.29	0.16	0.02	0.04	0.04	0.02	0.07	0.08	0.08
s, saturation flow rate [veh/h]	1811	1578	1768	1776	2793	3434	1856	1837	1768	1856	1669	1578
c, Capacity [veh/h]	36	31	1171	1177	2163	241	271	268	49	192	173	164
d1, Uniform Delay [s]	57.82	58.51	9.61	9.59	3.65	52.88	45.39	45.40	57.99	52.05	52.19	52.26
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.38	25.60	1.18	1.16	0.22	0.57	0.46	0.47	22.25	4.71	5.83	6.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.71	0.44	0.43	0.21	0.26	0.24	0.24	0.77	0.71	0.73	0.74
d, Delay for Lane Group [s/veh]	59.20	84.11	10.79	10.76	3.88	53.45	45.84	45.86	80.24	56.76	58.01	58.76
Lane Group LOS	E	F	B	B	A	D	D	D	F	E	E	E
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.14	0.90	6.20	6.19	1.26	0.91	1.76	1.76	1.45	4.22	3.97	3.85
50th-Percentile Queue Length [ft/ln]	3.40	22.52	155.03	154.69	31.60	22.87	44.03	43.88	36.26	105.4	99.35	96.27
95th-Percentile Queue Length [veh/ln]	0.24	1.62	10.29	10.27	2.28	1.65	3.17	3.16	2.61	7.59	7.15	6.93
95th-Percentile Queue Length [ft/ln]	6.11	40.53	257.13	256.67	56.89	41.16	79.25	78.99	65.27	189.6	178.8	173.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.20	59.20	84.11	10.77	10.76	3.88	53.45	45.85	45.86	80.24	57.08	58.48
Movement LOS	E	E	F	B	B	A	D	D	D	F	E	E
d_A, Approach Delay [s/veh]	80.28			8.65			48.32			59.83		
Approach LOS	F			A			D			E		
d_I, Intersection Delay [s/veh]	23.36											
Intersection LOS	C											
Intersection V/C	0.442											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	51.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	19.84	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.706	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	230	850	425	392
d_b, Bicycle Delay [s]	46.99	19.84	37.21	38.80
I_b,int, Bicycle LOS Score for Intersection	1.603	3.993	1.720	1.908
Bicycle LOS	A	D	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Foster City Blvd and Metro Center Blvd

Control Type:	Signalized	Delay (sec / veh):	84.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.798

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	230.00	100.00	100.00	210.00	100.00	100.00	150.00	100.00	240.00	50.00	100.00	170.00
Speed [mph]	35.00			35.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	131	955	66	137	467	194	457	183	446	52	85	494
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	955	66	137	467	194	457	183	446	52	85	494
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	239	17	34	117	49	114	46	112	13	21	124
Total Analysis Volume [veh/h]	131	955	66	137	467	194	457	183	446	52	85	494
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	7			0			0			8		
v_di, Inbound Pedestrian Volume crossing m	8			0			0			7		
v_co, Outbound Pedestrian Volume crossing	4			0			4			0		
v_ci, Inbound Pedestrian Volume crossing mi	4			0			4			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	103.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	5	4	1	1	3	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	4	4	6	0
Maximum Green [s]	30	40	0	25	40	0	25	40	30	30	30	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.2	3.1	3.1	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0
Split [s]	17	38	0	19	40	0	19	38	17	17	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.2	1.6	1.6	1.7	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	Yes		No	Yes			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	4.20	4.20	3.60	3.70	3.70	3.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	2.20	2.20	0.00	1.70	1.70	1.70
g_i, Effective Green Time [s]	13	49	49	11	47	47	23	23	40	21	21	21
g / C, Green / Cycle	0.11	0.41	0.41	0.09	0.39	0.39	0.19	0.19	0.34	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.07	0.19	0.19	0.08	0.09	0.07	0.13	0.05	0.16	0.03	0.05	0.31
s, saturation flow rate [veh/h]	1777	3552	1800	1777	5082	2807	3450	3552	2807	1777	1865	1586
c, Capacity [veh/h]	198	1445	732	165	1971	1089	651	671	942	315	331	281
d1, Uniform Delay [s]	51.12	26.08	26.10	53.52	24.76	24.15	45.51	41.63	31.50	41.81	42.53	49.35
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.72	1.09	2.16	10.29	0.28	0.36	1.39	0.22	0.37	0.24	0.41	354.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.47	0.47	0.83	0.24	0.18	0.70	0.27	0.47	0.16	0.26	1.76
d, Delay for Lane Group [s/veh]	54.84	27.17	28.27	63.80	25.04	24.51	46.90	41.84	31.87	42.06	42.93	403.44
Lane Group LOS	D	C	C	E	C	C	D	D	C	D	D	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.95	7.18	7.52	4.50	3.01	1.85	6.43	2.33	5.10	1.35	2.24	36.16
50th-Percentile Queue Length [ft/ln]	98.82	179.39	188.12	112.48	75.35	46.37	160.79	58.25	127.50	33.69	56.06	903.89
95th-Percentile Queue Length [veh/ln]	7.12	11.57	12.02	7.98	5.43	3.34	10.59	4.19	8.80	2.43	4.04	56.78
95th-Percentile Queue Length [ft/ln]	177.88	289.22	300.58	199.45	135.63	83.47	264.77	104.85	220.09	60.64	100.90	1419.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.84	27.49	28.27	63.80	25.04	24.51	46.90	41.84	31.87	42.06	42.93	403.44
Movement LOS	D	C	C	E	C	C	D	D	C	D	D	F
d_A, Approach Delay [s/veh]	30.64			31.57			39.88			325.10		
Approach LOS	C			C			D			F		
d_I, Intersection Delay [s/veh]	84.25											
Intersection LOS	F											
Intersection V/C	0.798											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	177.72	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.953	0.000	0.000	2.480
Crosswalk LOS	C	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	557	590	563	355
d_b, Bicycle Delay [s]	31.25	29.82	30.96	40.59
I_b,int, Bicycle LOS Score for Intersection	2.193	1.999	2.456	2.601
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Shell Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.503

Intersection Setup

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	210.00	100.00	100.00	160.00	100.00	160.00	245.00	100.00	100.00	135.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	352	181	168	42	64	40	91	555	165	54	912	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	352	181	168	42	64	40	91	555	165	54	912	77
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	90	46	43	11	16	10	23	142	42	14	233	20
Total Analysis Volume [veh/h]	359	185	171	43	65	41	93	566	168	55	931	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	17			27			27			17		
v_di, Inbound Pedestrian Volume crossing m	17			27			27			17		
v_co, Outbound Pedestrian Volume crossing	29			12			28			11		
v_ci, Inbound Pedestrian Volume crossing mi	28			11			29			12		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	73.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	4	6	0
Maximum Green [s]	25	50	0	30	40	0	30	55	0	25	45	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.0	3.6	0.0	3.1	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0	0.5	1.0	0.0
Split [s]	20	42	0	14	36	0	23	50	0	14	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.1	2.6	0.0	1.6	2.6	0.0	2.0	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.10	4.60	4.60	3.60	4.60	4.60	4.00	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.10	2.60	2.60	1.60	2.60	2.60	2.00	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	15	23	23	4	11	11	8	72	72	5	69	69
g / C, Green / Cycle	0.12	0.19	0.19	0.03	0.09	0.09	0.07	0.60	0.60	0.04	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.10	0.10	0.12	0.02	0.02	0.03	0.05	0.16	0.11	0.03	0.26	0.05
s, saturation flow rate [veh/h]	3464	1873	1487	1784	3566	1305	1784	3566	1528	1784	3566	1573
c, Capacity [veh/h]	420	353	280	57	340	124	119	2148	921	72	2042	901
d1, Uniform Delay [s]	51.75	43.88	44.30	57.65	50.07	50.45	55.18	11.28	10.61	57.06	14.84	11.54
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.09	1.21	2.14	17.75	0.27	1.53	10.48	0.30	0.44	15.17	0.74	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.52	0.61	0.75	0.19	0.33	0.78	0.26	0.18	0.76	0.46	0.09
d, Delay for Lane Group [s/veh]	56.84	45.09	46.45	75.40	50.34	51.98	65.66	11.58	11.05	72.23	15.57	11.73
Lane Group LOS	E	D	D	E	D	D	E	B	B	E	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.59	5.08	4.80	1.58	0.92	1.20	3.12	3.57	2.06	1.96	7.35	0.99
50th-Percentile Queue Length [ft/ln]	139.74	127.09	120.03	39.44	22.91	30.04	77.96	89.26	51.38	48.92	183.78	24.76
95th-Percentile Queue Length [veh/ln]	9.47	8.78	8.39	2.84	1.65	2.16	5.61	6.43	3.70	3.52	11.80	1.78
95th-Percentile Queue Length [ft/ln]	236.68	219.53	209.86	71.00	41.24	54.08	140.32	160.66	92.48	88.05	294.94	44.57

Movement, Approach, & Intersection Results

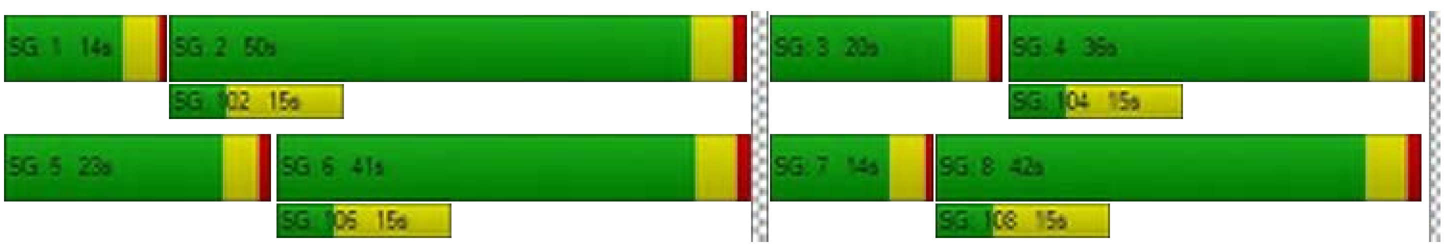
d_M, Delay for Movement [s/veh]	56.84	45.09	46.45	75.40	50.34	51.98	65.66	11.58	11.05	72.23	15.57	11.73
Movement LOS	E	D	D	E	D	D	E	B	B	E	B	B
d_A, Approach Delay [s/veh]		51.31			58.02			17.56			18.21	
Approach LOS		D			E			B			B	
d_I, Intersection Delay [s/veh]	28.76											
Intersection LOS	C											
Intersection V/C	0.503											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	83.28	265.90	127.62	153.12
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.631	2.550	2.910	2.866
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	623	523	757	607
d_b, Bicycle Delay [s]	28.44	32.72	23.20	29.12
I_b,int, Bicycle LOS Score for Intersection	2.739	1.683	2.242	2.438
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Foster City Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	38.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.647

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	0	1	0	0	1	0	1
Pocket Length [ft]	260.00	100.00	410.00	210.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	341	727	51	255	470	310	249	305	206	69	452	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	341	727	51	255	470	310	249	305	206	69	452	165
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	189	13	66	122	81	65	79	54	18	118	43
Total Analysis Volume [veh/h]	355	757	53	266	490	323	259	318	215	72	471	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			18			12			18		
v_di, Inbound Pedestrian Volume crossing m	12			18			12			18		
v_co, Outbound Pedestrian Volume crossing	8			4			4			8		
v_ci, Inbound Pedestrian Volume crossing mi	8			4			4			8		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			2			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	35	50	0	30	40	0	30	40	0	30	40	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	27	44	0	18	35	0	30	42	0	16	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	25	0	0	25	0	0	27	0	0	27	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	15	48	48	12	44	44	20	38	38	6	24	24
g / C, Green / Cycle	0.13	0.40	0.40	0.10	0.37	0.37	0.16	0.31	0.31	0.05	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.10	0.15	0.15	0.08	0.14	0.20	0.14	0.09	0.14	0.04	0.13	0.12
s, saturation flow rate [veh/h]	3475	3578	1812	3475	3578	1587	1790	3578	1540	1790	3578	1493
c, Capacity [veh/h]	444	1429	724	342	1324	587	292	1119	481	95	725	303
d1, Uniform Delay [s]	50.86	25.47	25.49	52.84	27.60	29.86	49.17	31.12	32.76	56.10	43.95	42.77
k, delay calibration	0.11	0.50	0.50	0.11	0.11	0.17	0.15	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.37	0.76	1.50	3.84	0.17	1.23	11.70	0.14	0.65	11.77	0.99	1.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.38	0.38	0.78	0.37	0.55	0.89	0.28	0.45	0.76	0.65	0.57
d, Delay for Lane Group [s/veh]	54.24	26.23	26.99	56.67	27.77	31.09	60.87	31.26	33.41	67.87	44.94	44.45
Lane Group LOS	D	C	C	E	C	C	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.30	5.42	5.66	4.06	5.11	7.44	8.46	3.48	5.01	2.45	6.47	4.67
50th-Percentile Queue Length [ft/ln]	132.45	135.47	141.58	101.59	127.70	186.03	211.46	86.95	125.19	61.13	161.66	116.66
95th-Percentile Queue Length [veh/ln]	9.07	9.24	9.57	7.31	8.81	11.91	13.23	6.26	8.68	4.40	10.64	8.21
95th-Percentile Queue Length [ft/ln]	226.82	230.91	239.15	182.87	220.36	297.87	330.70	156.50	216.94	110.03	265.91	205.22

Movement, Approach, & Intersection Results

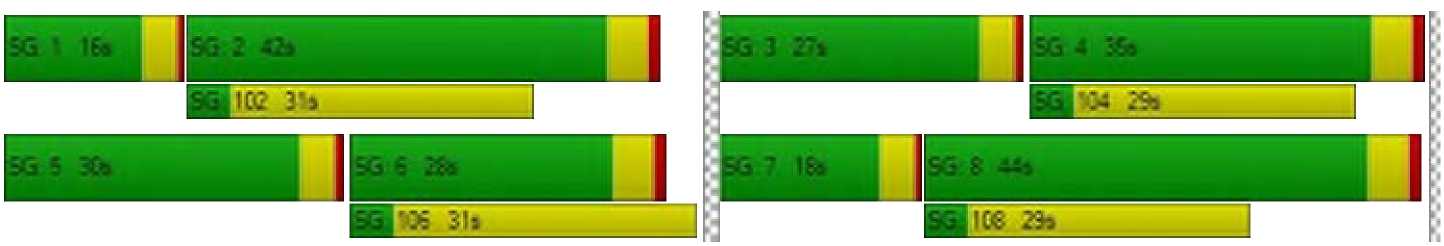
d_M, Delay for Movement [s/veh]	54.24	26.45	26.99	56.67	27.77	31.09	60.87	31.26	33.41	67.87	44.94	44.45
Movement LOS	D	C	C	E	C	C	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	34.94			35.89			41.53			47.13		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	38.93											
Intersection LOS	D											
Intersection V/C	0.647											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	158.57	131.30	298.76	356.42
d_p, Pedestrian Delay [s]	52.27	52.27	52.27	52.27
I_p,int, Pedestrian LOS Score for Intersection	2.971	3.064	2.925	2.725
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	657	507	623	390
d_b, Bicycle Delay [s]	27.07	33.45	28.46	38.90
I_b,int, Bicycle LOS Score for Intersection	2.200	2.450	2.213	2.149
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Metro Center Blvd and Vintage Park Dr

Control Type:	Signalized	Delay (sec / veh):	26.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.523

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	150.00	100.00	100.00	250.00	100.00	390.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	15	51	14	78	113	99	161	210	83	89	140	361
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	51	14	78	113	99	161	210	83	89	140	361
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	14	4	22	31	28	45	58	23	25	39	100
Total Analysis Volume [veh/h]	17	57	16	87	126	110	179	233	92	99	156	401
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	70			33			70			33		
v_di, Inbound Pedestrian Volume crossing m	70			33			70			33		
v_co, Outbound Pedestrian Volume crossing	67			57			57			68		
v_ci, Inbound Pedestrian Volume crossing mi	68			57			57			67		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	5	6	0
Maximum Green [s]	25	40	0	30	45	0	30	40	0	25	40	0
Amber [s]	3.0	3.2	0.0	3.0	3.2	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	22	0	0	22	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.2	0.0	1.5	1.7	0.0	1.5	2.5	0.0	1.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	77	77	77	77	77	77	77	77	77	77	77	77
L, Total Lost Time per Cycle [s]	3.50	4.20	4.20	3.50	3.70	3.70	3.50	4.50	4.50	3.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.20	2.20	1.50	1.70	1.70	1.50	2.50	2.50	1.50	2.50	2.50
g_i, Effective Green Time [s]	1	23	23	5	27	27	10	28	28	6	24	24
g / C, Green / Cycle	0.02	0.29	0.29	0.07	0.35	0.35	0.13	0.36	0.36	0.07	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.01	0.02	0.02	0.05	0.07	0.08	0.10	0.09	0.11	0.06	0.04	0.25
s, saturation flow rate [veh/h]	1769	1858	1601	1769	1858	1425	1769	1858	1464	1769	3538	1579
c, Capacity [veh/h]	28	548	472	115	651	499	225	675	532	131	1096	489
d1, Uniform Delay [s]	37.82	19.63	19.69	35.55	17.51	17.55	32.79	17.25	17.56	35.15	19.27	24.69
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.62	0.05	0.07	9.50	0.14	0.22	6.30	0.19	0.30	8.64	0.06	3.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.07	0.08	0.75	0.19	0.22	0.80	0.25	0.29	0.76	0.14	0.82
d, Delay for Lane Group [s/veh]	56.44	19.68	19.76	45.05	17.65	17.77	39.09	17.44	17.86	43.79	19.33	28.14
Lane Group LOS	E	B	B	D	B	B	D	B	B	D	B	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.46	0.47	0.46	1.87	1.52	1.34	3.50	1.99	1.89	2.07	0.96	6.75
50th-Percentile Queue Length [ft/ln]	11.48	11.66	11.57	46.87	37.97	33.41	87.55	49.82	47.23	51.75	24.06	168.75
95th-Percentile Queue Length [veh/ln]	0.83	0.84	0.83	3.37	2.73	2.41	6.30	3.59	3.40	3.73	1.73	11.01
95th-Percentile Queue Length [ft/ln]	20.67	20.99	20.83	84.37	68.34	60.14	157.59	89.67	85.02	93.16	43.31	275.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.44	19.71	19.76	45.05	17.65	17.77	39.09	17.56	17.86	43.79	19.33	28.14
Movement LOS	E	B	B	D	B	B	D	B	B	D	B	C
d_A, Approach Delay [s/veh]	26.65			25.07			25.26			28.41		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	26.61											
Intersection LOS	C											
Intersection V/C	0.523											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	49.74	36.63	65.08	69.32
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.232	2.489	2.480	2.642
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	1000	889	889
d_b, Bicycle Delay [s]	13.89	11.25	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	1.634	2.093	1.975	2.101
Bicycle LOS	A	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 10: Edgewater Blvd and Mariners Island Blvd

Control Type:	Signalized	Delay (sec / veh):	30.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.515

Intersection Setup

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	2	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	40.00	400.00	100.00	400.00	190.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	5	2	7	627	2	473	89	302	4	8	746	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	2	7	627	2	473	89	302	4	8	746	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	2	163	1	123	23	79	1	2	194	14
Total Analysis Volume [veh/h]	5	2	7	653	2	493	93	315	4	8	777	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			1		
v_di, Inbound Pedestrian Volume crossing m	1			0			0			0		
v_co, Outbound Pedestrian Volume crossing	3			3			2			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			2			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	84.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups							4,5					
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	6	0	4	6	0	4	6	0
Maximum Green [s]	0	40	0	0	60	0	30	65	0	20	50	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	0.0	3.1	4.0	0.0	3.1	4.0	0.0
All red [s]	0.0	0.5	0.0	0.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	38	0	0	30	0	17	47	0	15	45	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	18	0	0	25	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	3.0	0.0	1.6	3.0	0.0	1.6	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			Yes		No	No		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.70	3.70	5.00	5.00	5.00	4.30	5.00	5.00	3.60	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	3.00	3.00	3.00	0.00	3.00	3.00	1.60	3.00	3.00
g_i, Effective Green Time [s]	2	2	54	54	54	66	56	56	1	50	50
g / C, Green / Cycle	0.02	0.02	0.41	0.41	0.41	0.50	0.43	0.43	0.01	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.22	0.24	0.17	0.06	0.09	0.09	0.00	0.22	0.03
s, saturation flow rate [veh/h]	1811	1568	1422	1438	2822	1470	1876	1866	1787	3572	1584
c, Capacity [veh/h]	33	28	617	647	1162	485	805	801	15	1371	608
d1, Uniform Delay [s]	63.05	63.09	28.89	29.36	27.31	17.24	23.21	23.22	64.34	31.60	25.61
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.21	4.45	2.90	3.14	1.14	0.88	0.12	0.12	26.52	1.70	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.25	0.50	0.53	0.42	0.19	0.20	0.20	0.53	0.57	0.09
d, Delay for Lane Group [s/veh]	66.26	67.53	31.79	32.50	28.45	18.11	23.33	23.34	90.87	33.30	25.90
Lane Group LOS	E	E	C	C	C	B	C	C	F	C	C
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.26	0.26	7.77	8.87	5.67	1.57	3.09	3.08	0.37	9.83	1.14
50th-Percentile Queue Length [ft/ln]	6.46	6.61	194.25	221.66	141.63	39.32	77.18	76.97	9.33	245.78	28.51
95th-Percentile Queue Length [veh/ln]	0.47	0.48	12.34	13.75	9.57	2.83	5.56	5.54	0.67	14.97	2.05
95th-Percentile Queue Length [ft/ln]	11.63	11.90	308.54	343.75	239.21	70.78	138.93	138.55	16.80	374.33	51.32

Movement, Approach, & Intersection Results

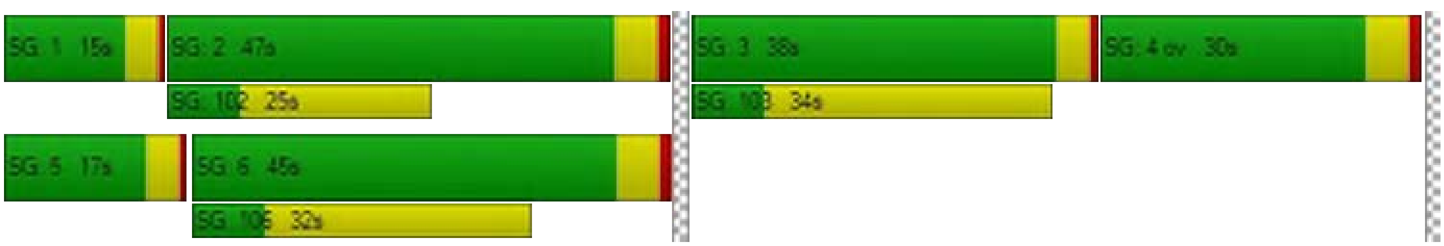
d_M, Delay for Movement [s/veh]	66.26	66.26	67.53	32.16	32.50	28.45	18.11	23.33	23.34	90.87	33.30	25.90
Movement LOS	E	E	E	C	C	C	B	C	C	F	C	C
d_A, Approach Delay [s/veh]	66.90			30.57			22.16			33.36		
Approach LOS	E			C			C			C		
d_I, Intersection Delay [s/veh]	30.32											
Intersection LOS	C											
Intersection V/C	0.515											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	1119.77	0.00	0.00
d_p, Pedestrian Delay [s]	54.47	54.47	0.00	54.47
I_p,int, Pedestrian LOS Score for Intersection	1.967	2.689	0.000	3.769
Crosswalk LOS	A	B	F	D
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	528	385	646	615
d_b, Bicycle Delay [s]	35.22	42.40	29.83	31.15
I_b,int, Bicycle LOS Score for Intersection	1.583	3.454	1.900	2.253
Bicycle LOS	A	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 11: Metro Center Blvd and Edgewater Blvd

Control Type:	Signalized	Delay (sec / veh):	44.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.485

Intersection Setup

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	2	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	50.00	270.00	100.00	100.00	370.00	100.00	100.00	180.00	100.00	50.00
Speed [mph]	25.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	24	18	8	90	9	85	562	372	6	8	728	303
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	18	8	90	9	85	562	372	6	8	728	303
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	5	2	24	2	22	148	98	2	2	192	80
Total Analysis Volume [veh/h]	25	19	8	95	9	89	592	392	6	8	766	319
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			4			2			3		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			4		
v_co, Outbound Pedestrian Volume crossing	5			3			3			6		
v_ci, Inbound Pedestrian Volume crossing mi	6			3			3			5		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	102.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	8	0	4	8	0
Maximum Green [s]	0	40	0	0	35	0	40	60	0	20	45	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.1	3.9	0.0	3.1	3.9	0.0
All red [s]	0.0	0.5	0.0	0.0	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	27	0	0	37	0	26	52	0	14	40	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	22	0	0	28	0	0	14	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	1.7	0.0	1.6	2.9	0.0	1.6	2.9	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		Yes	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	200	200	200	200	200	200	200	200	200	200	200
L, Total Lost Time per Cycle [s]	3.70	3.70	3.70	3.70	3.70	3.60	4.90	4.90	3.60	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	1.70	1.70	1.70	1.60	2.90	2.90	1.60	2.90	2.90
g_i, Effective Green Time [s]	12	12	17	17	17	78	154	154	1	77	77
g / C, Green / Cycle	0.06	0.06	0.08	0.08	0.08	0.39	0.77	0.77	0.01	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.02	0.01	0.03	0.03	0.06	0.17	0.11	0.11	0.00	0.15	0.20
s, saturation flow rate [veh/h]	1823	1506	1785	1800	1536	3467	1874	1863	1785	5106	1573
c, Capacity [veh/h]	109	90	148	149	127	1359	1444	1435	13	1969	607
d1, Uniform Delay [s]	90.47	88.73	86.58	86.57	89.04	44.54	5.91	5.91	98.86	44.37	47.15
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.37	0.42	1.42	1.40	6.80	1.02	0.20	0.20	35.77	0.58	3.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.09	0.35	0.35	0.70	0.44	0.14	0.14	0.60	0.39	0.53
d, Delay for Lane Group [s/veh]	92.85	89.15	88.00	87.97	95.83	45.56	6.11	6.11	134.63	44.95	50.39
Lane Group LOS	F	F	F	F	F	D	A	A	F	D	D
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.31	0.41	2.61	2.63	4.75	11.13	2.23	2.22	0.55	9.42	12.91
50th-Percentile Queue Length [ft/ln]	57.65	10.22	65.31	65.64	118.69	278.21	55.76	55.48	13.78	235.42	322.72
95th-Percentile Queue Length [veh/ln]	4.15	0.74	4.70	4.73	8.32	16.60	4.01	3.99	0.99	14.45	18.80
95th-Percentile Queue Length [ft/ln]	103.77	18.40	117.55	118.15	208.03	414.99	100.36	99.86	24.80	361.24	470.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	92.85	92.85	89.15	87.98	87.97	95.83	45.56	6.11	6.11	134.63	44.95	50.39
Movement LOS	F	F	F	F	F	F	D	A	A	F	D	D
d_A, Approach Delay [s/veh]	92.28			91.60			29.70			47.19		
Approach LOS	F			F			C			D		
d_I, Intersection Delay [s/veh]	44.44											
Intersection LOS	D											
Intersection V/C	0.485											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
I_p,int, Pedestrian LOS Score for Intersection	1.979	2.574	2.917	2.970
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	358	512	725	540
d_b, Bicycle Delay [s]	43.79	35.98	26.47	34.66
I_b,int, Bicycle LOS Score for Intersection	1.645	1.878	2.376	2.161
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 12: Edgewater Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.621

Intersection Setup

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	2	0	1	1	0	1
Pocket Length [ft]	190.00	100.00	190.00	310.00	100.00	110.00	406.00	100.00	75.00	310.00	100.00	230.00
Speed [mph]	40.00			35.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	404	589	108	126	213	132	382	633	122	112	889	149
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	404	589	108	126	213	132	382	633	122	112	889	149
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	104	152	28	32	55	34	98	163	31	29	229	38
Total Analysis Volume [veh/h]	416	607	111	130	220	136	394	653	126	115	916	154
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			3			3			11		
v_di, Inbound Pedestrian Volume crossing m	11			3			3			10		
v_co, Outbound Pedestrian Volume crossing	6			10			6			10		
v_ci, Inbound Pedestrian Volume crossing mi	6			10			6			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	4	6	0	4	6	0
Maximum Green [s]	30	60	0	20	50	0	30	45	0	30	50	0
Amber [s]	3.5	4.0	0.0	3.5	3.9	0.0	3.0	4.0	0.0	3.5	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	30	0	0	34	0	0	31	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	2.0	2.9	0.0	2.0	3.0	0.0	2.0	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	82	82	82	82	82	82	82	82	82	82	82	82
L, Total Lost Time per Cycle [s]	4.50	5.00	5.00	4.00	4.90	4.90	4.00	5.00	5.00	4.00	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	3.00	3.00	2.00	2.90	2.90	2.00	3.00	3.00	2.00	2.60	2.60
g_i, Effective Green Time [s]	13	23	23	6	15	15	12	29	29	7	24	24
g / C, Green / Cycle	0.16	0.28	0.28	0.07	0.18	0.18	0.15	0.35	0.35	0.09	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.12	0.20	0.20	0.04	0.06	0.09	0.11	0.13	0.08	0.06	0.18	0.10
s, saturation flow rate [veh/h]	3467	1874	1751	3467	3569	1551	3467	5106	1555	1785	5106	1540
c, Capacity [veh/h]	553	520	486	240	651	283	512	1783	543	153	1491	450
d1, Uniform Delay [s]	33.05	26.76	26.85	37.06	29.34	30.10	33.76	20.00	18.94	36.81	25.16	22.85
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.09	1.79	2.01	1.89	0.30	1.27	2.49	0.13	0.22	7.31	0.41	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.71	0.72	0.54	0.34	0.48	0.77	0.37	0.23	0.75	0.61	0.34
d, Delay for Lane Group [s/veh]	35.14	28.55	28.87	38.96	29.64	31.37	36.25	20.13	19.16	44.12	25.57	23.30
Lane Group LOS	D	C	C	D	C	C	D	C	B	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.91	6.29	6.02	1.29	1.85	2.41	3.76	2.90	1.61	2.49	4.91	2.28
50th-Percentile Queue Length [ft/ln]	97.67	157.36	150.41	32.19	46.26	60.29	94.01	72.40	40.22	62.34	122.85	57.03
95th-Percentile Queue Length [veh/ln]	7.03	10.41	10.04	2.32	3.33	4.34	6.77	5.21	2.90	4.49	8.55	4.11
95th-Percentile Queue Length [ft/ln]	175.80	260.22	250.97	57.94	83.27	108.52	169.21	130.33	72.40	112.21	213.73	102.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.14	28.67	28.87	38.96	29.64	31.37	36.25	20.13	19.16	44.12	25.57	23.30
Movement LOS	D	C	C	D	C	C	D	C	B	D	C	C
d_A, Approach Delay [s/veh]	31.07			32.62			25.44			27.08		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	28.41											
Intersection LOS	C											
Intersection V/C	0.621											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	565.05	360.36	1284.87	367.19
d_p, Pedestrian Delay [s]	37.36	37.36	37.36	37.36
I_p,int, Pedestrian LOS Score for Intersection	2.801	2.961	3.233	3.024
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	1111	1000	1111
d_b, Bicycle Delay [s]	5.01	8.91	11.27	8.90
I_b,int, Bicycle LOS Score for Intersection	2.495	1.961	2.205	2.211
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 13: Center Park Ln and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	10.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.405

Intersection Setup

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	390.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Base Volume Input [veh/h]	62	29	151	741	1145	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.80	1.80	1.80	1.80	1.80	1.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	29	151	741	1145	54
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	8	39	193	298	14
Total Analysis Volume [veh/h]	65	30	157	772	1193	56
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		15	
v_di, Inbound Pedestrian Volume crossing m	0		0		14	
v_co, Outbound Pedestrian Volume crossing	5		14		5	
v_ci, Inbound Pedestrian Volume crossing mi	5		15		5	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	19.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	4	0	6	5	5	0
Maximum Green [s]	35	0	30	40	40	0
Amber [s]	3.5	0.0	3.1	3.5	3.5	0.0
All red [s]	0.5	0.0	0.5	1.0	1.0	0.0
Split [s]	31	0	36	89	53	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0
Pedestrian Clearance [s]	20	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	1.6	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	0.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	7	7	13	104	88	88
g / C, Green / Cycle	0.06	0.06	0.11	0.87	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate	0.04	0.02	0.09	0.15	0.23	0.23
s, saturation flow rate [veh/h]	1519	1592	1784	5102	3566	1822
c, Capacity [veh/h]	89	93	189	4442	2620	1338
d1, Uniform Delay [s]	55.50	54.14	52.54	1.18	5.50	5.47
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.94	1.97	9.11	0.09	0.32	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.32	0.83	0.17	0.32	0.31
d, Delay for Lane Group [s/veh]	66.43	56.11	61.65	1.27	5.82	6.07
Lane Group LOS	E	E	E	A	A	A
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.22	0.93	5.07	0.40	3.23	3.31
50th-Percentile Queue Length [ft/ln]	55.49	23.22	126.74	9.95	80.63	82.86
95th-Percentile Queue Length [veh/ln]	4.00	1.67	8.76	0.72	5.81	5.97
95th-Percentile Queue Length [ft/ln]	99.88	41.80	219.06	17.91	145.14	149.15

Movement, Approach, & Intersection Results

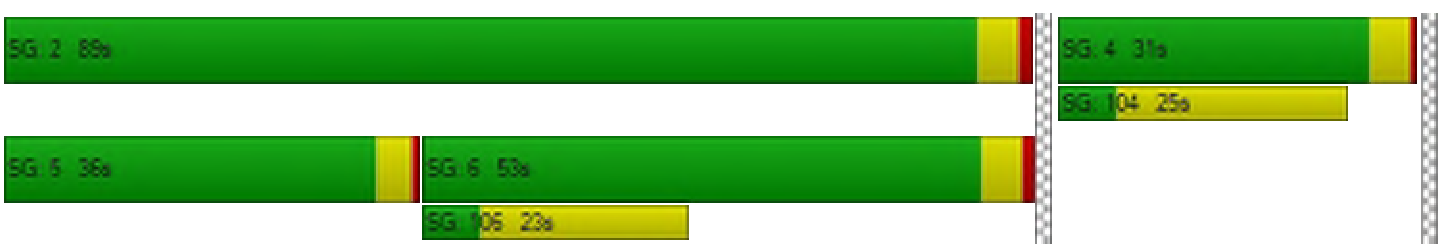
d_M, Delay for Movement [s/veh]	66.43	56.11	61.65	1.27	5.90	6.07
Movement LOS	E	E	E	A	A	A
d_A, Approach Delay [s/veh]	63.17		11.47		5.90	
Approach LOS	E		B		A	
d_I, Intersection Delay [s/veh]	10.57					
Intersection LOS	B					
Intersection V/C	0.405					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	488.82	0.00	251.53
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.039	0.000	2.864
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.643	4.819
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foster City Metro Center Hotel EIR

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Scenario 2 Existing AM

Report File: \...\Existing AM Report.pdf

12/10/2019

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Vintage Park Dr and Chess Dr	109	314	145	14	43	29	64	147	76	180	254	119	1494

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Chess Dr and Route 92 West Ramp	389	35	731	2	16	5	1	130	122	708	192	11	2342

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Foster City Blvd and Chess Dr	819	893	194	3	299	67	322	61	480	19	25	4	3186

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Metro Center Blvd and Shell Blvd	240	26	68	3	4	9	5	87	54	166	422	41	1125

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Metro Center Blvd and Route 92 East Ramp	2	2	21	942	48	441	61	123	4	37	177	196	2054

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foster City Blvd and Metro Center Blvd	131	955	66	137	467	194	457	183	446	52	85	494	3667

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Shell Blvd and E Hillsdale Blvd	352	181	168	42	64	40	91	555	165	54	912	77	2701

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	Foster City Blvd and E Hillsdale Blvd	341	727	51	255	470	310	249	305	206	69	452	165	3600

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	Metro Center Blvd and Vintage Park Dr	15	51	14	78	113	99	161	210	83	89	140	361	1414

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	Edgewater Blvd and Mariners Island Blvd	5	2	7	627	2	473	89	302	4	8	746	53	2318

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11	Metro Center Blvd and Edgewater Blvd	24	18	8	90	9	85	562	372	6	8	728	303	2213

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12	Edgewater Blvd and E Hillsdale Blvd	404	589	108	126	213	132	382	633	122	112	889	149	3859

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
13	Center Park Ln and E Hillsdale Blvd	62	29	151	741	1145	54	2182

Study Intersections

Foster City Metro Center Hotel EIR

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Report File: \...\Existing PM Report.pdf

Scenario 1 Existing PM

12/10/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Vintage Park Dr and Chess Dr	Signalized	HCM 6th Edition	EB Left	0.695	25.6	C
2	Chess Dr and Route 92 West Ramp	Signalized	HCM 6th Edition	SB Thru	0.663	32.5	C
3	Foster City Blvd and Chess Dr	Signalized	HCM 6th Edition	EB Right	0.970	115.8	F
4	Metro Center Blvd and Shell Blvd	Signalized	HCM 6th Edition	EB Left	0.433	32.3	C
5	Metro Center Blvd and Route 92 East Ramp	Signalized	HCM 6th Edition	WB Right	0.584	71.4	E
6	Foster City Blvd and Metro Center Blvd	Signalized	HCM 6th Edition	WB Right	0.670	35.7	D
7	Shell Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	WB Left	0.628	29.3	C
8	Foster City Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Left	0.570	42.3	D
9	Metro Center Blvd and Vintage Park Dr	Signalized	HCM 6th Edition	SB Left	0.707	43.2	D
10	Edgewater Blvd and Mariners Island Blvd	Signalized	HCM 6th Edition	WB Left	0.352	31.0	C
11	Metro Center Blvd and Edgewater Blvd	Signalized	HCM 6th Edition	WB Left	0.396	30.8	C
12	Edgewater Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	WB Left	0.793	42.5	D
13	Center Park Ln and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Left	0.544	21.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Vintage Park Dr and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	25.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.695

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	280.00	100.00	100.00	265.00	100.00	100.00	140.00	100.00	100.00	215.00	100.00	100.00
Speed [mph]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	186	53	489	273	295	90	29	276	286	77	176	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	53	489	273	295	90	29	276	286	77	176	11
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	14	131	73	79	24	8	74	77	21	47	3
Total Analysis Volume [veh/h]	200	57	526	294	317	97	31	297	308	83	189	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	11			4			10			3		
v_di, Inbound Pedestrian Volume crossing m	10			3			11			4		
v_co, Outbound Pedestrian Volume crossing	3			9			10			3		
v_ci, Inbound Pedestrian Volume crossing mi	3			10			9			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	4	0	4	4	0	4	4	0	4	4	0
Maximum Green [s]	40	50	0	30	40	0	20	40	0	20	40	0
Amber [s]	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0
All red [s]	0.5	0.5	0.0	1.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	23	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	1.7	0.0	2.1	2.2	0.0	1.6	2.2	0.0	1.6	2.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	68	68	68	68	68	68	68	68	68	68	68	68	68
L, Total Lost Time per Cycle [s]	3.60	3.70	3.70	3.70	4.10	4.20	4.20	3.60	4.20	4.20	3.60	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.70	1.70	1.70	2.10	2.20	2.20	1.60	2.20	2.20	1.60	2.20	2.20
g_i, Effective Green Time [s]	10	16	16	16	14	20	20	2	19	19	4	21	21
g / C, Green / Cycle	0.14	0.23	0.23	0.23	0.20	0.29	0.29	0.03	0.28	0.28	0.06	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.11	0.03	0.17	0.17	0.16	0.11	0.12	0.02	0.16	0.20	0.05	0.05	0.05
s, saturation flow rate [veh/h]	1792	1882	1587	1587	1792	1882	1702	1792	1882	1563	1792	1882	1841
c, Capacity [veh/h]	260	438	369	369	361	543	492	47	520	432	111	588	575
d1, Uniform Delay [s]	28.20	20.81	24.19	24.15	26.16	19.57	19.63	33.06	21.30	22.34	31.61	17.12	17.13
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.77	0.13	2.56	2.56	4.52	0.47	0.54	14.59	0.99	2.19	9.48	0.14	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.13	0.71	0.71	0.82	0.40	0.40	0.66	0.57	0.71	0.75	0.17	0.17
d, Delay for Lane Group [s/veh]	32.97	20.94	26.74	26.71	30.68	20.04	20.17	47.65	22.28	24.53	41.09	17.26	17.28
Lane Group LOS	C	C	C	C	C	C	C	D	C	C	D	B	B
Critical Lane Group	No	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.35	0.70	3.95	3.94	4.77	2.65	2.47	0.69	4.05	4.51	1.59	1.11	1.10
50th-Percentile Queue Length [ft/ln]	83.74	17.57	98.63	98.49	119.32	66.18	61.68	17.25	101.22	112.79	39.79	27.71	27.45
95th-Percentile Queue Length [veh/ln]	6.03	1.27	7.10	7.09	8.36	4.76	4.44	1.24	7.29	7.99	2.86	2.00	1.98
95th-Percentile Queue Length [ft/ln]	150.7	31.63	177.5	177.2	208.89	119.12	111.03	31.04	182.19	199.87	71.62	49.88	49.41

Movement, Approach, & Intersection Results

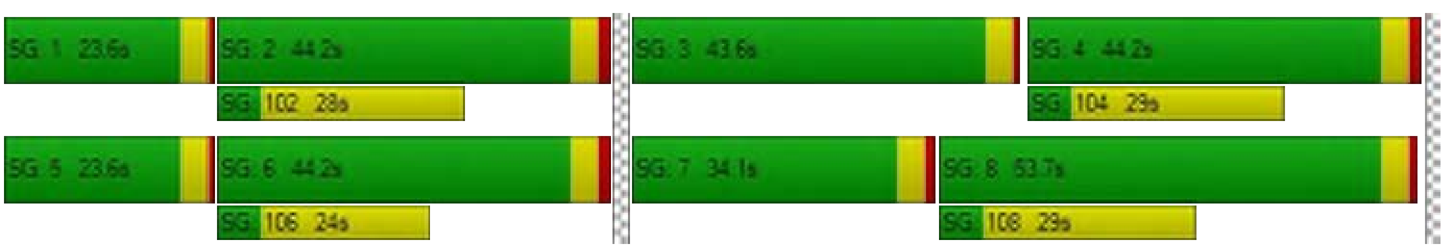
d_M, Delay for Movement [s/veh]	32.97	20.94	26.72	30.68	20.08	20.17	47.65	22.28	24.53	41.09	17.27	17.28
Movement LOS	C	C	C	C	C	C	D	C	C	D	B	B
d_A, Approach Delay [s/veh]	27.90			24.49			24.61			24.23		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.60											
Intersection LOS	C											
Intersection V/C	0.695											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	243.65	1324.64	408.65	306.65
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.697	2.459	2.484	2.682
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1111	889	889	889
d_b, Bicycle Delay [s]	8.89	13.90	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.206	2.144	2.084	1.794
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Chess Dr and Route 92 West Ramp

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	480.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	77	2	197	10	20	4	0	262	780	912	175	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	2	197	10	20	4	0	262	780	912	175	1
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	1	53	3	5	1	0	70	210	245	47	0
Total Analysis Volume [veh/h]	83	2	212	11	22	4	0	282	839	981	188	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	4	0	0	1	6	1	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	4	0	0	6	5	6	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	30	55	0
Amber [s]	0.0	3.5	0.0	0.0	3.2	0.0	0.0	3.2	3.1	3.2	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	0.5	0.0	0.0	1.0	1.0	1.0	2.0	0.0
Split [s]	0	27	0	0	20	0	0	20	47	20	43	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	17	0	0	0	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.5	0.0	0.0	1.7	0.0	0.0	2.2	2.1	2.2	3.5	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		Yes	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	3.70	4.20	4.10	5.50	5.50	5.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	1.70	2.20	2.10	3.50	3.50	3.50
g_i, Effective Green Time [s]	17	17	17	3	19	41	53	53	53
g / C, Green / Cycle	0.16	0.16	0.16	0.03	0.17	0.37	0.48	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.13	0.02	0.15	0.30	0.27	0.27	0.11
s, saturation flow rate [veh/h]	1791	1795	1598	1819	1880	2829	1791	1791	1710
c, Capacity [veh/h]	280	281	250	49	323	1047	864	864	824
d1, Uniform Delay [s]	40.12	40.12	45.16	53.21	44.42	31.05	20.33	20.33	16.60
k, delay calibration	0.11	0.11	0.11	0.11	0.12	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.25	0.25	7.76	20.70	7.91	1.47	2.70	2.70	0.65
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.15	0.85	0.76	0.87	0.80	0.57	0.57	0.23
d, Delay for Lane Group [s/veh]	40.37	40.37	52.92	73.91	52.33	32.52	23.03	23.03	17.25
Lane Group LOS	D	D	D	E	D	C	C	C	B
Critical Lane Group	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.02	1.02	6.14	1.30	8.15	9.99	9.38	9.38	2.89
50th-Percentile Queue Length [ft/ln]	25.39	25.44	153.48	32.41	203.87	249.67	234.44	234.44	72.36
95th-Percentile Queue Length [veh/ln]	1.83	1.83	10.20	2.33	12.84	15.17	14.40	14.40	5.21
95th-Percentile Queue Length [ft/ln]	45.70	45.79	255.06	58.34	320.95	379.24	359.99	359.99	130.25

Movement, Approach, & Intersection Results

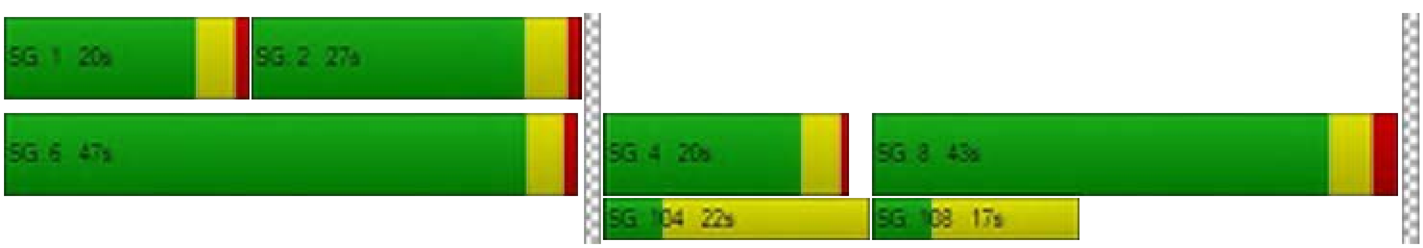
d_M, Delay for Movement [s/veh]	40.37	40.37	52.92	73.91	73.91	73.91	52.33	52.33	32.52	23.03	17.25	17.25
Movement LOS	D	D	D	E	E	E	D	D	C	C	B	B
d_A, Approach Delay [s/veh]	49.33			73.91			37.50			22.10		
Approach LOS	D			E			D			C		
d_I, Intersection Delay [s/veh]	32.49											
Intersection LOS	C											
Intersection V/C	0.663											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	1.746	2.583	0.000
Crosswalk LOS	F	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	409	296	287	682
d_b, Bicycle Delay [s]	34.80	39.93	40.33	23.89
I_b,int, Bicycle LOS Score for Intersection	2.050	1.621	3.409	2.525
Bicycle LOS	B	A	C	B

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Foster City Blvd and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	115.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.970

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	510.00	100.00	100.00	80.00	100.00	180.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	692	207	19	2	996	235	38	13	418	108	161	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	692	207	19	2	996	235	38	13	418	108	161	4
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	177	53	5	1	254	60	10	3	107	28	41	1
Total Analysis Volume [veh/h]	706	211	19	2	1016	240	39	13	427	110	164	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	3	3	3	0	1	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	4	4	4	0	4	4	0
Maximum Green [s]	55	65	0	20	35	30	30	30	0	55	35	0
Amber [s]	3.5	3.6	0.0	3.1	3.9	3.2	3.2	3.2	0.0	3.5	3.1	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0	1.0	0.5	0.0
Split [s]	27	55	0	14	42	20	20	20	0	27	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	0	4	0
Pedestrian Clearance [s]	0	23	0	0	0	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.6	0.0	1.6	2.9	1.7	1.7	1.7	0.0	2.5	1.6	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	Yes	Yes		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.60	4.60	3.60	4.90	3.70	3.70	3.70	3.70	3.60	3.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.60	2.60	1.60	2.90	0.00	1.70	1.70	1.70	1.60	1.60
g_i, Effective Green Time [s]	37	74	74	0	36	58	17	17	17	13	13
g / C, Green / Cycle	0.31	0.62	0.62	0.00	0.30	0.48	0.14	0.14	0.14	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.20	0.06	0.06	0.00	0.28	0.15	0.02	0.01	0.29	0.06	0.09
s, saturation flow rate [veh/h]	3467	1874	1821	1785	3569	1593	1785	1874	1450	1785	1867
c, Capacity [veh/h]	1058	1155	1122	5	1085	771	249	262	202	201	210
d1, Uniform Delay [s]	36.43	9.44	9.44	59.83	40.71	18.83	45.50	44.81	51.72	50.45	52.03
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.33	0.17	0.18	44.11	4.58	0.23	0.29	0.08	516.33	2.32	6.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.10	0.10	0.40	0.94	0.31	0.16	0.05	2.11	0.55	0.80
d, Delay for Lane Group [s/veh]	39.76	9.61	9.62	103.94	45.29	19.06	45.79	44.89	568.04	52.78	58.93
Lane Group LOS	D	A	A	F	D	B	D	D	F	D	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	9.49	1.29	1.25	0.12	14.98	4.03	1.05	0.34	35.08	3.29	5.38
50th-Percentile Queue Length [ft/ln]	237.17	32.24	31.36	3.05	374.44	100.72	26.22	8.59	876.91	82.26	134.52
95th-Percentile Queue Length [veh/ln]	14.54	2.32	2.26	0.22	21.32	7.25	1.89	0.62	55.84	5.92	9.18
95th-Percentile Queue Length [ft/ln]	363.45	58.03	56.44	5.49	533.11	181.29	47.20	15.46	1395.88	148.07	229.62

Movement, Approach, & Intersection Results

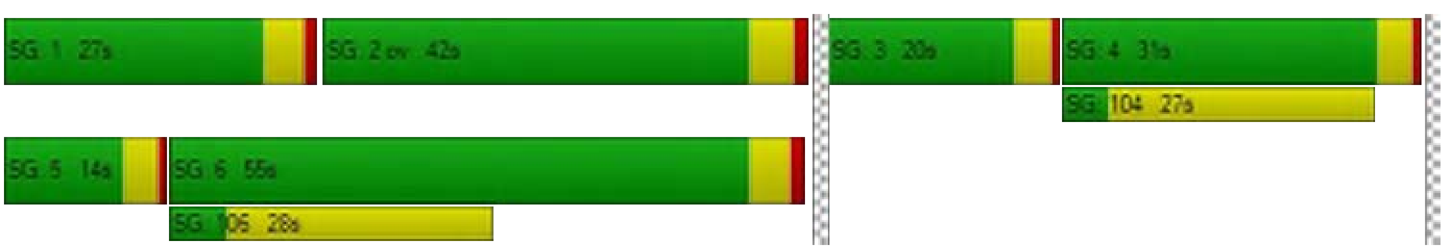
d_M, Delay for Movement [s/veh]	39.76	9.61	9.62	103.94	45.29	19.06	45.79	44.89	568.04	52.78	58.93	58.93
Movement LOS	D	A	A	F	D	B	D	D	F	D	E	E
d_A, Approach Delay [s/veh]	32.35			40.38			511.32			56.49		
Approach LOS	C			D			F			E		
d_I, Intersection Delay [s/veh]	115.80											
Intersection LOS	F											
Intersection V/C	0.970											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	52.27	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.755	0.000	2.210
Crosswalk LOS	F	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	840	618	272	457
d_b, Bicycle Delay [s]	20.18	28.64	44.81	35.73
I_b,int, Bicycle LOS Score for Intersection	2.332	2.597	1.955	2.018
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Metro Center Blvd and Shell Blvd

Control Type:	Signalized	Delay (sec / veh):	32.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.433

Intersection Setup

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	2	0	1
Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	85.00	100.00	100.00	210.00	100.00	200.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	181	63	181	64	45	85	14	519	173	26	49	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	181	63	181	64	45	85	14	519	173	26	49	70
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	16	46	16	11	22	4	132	44	7	13	18
Total Analysis Volume [veh/h]	185	64	185	65	46	87	14	530	177	27	50	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	16			7			16			6		
v_di, Inbound Pedestrian Volume crossing m	16			6			16			7		
v_co, Outbound Pedestrian Volume crossing	16			4			4			16		
v_ci, Inbound Pedestrian Volume crossing mi	16			4			4			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	65.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	6	6	0
Maximum Green [s]	20	60	0	20	35	0	20	40	0	20	40	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0
Split [s]	36	53	0	16	33	0	14	35	0	16	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	28	0	0	20	0	0	21	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.5	0.0	1.5	2.5	0.0	1.5	2.5	0.0	2.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.50	4.50	4.50	3.50	4.50	3.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.50	2.50	1.50	2.50	1.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	14	23	23	6	15	2	70	70	4	73	73
g / C, Green / Cycle	0.12	0.20	0.20	0.05	0.12	0.01	0.59	0.59	0.03	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.10	0.03	0.12	0.04	0.08	0.01	0.20	0.20	0.01	0.01	0.04
s, saturation flow rate [veh/h]	1791	1880	1520	1791	1663	1791	1880	1706	3478	3580	1581
c, Capacity [veh/h]	216	368	298	85	204	23	1100	997	105	2185	965
d1, Uniform Delay [s]	51.80	40.21	43.93	56.54	50.24	58.97	12.88	12.93	56.92	9.25	9.55
k, delay calibration	0.17	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.77	0.22	2.12	13.01	3.48	21.90	0.82	0.93	1.26	0.02	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.17	0.62	0.76	0.65	0.60	0.33	0.34	0.26	0.02	0.07
d, Delay for Lane Group [s/veh]	65.57	40.44	46.05	69.54	53.72	80.87	13.70	13.86	58.19	9.27	9.70
Lane Group LOS	E	D	D	E	D	F	B	B	E	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.24	1.59	5.14	2.24	3.98	0.56	5.15	4.78	0.42	0.26	0.77
50th-Percentile Queue Length [ft/ln]	155.94	39.87	128.49	56.04	99.50	14.09	128.73	119.59	10.41	6.39	19.29
95th-Percentile Queue Length [veh/ln]	10.33	2.87	8.86	4.03	7.16	1.01	8.87	8.37	0.75	0.46	1.39
95th-Percentile Queue Length [ft/ln]	258.33	71.77	221.44	100.87	179.10	25.35	221.77	209.27	18.74	11.50	34.72

Movement, Approach, & Intersection Results

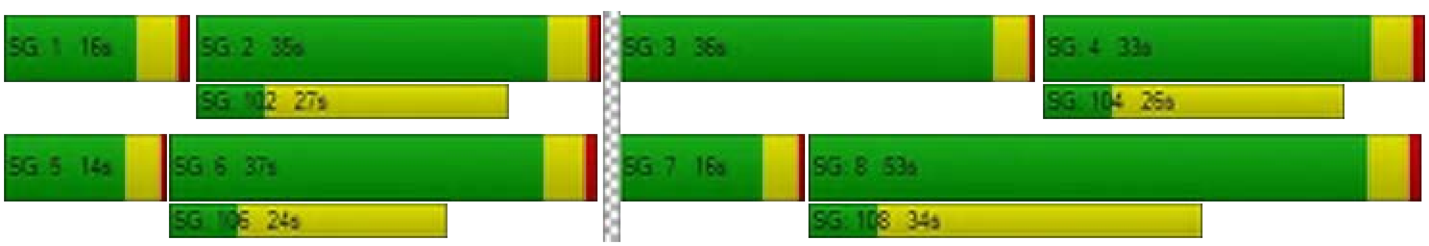
d_M, Delay for Movement [s/veh]	65.57	40.44	46.05	69.54	53.72	53.72	80.87	13.75	13.86	58.19	9.27	9.70
Movement LOS	E	D	D	E	D	D	F	B	B	E	A	A
d_A, Approach Delay [s/veh]	53.54			58.91			15.08			18.40		
Approach LOS	D			E			B			B		
d_I, Intersection Delay [s/veh]	32.31											
Intersection LOS	C											
Intersection V/C	0.433											

Other Modes

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	148.92	399.75	796.36	182.89
d_p, Pedestrian Delay [s]	50.42	50.42	50.42	50.42
I_p,int, Pedestrian LOS Score for Intersection	2.470	2.086	2.552	2.759
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	808	475	508	542
d_b, Bicycle Delay [s]	21.30	34.88	33.38	31.90
I_b,int, Bicycle LOS Score for Intersection	2.276	1.886	2.154	1.682
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Metro Center Blvd and Route 92 East Ramp

Control Type:	Signalized	Delay (sec / veh):	71.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.584

Intersection Setup

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	2	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	600.00	100.00	640.00	290.00	100.00	100.00	90.00	100.00	100.00
Speed [mph]		15.00			35.00			35.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No			No	
Crosswalk		No			No			Yes			No	

Volumes

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	2	49	21	108	4	44	504	257	6	8	101	972
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	49	21	108	4	44	504	257	6	8	101	972
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	13	5	28	1	11	130	66	2	2	26	251
Total Analysis Volume [veh/h]	2	51	22	111	4	45	520	265	6	8	104	1002
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	30.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	10	4	4	4	0	4	4	0
Maximum Green [s]	0	40	0	0	60	30	30	40	0	25	35	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	3.1	3.1	3.5	0.0	3.1	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.5	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	18	0	0	36	36	36	48	0	18	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	6	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	17	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	3.0	1.6	1.6	2.5	0.0	1.6	2.5	0.0
Minimum Recall		No			No	No	No	No		No	No	
Maximum Recall		No			Yes	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.20	4.20	5.00	5.00	3.60	3.60	4.50	4.50	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	3.00	3.00	0.00	1.60	2.50	2.50	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	5	5	41	41	68	21	55	55	1	35	35	35
g / C, Green / Cycle	0.04	0.04	0.34	0.34	0.56	0.18	0.46	0.46	0.01	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.03	0.01	0.03	0.03	0.02	0.15	0.07	0.07	0.00	0.06	0.31	0.31
s, saturation flow rate [veh/h]	1868	1591	1782	1788	2816	3461	1871	1857	1782	1871	1591	1591
c, Capacity [veh/h]	81	69	612	614	1587	618	863	856	15	544	463	463
d1, Uniform Delay [s]	56.64	55.81	26.79	26.79	11.64	47.73	18.84	18.84	59.35	32.01	42.63	42.63
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.71	2.64	0.30	0.30	0.03	3.18	0.08	0.09	24.34	0.17	65.89	65.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.32	0.09	0.09	0.03	0.84	0.16	0.16	0.52	0.19	1.08	1.08
d, Delay for Lane Group [s/veh]	65.35	58.45	27.09	27.09	11.67	50.91	18.93	18.93	83.69	32.18	108.5	108.5
Lane Group LOS	E	E	C	C	B	D	B	B	F	C	F	F
Critical Lane Group	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.82	0.71	1.17	1.17	0.27	7.71	2.20	2.18	0.35	2.31	22.02	22.02
50th-Percentile Queue Length [ft/ln]	45.44	17.84	29.16	29.21	6.73	192.80	55.02	54.61	8.68	57.80	550.5	550.5
95th-Percentile Queue Length [veh/ln]	3.27	1.28	2.10	2.10	0.48	12.27	3.96	3.93	0.62	4.16	31.23	31.23
95th-Percentile Queue Length [ft/ln]	81.79	32.12	52.49	52.58	12.11	306.66	99.04	98.30	15.62	104.0	780.6	780.6

Movement, Approach, & Intersection Results

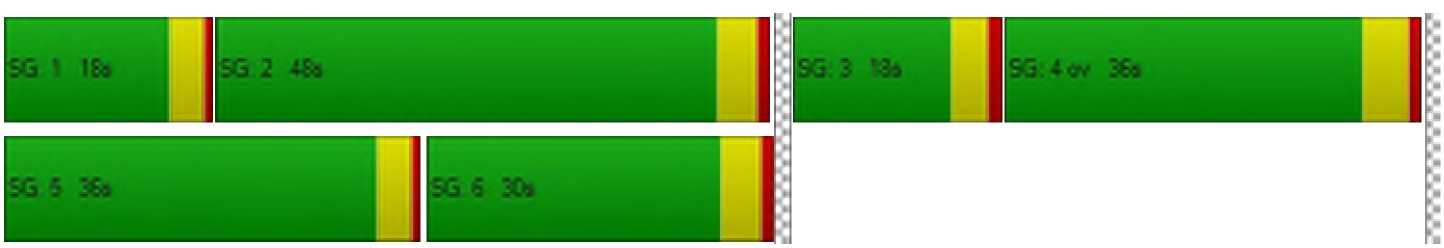
d_M, Delay for Movement [s/veh]	65.35	65.35	58.45	27.09	27.09	11.67	50.91	18.93	18.93	83.69	32.18	108.53
Movement LOS	E	E	E	C	C	B	D	B	B	F	C	F
d_A, Approach Delay [s/veh]	63.33			22.76			39.95			101.22		
Approach LOS	E			C			D			F		
d_I, Intersection Delay [s/veh]	71.38											
Intersection LOS	E											
Intersection V/C	0.584											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	31.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	33.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.745	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	230	517	725	425
d_b, Bicycle Delay [s]	46.99	33.00	24.38	37.21
I_b,int, Bicycle LOS Score for Intersection	1.683	1.824	2.212	2.479
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Foster City Blvd and Metro Center Blvd

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	230.00	100.00	100.00	210.00	100.00	100.00	150.00	100.00	240.00	50.00	100.00	170.00
Speed [mph]	35.00			35.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	234	547	64	198	615	729	103	130	153	62	118	268
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	234	547	64	198	615	729	103	130	153	62	118	268
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	137	16	50	154	182	26	33	38	16	30	67
Total Analysis Volume [veh/h]	234	547	64	198	615	729	103	130	153	62	118	268
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	7			0			0			8		
v_di, Inbound Pedestrian Volume crossing m	8			0			0			7		
v_co, Outbound Pedestrian Volume crossing	4			0			4			0		
v_ci, Inbound Pedestrian Volume crossing mi	4			0			4			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	43.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	5	4	1	1	3	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	4	4	6	0
Maximum Green [s]	30	40	0	25	40	0	25	40	30	30	30	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.2	3.1	3.1	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0
Split [s]	24	36	0	20	32	0	20	39	24	24	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.2	1.6	1.6	1.7	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	Yes		No	Yes			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	4.20	4.20	3.60	3.70	3.70	3.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	2.20	2.20	0.00	1.70	1.70	1.70
g_i, Effective Green Time [s]	18	57	57	15	54	54	11	11	33	21	21	21
g / C, Green / Cycle	0.15	0.47	0.47	0.13	0.45	0.45	0.09	0.09	0.27	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.13	0.11	0.12	0.11	0.12	0.26	0.03	0.04	0.05	0.03	0.06	0.17
s, saturation flow rate [veh/h]	1785	3569	1770	1785	5106	2820	3467	3569	2820	1785	1874	1593
c, Capacity [veh/h]	266	1686	836	225	2296	1268	312	321	772	317	333	283
d1, Uniform Delay [s]	50.03	18.85	18.89	51.54	20.66	24.51	51.21	51.57	33.46	42.05	43.32	48.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.22
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.24	0.34	0.69	10.60	0.29	1.90	0.61	0.82	0.12	0.30	0.64	24.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.24	0.24	0.88	0.27	0.57	0.33	0.40	0.20	0.20	0.35	0.95
d, Delay for Lane Group [s/veh]	59.27	19.19	19.58	62.15	20.95	26.41	51.83	52.39	33.59	42.35	43.96	73.17
Lane Group LOS	E	B	B	E	C	C	D	D	C	D	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	7.49	3.40	3.50	6.46	3.61	7.81	1.47	1.87	1.72	1.62	3.18	9.89
50th-Percentile Queue Length [ft/ln]	187.14	84.93	87.50	161.45	90.17	195.33	36.82	46.86	43.04	40.41	79.43	247.29
95th-Percentile Queue Length [veh/ln]	11.97	6.11	6.30	10.63	6.49	12.40	2.65	3.37	3.10	2.91	5.72	15.05
95th-Percentile Queue Length [ft/ln]	299.31	152.87	157.50	265.64	162.30	309.93	66.27	84.36	77.48	72.74	142.97	376.23

Movement, Approach, & Intersection Results

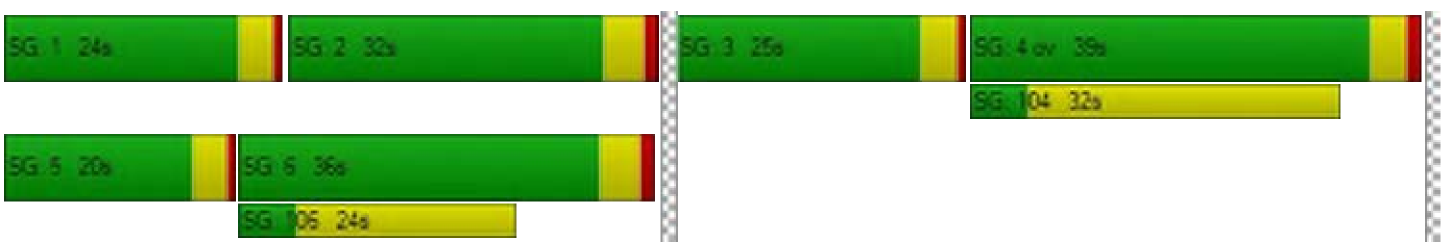
d_M, Delay for Movement [s/veh]	59.27	19.29	19.58	62.15	20.95	26.41	51.83	52.39	33.59	42.35	43.96	73.17
Movement LOS	E	B	B	E	C	C	D	D	C	D	D	E
d_A, Approach Delay [s/veh]	30.39			28.82			44.79			61.21		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	35.65											
Intersection LOS	D											
Intersection V/C	0.670											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	608.08	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.881	0.000	0.000	2.452
Crosswalk LOS	C	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	523	457	580	355
d_b, Bicycle Delay [s]	32.71	35.73	30.25	40.59
I_b,int, Bicycle LOS Score for Intersection	2.024	2.408	1.878	2.299
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Shell Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	29.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.628

Intersection Setup

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	210.00	100.00	100.00	160.00	100.00	160.00	100.00	100.00	100.00	135.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	291	193	92	115	206	81	0	1055	497	119	478	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	291	193	92	115	206	81	0	1055	497	119	478	76
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	49	23	29	53	21	0	269	127	30	122	19
Total Analysis Volume [veh/h]	297	197	94	117	210	83	0	1077	507	121	488	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	17			27			27			17		
v_di, Inbound Pedestrian Volume crossing m	17			27			27			17		
v_co, Outbound Pedestrian Volume crossing	29			12			28			11		
v_ci, Inbound Pedestrian Volume crossing mi	28			11			29			12		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	40.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	0	6	0	4	6	0
Maximum Green [s]	25	50	0	30	40	0	0	55	0	25	45	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	0.0	3.6	0.0	3.1	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.5	1.0	0.0
Split [s]	24	37	0	24	37	0	0	39	0	20	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.1	2.6	0.0	1.6	2.6	0.0	0.0	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No			No		No	No	
Maximum Recall	No	No		No	No			Yes		No	Yes	
Pedestrian Recall	No	No		No	No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.10	4.60	4.60	3.60	4.60	4.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.10	2.60	2.60	1.60	2.60	2.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	13	16	16	10	13	13	68	68	10	81	81
g / C, Green / Cycle	0.11	0.14	0.14	0.08	0.11	0.11	0.56	0.56	0.08	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.08	0.10	0.06	0.06	0.06	0.06	0.30	0.33	0.07	0.14	0.05
s, saturation flow rate [veh/h]	3497	1891	1468	1801	3600	1350	3600	1539	1801	3600	1591
c, Capacity [veh/h]	372	258	201	148	389	146	2022	865	150	2429	1073
d1, Uniform Delay [s]	52.41	49.97	47.55	54.12	50.73	50.37	16.47	16.86	54.12	7.35	6.68
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.96	4.63	1.70	9.10	1.16	3.45	1.01	2.91	9.82	0.19	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.76	0.47	0.79	0.54	0.57	0.53	0.59	0.81	0.20	0.07
d, Delay for Lane Group [s/veh]	56.36	54.61	49.25	63.22	51.89	53.82	17.48	19.77	63.94	7.54	6.81
Lane Group LOS	E	D	D	E	D	D	B	B	E	A	A
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.57	6.03	2.68	3.84	3.06	2.49	9.28	9.37	4.00	2.31	0.69
50th-Percentile Queue Length [ft/ln]	114.34	150.81	67.06	96.11	76.47	62.29	232.03	234.28	100.04	57.64	17.26
95th-Percentile Queue Length [veh/ln]	8.08	10.06	4.83	6.92	5.51	4.48	14.28	14.39	7.20	4.15	1.24
95th-Percentile Queue Length [ft/ln]	202.03	251.51	120.70	173.00	137.65	112.12	356.94	359.79	180.06	103.75	31.08

Movement, Approach, & Intersection Results

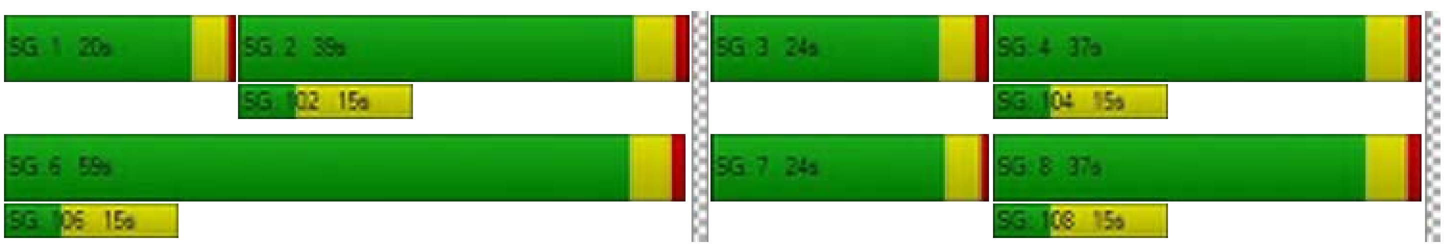
d_M, Delay for Movement [s/veh]	56.36	54.61	49.25	63.22	51.89	53.82	0.00	17.48	19.77	63.94	7.54	6.81
Movement LOS	E	D	D	E	D	D		B	B	E	A	A
d_A, Approach Delay [s/veh]	54.64			55.52			18.21			17.39		
Approach LOS	D			E			B			B		
d_I, Intersection Delay [s/veh]	29.27											
Intersection LOS	C											
Intersection V/C	0.628											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	266.55	117.43	182.89
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.700	2.579	2.867	2.884
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	540	540	573	907
d_b, Bicycle Delay [s]	31.99	31.99	30.55	17.93
I_b,int, Bicycle LOS Score for Intersection	2.530	1.898	2.866	2.126
Bicycle LOS	B	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Foster City Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	42.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.570

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	0	1	0	0	1	0	1
Pocket Length [ft]	260.00	100.00	410.00	210.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	148	383	34	197	471	152	355	461	440	69	256	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	148	383	34	197	471	152	355	461	440	69	256	77
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	100	9	51	123	40	92	120	115	18	67	20
Total Analysis Volume [veh/h]	154	399	35	205	491	158	370	480	458	72	267	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			18			12			18		
v_di, Inbound Pedestrian Volume crossing m	12			18			12			18		
v_co, Outbound Pedestrian Volume crossing	8			4			4			8		
v_ci, Inbound Pedestrian Volume crossing mi	8			4			4			8		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			2			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	40.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	35	50	0	30	40	0	30	40	0	30	40	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	20	34	0	23	37	0	27	43	0	20	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	25	0	0	25	0	0	27	0	0	27	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	124	124	124	124	124	124	124	124	124	124	124	124
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	8	50	50	10	52	52	27	41	41	6	20	20
g / C, Green / Cycle	0.06	0.40	0.40	0.08	0.42	0.42	0.22	0.33	0.33	0.05	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.04	0.08	0.08	0.06	0.14	0.10	0.21	0.13	0.29	0.04	0.07	0.05
s, saturation flow rate [veh/h]	3503	3606	1812	3503	3606	1601	1804	3606	1555	1804	3606	1485
c, Capacity [veh/h]	217	1456	731	273	1514	672	398	1205	519	93	596	245
d1, Uniform Delay [s]	57.00	23.92	23.96	55.92	24.14	23.12	47.31	31.68	38.38	57.99	46.61	45.41
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.35	0.11	0.28	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.24	0.30	0.62	4.13	0.57	0.82	23.63	0.21	11.77	12.45	0.53	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.20	0.20	0.75	0.32	0.24	0.93	0.40	0.88	0.77	0.45	0.33
d, Delay for Lane Group [s/veh]	61.24	24.23	24.58	60.05	24.71	23.94	70.95	31.89	50.15	70.43	47.14	46.18
Lane Group LOS	E	C	C	E	C	C	E	C	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.46	2.74	2.86	3.27	4.90	3.10	13.64	5.51	14.36	2.53	3.73	2.21
50th-Percentile Queue Length [ft/ln]	61.40	68.39	71.61	81.71	122.49	77.50	340.91	137.83	359.05	63.35	93.32	55.15
95th-Percentile Queue Length [veh/ln]	4.42	4.92	5.16	5.88	8.53	5.58	19.69	9.36	20.58	4.56	6.72	3.97
95th-Percentile Queue Length [ft/ln]	110.52	123.10	128.90	147.08	213.24	139.49	492.31	234.10	514.43	114.04	167.97	99.27

Movement, Approach, & Intersection Results

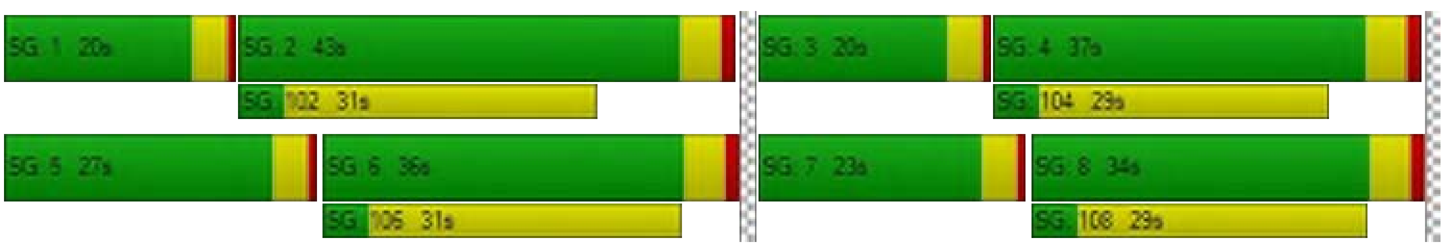
d_M, Delay for Movement [s/veh]	61.24	24.33	24.58	60.05	24.71	23.94	70.95	31.89	50.15	70.43	47.14	46.18
Movement LOS	E	C	C	E	C	C	E	C	D	E	D	D
d_A, Approach Delay [s/veh]		34.01			33.05			49.33			50.96	
Approach LOS		C			C			D			D	
d_I, Intersection Delay [s/veh]	42.32											
Intersection LOS	D											
Intersection V/C	0.570											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	25.24	161.20	571.11	373.34
d_p, Pedestrian Delay [s]	52.27	52.27	52.27	52.27
I_p,int, Pedestrian LOS Score for Intersection	2.909	2.984	2.917	2.685
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	490	540	640	523
d_b, Bicycle Delay [s]	34.20	31.97	27.77	32.72
I_b,int, Bicycle LOS Score for Intersection	1.883	2.264	2.639	1.905
Bicycle LOS	A	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Metro Center Blvd and Vintage Park Dr

Control Type:	Signalized	Delay (sec / veh):	43.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.707

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	150.00	100.00	100.00	250.00	100.00	390.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	23	246	108	297	150	186	136	359	43	35	171	345
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	246	108	297	150	186	136	359	43	35	171	345
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	68	30	83	42	52	38	100	12	10	48	96
Total Analysis Volume [veh/h]	26	273	120	330	167	207	151	399	48	39	190	383
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	70			33			70			33		
v_di, Inbound Pedestrian Volume crossing m	70			33			70			33		
v_co, Outbound Pedestrian Volume crossing	67			57			57			68		
v_ci, Inbound Pedestrian Volume crossing mi	68			57			57			67		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	54.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	5	6	0
Maximum Green [s]	25	40	0	30	45	0	30	40	0	25	40	0
Amber [s]	3.0	3.2	0.0	3.0	3.2	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	20	35	0	25	40	0	25	38	0	22	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	22	0	0	22	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.2	0.0	1.5	1.7	0.0	1.5	2.5	0.0	1.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.50	4.20	4.20	3.50	3.70	3.70	3.50	4.50	4.50	3.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.20	2.20	1.50	1.70	1.70	1.50	2.50	2.50	1.50	2.50	2.50
g_i, Effective Green Time [s]	2	27	27	22	46	46	12	52	52	4	44	44
g / C, Green / Cycle	0.02	0.22	0.22	0.18	0.39	0.39	0.10	0.44	0.44	0.03	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.01	0.11	0.13	0.18	0.09	0.14	0.08	0.12	0.13	0.02	0.05	0.24
s, saturation flow rate [veh/h]	1791	1880	1473	1791	1880	1457	1791	1880	1729	1791	3580	1598
c, Capacity [veh/h]	36	421	330	321	728	564	181	817	751	56	1307	584
d1, Uniform Delay [s]	58.44	40.52	41.46	49.25	24.74	25.89	52.97	21.81	21.97	57.56	25.54	31.80
k, delay calibration	0.11	0.11	0.11	0.27	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.02	0.86	1.57	44.13	0.16	0.40	9.70	0.84	0.99	14.37	0.23	5.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.48	0.57	1.03	0.23	0.37	0.84	0.28	0.29	0.70	0.15	0.66
d, Delay for Lane Group [s/veh]	81.47	41.38	43.03	93.38	24.90	26.29	62.68	22.65	22.96	71.92	25.77	37.48
Lane Group LOS	F	D	D	F	C	C	E	C	C	E	C	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.02	5.35	5.14	13.50	3.25	4.23	4.92	4.25	4.16	1.39	1.85	10.01
50th-Percentile Queue Length [ft/ln]	25.45	133.76	128.46	337.55	81.14	105.80	122.93	106.26	104.12	34.69	46.31	250.19
95th-Percentile Queue Length [veh/ln]	1.83	9.14	8.86	19.81	5.84	7.61	8.55	7.63	7.50	2.50	3.33	15.20
95th-Percentile Queue Length [ft/ln]	45.80	228.60	221.40	495.35	146.06	190.15	213.85	190.79	187.42	62.44	83.36	379.90

Movement, Approach, & Intersection Results

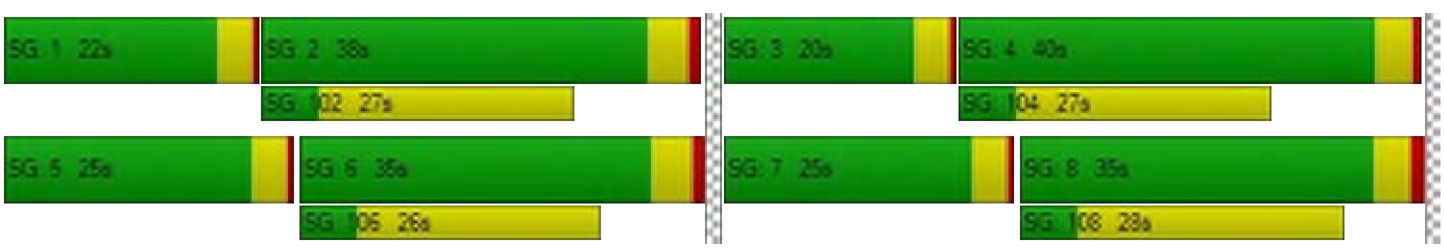
d_M, Delay for Movement [s/veh]	81.47	41.80	43.03	93.38	24.90	26.29	62.68	22.78	22.96	71.92	25.77	37.48
Movement LOS	F	D	D	F	C	C	E	C	C	E	C	D
d_A, Approach Delay [s/veh]	44.61			57.41			32.87			36.04		
Approach LOS	D			E			C			D		
d_I, Intersection Delay [s/veh]	43.22											
Intersection LOS	D											
Intersection V/C	0.707											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	39.97	5.77	29.76	39.87
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.310	2.610	2.547	2.745
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	513	605	558	508
d_b, Bicycle Delay [s]	33.15	29.19	31.18	33.38
I_b,int, Bicycle LOS Score for Intersection	1.905	2.721	2.053	2.065
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Edgewater Blvd and Mariners Island Blvd

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.352

Intersection Setup

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	2	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	40.00	400.00	100.00	400.00	190.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	3	6	5	178	2	97	564	699	10	17	729	292
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	6	5	178	2	97	564	699	10	17	729	292
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	1	46	1	25	147	182	3	4	190	76
Total Analysis Volume [veh/h]	3	6	5	185	2	101	588	728	10	18	759	304
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			1		
v_di, Inbound Pedestrian Volume crossing m	1			0			0			0		
v_co, Outbound Pedestrian Volume crossing	3			3			2			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			2			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	49.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups							4,5					
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	6	0	4	6	0	4	6	0
Maximum Green [s]	0	40	0	0	60	0	30	65	0	20	50	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	0.0	3.1	4.0	0.0	3.1	4.0	0.0
All red [s]	0.0	0.5	0.0	0.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	32	0	0	29	0	22	41	0	18	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	18	0	0	25	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	3.0	0.0	1.6	3.0	0.0	1.6	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			Yes		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.70	3.70	5.00	5.00	5.00	4.30	5.00	5.00	3.60	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	3.00	3.00	3.00	0.00	3.00	3.00	1.60	3.00	3.00
g_i, Effective Green Time [s]	2	2	41	41	41	76	58	58	2	29	29
g / C, Green / Cycle	0.02	0.02	0.34	0.34	0.34	0.64	0.48	0.48	0.02	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.06	0.07	0.04	0.37	0.20	0.20	0.01	0.21	0.19
s, saturation flow rate [veh/h]	1857	1577	1431	1456	2840	1601	1888	1877	1798	3595	1588
c, Capacity [veh/h]	32	27	526	559	975	956	906	901	28	883	390
d1, Uniform Delay [s]	58.29	58.19	27.62	27.59	26.87	13.84	20.21	20.22	58.83	43.33	42.17
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.57	3.12	0.66	0.71	0.21	2.96	0.30	0.30	22.65	2.58	3.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.18	0.16	0.18	0.10	0.61	0.41	0.41	0.65	0.86	0.78
d, Delay for Lane Group [s/veh]	62.85	61.31	28.28	28.30	27.08	16.80	20.51	20.52	81.48	45.91	45.56
Lane Group LOS	E	E	C	C	C	B	C	C	F	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.31	0.17	1.83	2.17	1.02	8.70	6.62	6.60	0.72	10.93	8.64
50th-Percentile Queue Length [ft/ln]	7.79	4.35	45.74	54.20	25.60	217.46	165.55	164.94	17.88	273.27	216.07
95th-Percentile Queue Length [veh/ln]	0.56	0.31	3.29	3.90	1.84	13.54	10.84	10.81	1.29	16.35	13.46
95th-Percentile Queue Length [ft/ln]	14.02	7.82	82.34	97.56	46.08	338.38	271.06	270.25	32.18	408.83	336.60

Movement, Approach, & Intersection Results

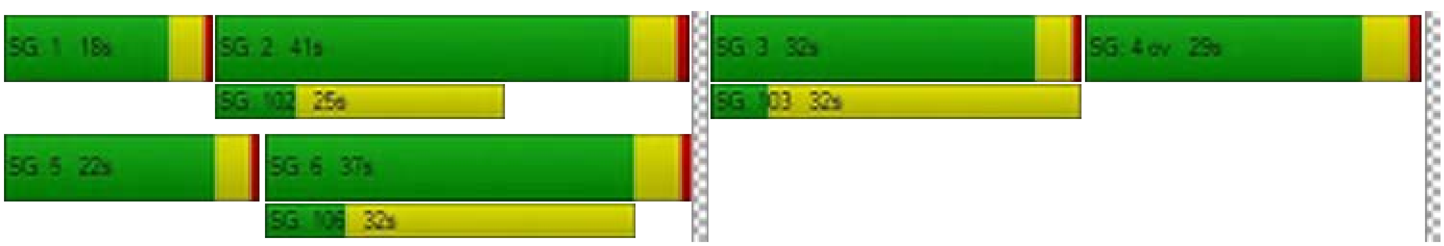
d_M, Delay for Movement [s/veh]	62.85	62.85	61.31	28.29	28.30	27.08	16.80	20.51	20.52	81.48	45.91	45.56
Movement LOS	E	E	E	C	C	C	B	C	C	F	D	D
d_A, Approach Delay [s/veh]	62.30			27.87			18.86			46.41		
Approach LOS	E			C			B			D		
d_I, Intersection Delay [s/veh]	31.04											
Intersection LOS	C											
Intersection V/C	0.352											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	1.968	3.124	0.000	3.121
Crosswalk LOS	A	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	472	400	600	533
d_b, Bicycle Delay [s]	35.04	38.40	29.44	32.27
I_b,int, Bicycle LOS Score for Intersection	1.583	2.035	2.654	2.451
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Metro Center Blvd and Edgewater Blvd

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.396

Intersection Setup

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	2	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	50.00	270.00	100.00	100.00	370.00	100.00	100.00	180.00	100.00	50.00
Speed [mph]	25.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	29	13	6	327	12	193	198	679	17	21	647	149
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	13	6	327	12	193	198	679	17	21	647	149
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	3	2	86	3	51	52	179	4	6	170	39
Total Analysis Volume [veh/h]	31	14	6	344	13	203	208	715	18	22	681	157
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			4			2			3		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			4		
v_co, Outbound Pedestrian Volume crossing	5			3			3			6		
v_ci, Inbound Pedestrian Volume crossing mi	6			3			3			5		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	3.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	8	0	4	8	0
Maximum Green [s]	0	40	0	0	35	0	40	60	0	20	45	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.1	3.9	0.0	3.1	3.9	0.0
All red [s]	0.0	0.5	0.0	0.0	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	39	0	0	40	0	20	47	0	14	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	28	0	0	28	0	0	14	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	1.7	0.0	1.6	2.9	0.0	1.6	2.9	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	3.70	3.70	3.70	3.70	3.70	3.60	4.90	4.90	3.60	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	1.70	1.70	1.70	1.60	2.90	2.90	1.60	2.90	2.90
g_i, Effective Green Time [s]	11	11	22	22	22	11	89	89	2	81	81
g / C, Green / Cycle	0.08	0.08	0.16	0.16	0.16	0.08	0.64	0.64	0.02	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.02	0.00	0.10	0.10	0.13	0.06	0.19	0.20	0.01	0.13	0.10
s, saturation flow rate [veh/h]	1825	1536	1798	1804	1565	3492	1888	1869	1798	5143	1585
c, Capacity [veh/h]	140	118	282	283	245	264	1202	1190	30	2970	915
d1, Uniform Delay [s]	61.19	59.91	55.27	55.27	57.00	63.59	11.49	11.49	68.53	14.40	13.85
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.31	0.18	2.35	2.34	7.01	5.16	0.66	0.67	28.95	0.18	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.05	0.63	0.63	0.83	0.79	0.31	0.31	0.73	0.23	0.17
d, Delay for Lane Group [s/veh]	62.51	60.09	57.61	57.60	64.01	68.75	12.15	12.16	97.48	14.58	14.26
Lane Group LOS	E	E	E	E	E	E	B	B	F	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.59	0.21	6.06	6.08	7.38	3.82	5.25	5.21	1.02	3.53	2.42
50th-Percentile Queue Length [ft/ln]	39.65	5.15	151.41	151.90	184.43	95.51	131.28	130.25	25.58	88.24	60.45
95th-Percentile Queue Length [veh/ln]	2.85	0.37	10.09	10.12	11.83	6.88	9.01	8.95	1.84	6.35	4.35
95th-Percentile Queue Length [ft/ln]	71.36	9.28	252.31	252.97	295.78	171.93	225.23	223.84	46.05	158.84	108.82

Movement, Approach, & Intersection Results

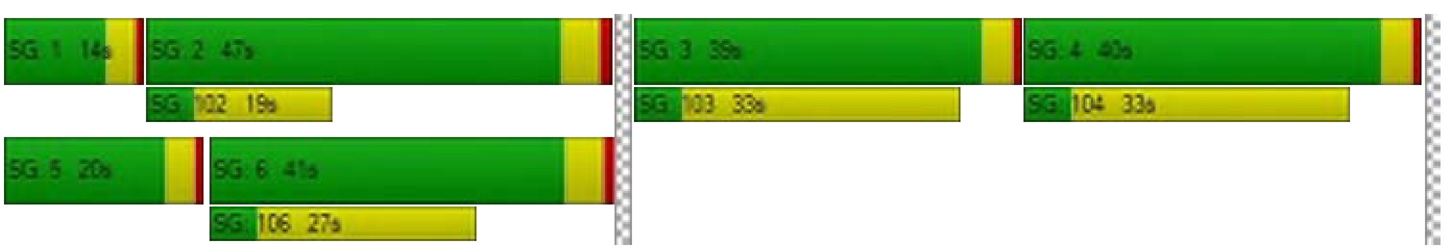
d_M, Delay for Movement [s/veh]	62.51	62.51	60.09	57.61	57.60	64.01	68.75	12.15	12.16	97.48	14.58	14.26
Movement LOS	E	E	E	E	E	E	E	B	B	F	B	B
d_A, Approach Delay [s/veh]		62.22			59.93			24.66			16.64	
Approach LOS		E			E			C			B	
d_I, Intersection Delay [s/veh]	30.79											
Intersection LOS	C											
Intersection V/C	0.396											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	61.29	61.29	61.29	61.29
I_p,int, Pedestrian LOS Score for Intersection	1.991	2.536	2.918	3.022
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	504	519	601	516
d_b, Bicycle Delay [s]	39.15	38.43	34.28	38.57
I_b,int, Bicycle LOS Score for Intersection	1.644	2.484	2.336	2.033
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Edgewater Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	42.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.793

Intersection Setup

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	1	0	1
Pocket Length [ft]	190.00	100.00	190.00	310.00	100.00	110.00	100.00	100.00	75.00	310.00	100.00	230.00
Speed [mph]	40.00			35.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	301	544	102	210	542	273	0	1340	501	225	827	206
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	301	544	102	210	542	273	0	1340	501	225	827	206
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	78	140	26	54	140	70	0	345	129	58	213	53
Total Analysis Volume [veh/h]	310	561	105	216	559	281	0	1381	516	232	853	212
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			3			3			11		
v_di, Inbound Pedestrian Volume crossing m	11			3			3			10		
v_co, Outbound Pedestrian Volume crossing	6			10			6			10		
v_ci, Inbound Pedestrian Volume crossing mi	6			10			6			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	75.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	4	6	0
Maximum Green [s]	30	60	0	20	50	0	0	45	0	30	50	0
Amber [s]	3.5	4.0	0.0	3.5	3.9	0.0	0.0	4.0	0.0	3.5	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.5	1.0	0.0
Split [s]	27	52	0	18	43	0	0	42	0	28	70	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	30	0	0	34	0	0	31	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	2.0	2.9	0.0	0.0	3.0	0.0	2.0	2.6	0.0
Minimum Recall	No	No		No	No			No		No	No	
Maximum Recall	No	No		No	No			Yes		No	Yes	
Pedestrian Recall	No	No		No	No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	R	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.50	5.00	5.00	4.00	4.90	4.90	5.00	5.00	4.00	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	3.00	3.00	2.00	2.90	2.90	3.00	3.00	2.00	2.60	2.60
g_i, Effective Green Time [s]	15	34	34	11	30	30	57	57	20	81	81
g / C, Green / Cycle	0.11	0.24	0.24	0.08	0.21	0.21	0.41	0.41	0.14	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.09	0.18	0.18	0.06	0.16	0.18	0.27	0.33	0.13	0.17	0.13
s, saturation flow rate [veh/h]	3497	1891	1762	3497	3600	1568	5151	1571	1801	5151	1571
c, Capacity [veh/h]	375	461	429	277	766	334	2086	636	259	2988	911
d1, Uniform Delay [s]	61.26	48.94	49.11	63.31	51.41	52.63	33.89	36.53	58.97	14.81	14.23
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.16	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.64	2.39	2.71	4.73	1.36	5.77	1.67	10.76	14.54	0.24	0.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.74	0.75	0.78	0.73	0.84	0.66	0.81	0.90	0.29	0.23
d, Delay for Lane Group [s/veh]	65.90	51.33	51.82	68.04	52.77	58.40	35.56	47.29	73.52	15.05	14.83
Lane Group LOS	E	D	D	E	D	E	D	D	E	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.58	11.21	10.68	3.95	9.25	9.91	12.77	16.94	9.09	4.57	3.38
50th-Percentile Queue Length [ft/ln]	139.57	280.37	266.91	98.71	231.35	247.75	319.13	423.40	227.31	114.18	84.42
95th-Percentile Queue Length [veh/ln]	9.46	16.71	16.03	7.11	14.24	15.07	18.62	23.69	14.04	8.07	6.08
95th-Percentile Queue Length [ft/ln]	236.45	417.68	400.87	177.69	356.07	376.82	465.62	592.13	350.94	201.80	151.96

Movement, Approach, & Intersection Results

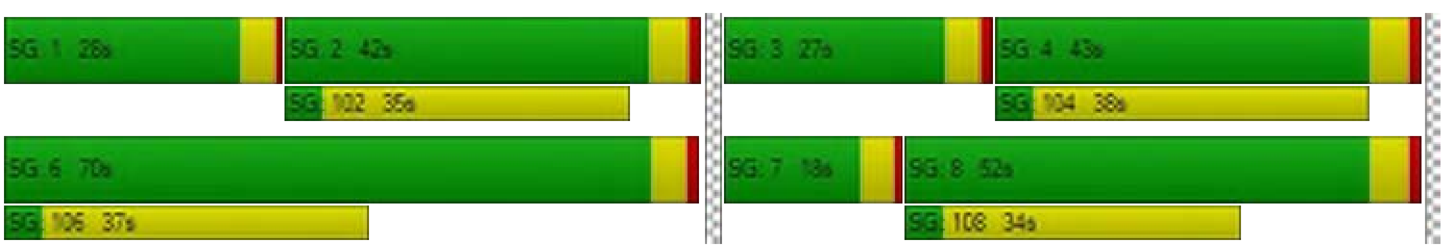
d_M, Delay for Movement [s/veh]	65.90	51.52	51.82	68.04	52.77	58.40	0.00	35.56	47.29	73.52	15.05	14.83
Movement LOS	E	D	D	E	D	E		D	D	E	B	B
d_A, Approach Delay [s/veh]	56.12			57.39			38.75			25.47		
Approach LOS	E			E			D			C		
d_I, Intersection Delay [s/veh]	42.47											
Intersection LOS	D											
Intersection V/C	0.793											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	165.11	484.17	216.94
d_p, Pedestrian Delay [s]	62.23	62.23	62.23	62.23
I_p,int, Pedestrian LOS Score for Intersection	2.970	3.008	3.237	3.175
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	671	544	529	934
d_b, Bicycle Delay [s]	30.94	37.16	37.95	19.90
I_b,int, Bicycle LOS Score for Intersection	2.365	2.431	2.603	2.273
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Center Park Ln and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	21.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	390.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Base Volume Input [veh/h]	185	112	363	1336	807	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.50	0.50	0.50	0.50	0.50	0.50
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	185	112	363	1336	807	49
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	29	95	348	210	13
Total Analysis Volume [veh/h]	193	117	378	1392	841	51
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		15	
v_di, Inbound Pedestrian Volume crossing m	0		0		14	
v_co, Outbound Pedestrian Volume crossing	5		14		5	
v_ci, Inbound Pedestrian Volume crossing mi	5		15		5	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	19.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	4	0	6	5	5	0
Maximum Green [s]	35	0	30	40	40	0
Amber [s]	3.5	0.0	3.1	3.5	3.5	0.0
All red [s]	0.5	0.0	0.5	1.0	1.0	0.0
Split [s]	36	0	37	84	47	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0
Pedestrian Clearance [s]	20	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	1.6	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	0.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	16	16	27	95	64	64
g / C, Green / Cycle	0.14	0.14	0.23	0.79	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.11	0.07	0.21	0.27	0.17	0.16
s, saturation flow rate [veh/h]	1688	1609	1802	5155	3603	1826
c, Capacity [veh/h]	231	220	406	4085	1935	980
d1, Uniform Delay [s]	50.44	48.18	45.50	3.54	15.38	15.34
k, delay calibration	0.11	0.11	0.34	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.83	2.00	23.17	0.23	0.41	0.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.53	0.93	0.34	0.31	0.30
d, Delay for Lane Group [s/veh]	58.27	50.17	68.67	3.76	15.79	16.14
Lane Group LOS	E	D	E	A	B	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.19	3.41	13.46	2.51	4.50	4.59
50th-Percentile Queue Length [ft/ln]	154.73	85.37	336.61	62.64	112.50	114.87
95th-Percentile Queue Length [veh/ln]	10.27	6.15	19.48	4.51	7.98	8.11
95th-Percentile Queue Length [ft/ln]	256.73	153.67	487.05	112.76	199.47	202.76

Movement, Approach, & Intersection Results

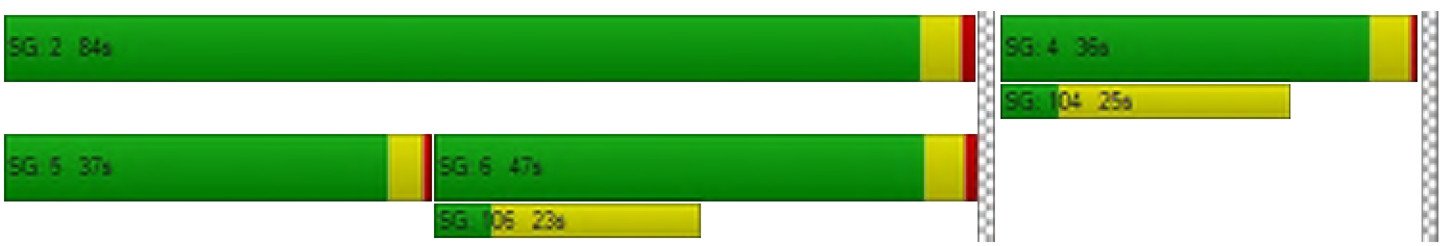
d_M, Delay for Movement [s/veh]	58.27	50.17	68.67	3.76	15.90	16.14
Movement LOS	E	D	E	A	B	B
d_A, Approach Delay [s/veh]	55.21		17.63		15.91	
Approach LOS	E		B		B	
d_I, Intersection Delay [s/veh]	21.03					
Intersection LOS	C					
Intersection V/C	0.544					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	501.89	0.00	251.53
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.156	0.000	2.938
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.106	4.623
Bicycle LOS	D	F	E

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foster City Metro Center Hotel EIR

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Report File: \...\Existing PM Report.pdf | 12/10/2019

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Vintage Park Dr and Chess Dr	186	53	489	273	295	90	29	276	286	77	176	11	2241

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Chess Dr and Route 92 West Ramp	77	2	197	10	20	4	0	262	780	912	175	1	2440

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Foster City Blvd and Chess Dr	692	207	19	2	996	235	38	13	418	108	161	4	2893

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Metro Center Blvd and Shell Blvd	181	63	181	64	45	85	14	519	173	26	49	70	1470

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Metro Center Blvd and Route 92 East Ramp	2	49	21	108	4	44	504	257	6	8	101	972	2076

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foster City Blvd and Metro Center Blvd	234	547	64	198	615	729	103	130	153	62	118	268	3221

ID	Intersection Name	Northbound			Southbound			Eastbound		Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Thru	Right	Left	Thru	Right	
7	Shell Blvd and E Hillsdale Blvd	291	193	92	115	206	81	1055	497	119	478	76	3203

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	Foster City Blvd and E Hillsdale Blvd	148	383	34	197	471	152	355	461	440	69	256	77	3043

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	Metro Center Blvd and Vintage Park Dr	23	246	108	297	150	186	136	359	43	35	171	345	2099

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	Edgewater Blvd and Mariners Island Blvd	3	6	5	178	2	97	564	699	10	17	729	292	2602

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11	Metro Center Blvd and Edgewater Blvd	29	13	6	327	12	193	198	679	17	21	647	149	2291

ID	Intersection Name	Northbound			Southbound			Eastbound		Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Thru	Right	Left	Thru	Right	
12	Edgewater Blvd and E Hillsdale Blvd	301	544	102	210	542	273	1340	501	225	827	206	5071

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
13	Center Park Ln and E Hillsdale Blvd	185	112	363	1336	807	49	2852

Study Intersections

Foster City Metro Center Hotel EIR

Vistro File: \...\FC Metro Center Hotel 9.26.19.vistro | Scenario 3 Existing Plus Project AM

Report File: \...\EPP AM Report.pdf | 12/10/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Vintage Park Dr and Chess Dr	Signalized	HCM 6th Edition	SB Left	0.429	14.9	B
2	Chess Dr and Route 92 West Ramp	Signalized	HCM 6th Edition	NB Right	0.894	177.0	F
3	Foster City Blvd and Chess Dr	Signalized	HCM 6th Edition	EB Right	0.765	67.5	E
4	Metro Center Blvd and Shell Blvd	Signalized	HCM 6th Edition	SB Left	0.303	33.6	C
5	Metro Center Blvd and Route 92 East Ramp	Signalized	HCM 6th Edition	NB Right	0.443	23.6	C
6	Foster City Blvd and Metro Center Blvd	Signalized	HCM 6th Edition	WB Right	0.798	84.2	F
7	Shell Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	SB Left	0.509	29.0	C
8	Foster City Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	WB Left	0.647	38.9	D
9	Metro Center Blvd and Vintage Park Dr	Signalized	HCM 6th Edition	NB Left	0.521	27.4	C
10	Edgewater Blvd and Mariners Island Blvd	Signalized	HCM 6th Edition	WB Left	0.521	30.4	C
11	Metro Center Blvd and Edgewater Blvd	Signalized	HCM 6th Edition	WB Left	0.494	44.6	D
12	Edgewater Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	WB Left	0.624	28.6	C
13	Center Park Ln and E Hillsdale Blvd	Signalized	HCM 6th Edition	SB Left	0.408	10.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Vintage Park Dr and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.429

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	280.00	100.00	100.00	265.00	100.00	100.00	140.00	100.00	100.00	215.00	100.00	100.00
Speed [mph]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	109	314	145	14	54	29	64	147	81	184	257	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	109	314	145	14	54	29	64	147	81	184	257	119
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	84	39	4	15	8	17	40	22	49	69	32
Total Analysis Volume [veh/h]	117	338	156	15	58	31	69	158	87	198	276	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	11			4			10			3		
v_di, Inbound Pedestrian Volume crossing m	10			3			11			4		
v_co, Outbound Pedestrian Volume crossing	3			9			10			3		
v_ci, Inbound Pedestrian Volume crossing mi	3			10			9			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	4	0	4	4	0	4	4	0	4	4	0
Maximum Green [s]	40	50	0	30	40	0	20	40	0	20	40	0
Amber [s]	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0
All red [s]	0.5	0.5	0.0	1.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	23	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	1.7	0.0	2.1	2.2	0.0	1.6	2.2	0.0	1.6	2.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	37	37	37	37	37	37	37	37	37	37	37	37	37
L, Total Lost Time per Cycle [s]	3.60	3.70	3.70	3.70	4.10	4.20	4.20	3.60	4.20	4.20	3.60	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.70	1.70	1.70	2.10	2.20	2.20	1.60	2.20	2.20	1.60	2.20	2.20
g_i, Effective Green Time [s]	3	8	8	8	1	5	5	2	7	7	6	11	11
g / C, Green / Cycle	0.09	0.21	0.21	0.21	0.02	0.13	0.13	0.06	0.20	0.20	0.15	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.07	0.09	0.09	0.10	0.01	0.02	0.03	0.04	0.07	0.07	0.11	0.11	0.12
s, saturation flow rate [veh/h]	1765	1853	1841	1562	1765	1853	1579	1765	1853	1601	1765	1853	1651
c, Capacity [veh/h]	163	392	389	330	28	250	213	98	370	319	274	554	494
d1, Uniform Delay [s]	16.46	12.79	12.79	12.82	18.23	14.31	14.36	17.32	12.83	12.91	15.00	10.35	10.37
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.81	0.78	0.79	0.97	15.22	0.34	0.47	8.81	0.55	0.72	3.59	0.43	0.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.44	0.44	0.45	0.54	0.18	0.21	0.70	0.34	0.37	0.72	0.38	0.39
d, Delay for Lane Group [s/veh]	22.27	13.57	13.58	13.79	33.44	14.65	14.84	26.12	13.38	13.62	18.59	10.78	10.87
Lane Group LOS	C	B	B	B	C	B	B	C	B	B	B	B	B
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.08	1.09	1.08	0.96	0.23	0.30	0.30	0.75	0.82	0.78	1.58	1.11	1.02
50th-Percentile Queue Length [ft/ln]	26.88	27.14	27.01	24.00	5.69	7.57	7.53	18.72	20.45	19.49	39.38	27.68	25.42
95th-Percentile Queue Length [veh/ln]	1.94	1.95	1.94	1.73	0.41	0.55	0.54	1.35	1.47	1.40	2.84	1.99	1.83
95th-Percentile Queue Length [ft/ln]	48.39	48.85	48.61	43.19	10.24	13.63	13.56	33.70	36.81	35.08	70.88	49.82	45.76

Movement, Approach, & Intersection Results

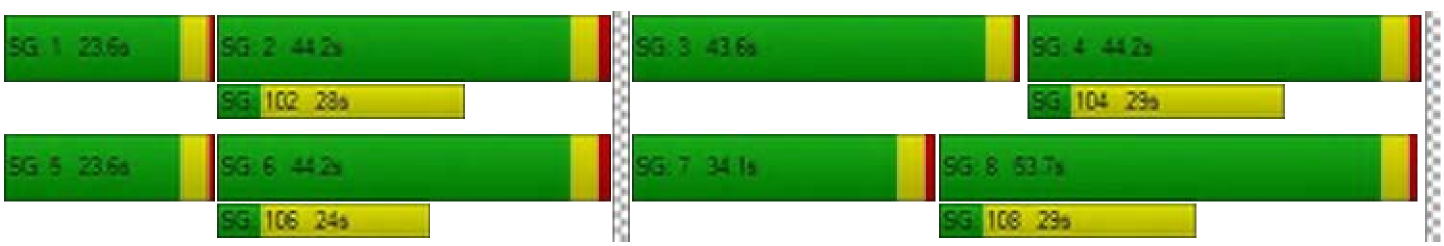
d_M, Delay for Movement [s/veh]	22.27	13.58	13.79	33.44	14.69	14.84	26.12	13.43	13.62	18.59	10.80	10.87
Movement LOS	C	B	B	C	B	B	C	B	B	B	B	B
d_A, Approach Delay [s/veh]	15.29			17.44			16.27			13.38		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.91											
Intersection LOS	B											
Intersection V/C	0.429											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	402.02	1033.62	469.53	1236.67
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.609	2.426	2.421	2.606
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1111	889	889	889
d_b, Bicycle Delay [s]	8.89	13.90	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.064	1.645	1.819	2.056
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Chess Dr and Route 92 West Ramp

Control Type:	Signalized	Delay (sec / veh):	177.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.894

Intersection Setup

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	480.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	393	35	731	2	16	5	1	130	122	713	195	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	393	35	731	2	16	5	1	130	122	713	195	11
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	106	9	197	1	4	1	0	35	33	192	52	3
Total Analysis Volume [veh/h]	423	38	786	2	17	5	1	140	131	767	210	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	35.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	4	0	0	1	6	1	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	4	0	0	6	5	6	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	30	55	0
Amber [s]	0.0	3.5	0.0	0.0	3.2	0.0	0.0	3.2	3.1	3.2	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	0.5	0.0	0.0	1.0	1.0	1.0	2.0	0.0
Split [s]	0	30	0	0	26	0	0	20	50	20	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	17	0	0	0	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.5	0.0	0.0	1.7	0.0	0.0	2.2	2.1	2.2	3.5	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		Yes	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	3.70	4.20	4.10	5.50	5.50	5.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	1.70	2.20	2.10	3.50	3.50	3.50
g_i, Effective Green Time [s]	30	30	30	2	11	46	59	59	59
g / C, Green / Cycle	0.25	0.25	0.25	0.02	0.09	0.38	0.49	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.50	0.01	0.08	0.05	0.22	0.22	0.13
s, saturation flow rate [veh/h]	1767	1781	1577	1782	1854	2791	1767	1767	1672
c, Capacity [veh/h]	441	444	394	34	175	1067	861	861	815
d1, Uniform Delay [s]	38.91	38.86	45.09	58.57	53.32	24.05	20.15	20.15	18.19
k, delay calibration	0.11	0.11	0.50	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.96	0.94	457.65	22.22	8.35	0.05	1.67	1.67	0.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.52	2.00	0.70	0.80	0.12	0.45	0.45	0.27
d, Delay for Lane Group [s/veh]	39.87	39.80	502.74	80.79	61.67	24.10	21.82	21.82	19.02
Lane Group LOS	D	D	F	F	E	C	C	C	B
Critical Lane Group	No	No	Yes	Yes	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.99	5.98	61.65	0.94	4.58	1.23	7.35	7.35	3.82
50th-Percentile Queue Length [ft/ln]	149.67	149.45	1541.17	23.47	114.44	30.64	183.71	183.71	95.47
95th-Percentile Queue Length [veh/ln]	10.00	9.99	97.29	1.69	8.09	2.21	11.79	11.79	6.87
95th-Percentile Queue Length [ft/ln]	249.99	249.69	2432.22	42.25	202.17	55.15	294.86	294.86	171.84

Movement, Approach, & Intersection Results

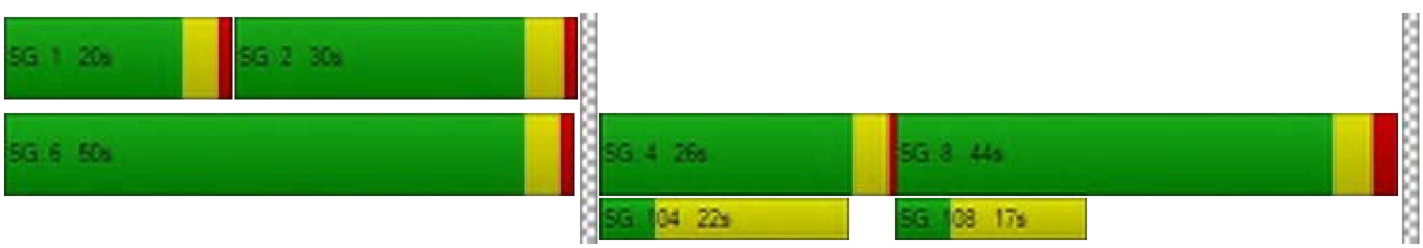
d_M, Delay for Movement [s/veh]	39.84	39.80	502.74	80.79	80.79	80.79	61.67	61.67	24.10	21.82	19.02	19.02
Movement LOS	D	D	F	F	F	F	E	E	C	C	B	B
d_A, Approach Delay [s/veh]	331.61			80.79			43.58			21.19		
Approach LOS	F			F			D			C		
d_I, Intersection Delay [s/veh]	177.04											
Intersection LOS	F											
Intersection V/C	0.894											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	1.767	2.493	0.000
Crosswalk LOS	F	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	425	372	263	642
d_b, Bicycle Delay [s]	37.21	39.79	45.24	27.68
I_b,int, Bicycle LOS Score for Intersection	3.617	1.599	2.008	2.376
Bicycle LOS	D	A	B	B

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Foster City Blvd and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	67.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.765

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	510.00	100.00	100.00	80.00	100.00	180.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	827	900	194	3	299	67	322	61	480	19	25	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	827	900	194	3	299	67	322	61	480	19	25	4
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	211	230	49	1	76	17	82	16	122	5	6	1
Total Analysis Volume [veh/h]	844	918	198	3	305	68	329	62	490	19	26	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	30.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	3	3	3	0	1	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	4	4	4	0	4	4	0
Maximum Green [s]	55	65	0	20	35	30	30	30	0	55	35	0
Amber [s]	3.5	3.6	0.0	3.1	3.9	3.2	3.2	3.2	0.0	3.5	3.1	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0	1.0	0.5	0.0
Split [s]	40	45	0	16	21	27	27	27	0	40	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	0	4	0
Pedestrian Clearance [s]	0	23	0	0	0	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.6	0.0	1.6	2.9	1.7	1.7	1.7	0.0	2.5	1.6	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	Yes	Yes		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.60	4.60	3.60	4.90	3.70	3.70	3.70	3.70	3.60	3.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.60	2.60	1.60	2.90	0.00	1.70	1.70	1.70	1.60	1.60
g_i, Effective Green Time [s]	61	74	74	0	13	44	27	27	27	3	3
g / C, Green / Cycle	0.51	0.62	0.62	0.00	0.11	0.37	0.22	0.22	0.22	0.03	0.03
(v / s)_i Volume / Saturation Flow Rate	0.25	0.30	0.32	0.00	0.09	0.04	0.11	0.11	0.34	0.01	0.02
s, saturation flow rate [veh/h]	3439	1859	1750	1771	3540	1581	1771	1798	1438	1771	1817
c, Capacity [veh/h]	1741	1150	1082	6	373	582	393	399	319	49	50
d1, Uniform Delay [s]	19.40	12.50	12.84	59.72	52.56	25.03	40.79	40.79	46.68	57.38	57.71
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.97	1.47	1.76	59.46	4.45	0.09	0.96	0.95	255.72	5.06	11.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.49	0.52	0.53	0.82	0.12	0.49	0.49	1.53	0.39	0.60
d, Delay for Lane Group [s/veh]	20.37	13.97	14.60	119.18	57.01	25.12	41.75	41.73	302.41	62.44	68.86
Lane Group LOS	C	B	B	F	E	C	D	D	F	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	7.84	8.33	8.60	0.18	4.69	1.29	5.12	5.20	32.14	0.64	1.06
50th-Percentile Queue Length [ft/ln]	195.91	208.20	215.11	4.61	117.22	32.22	128.10	129.99	803.44	16.00	26.55
95th-Percentile Queue Length [veh/ln]	12.43	13.06	13.42	0.33	8.24	2.32	8.84	8.94	50.12	1.15	1.91
95th-Percentile Queue Length [ft/ln]	310.69	326.52	335.38	8.30	205.99	58.00	220.91	223.48	1252.95	28.79	47.79

Movement, Approach, & Intersection Results

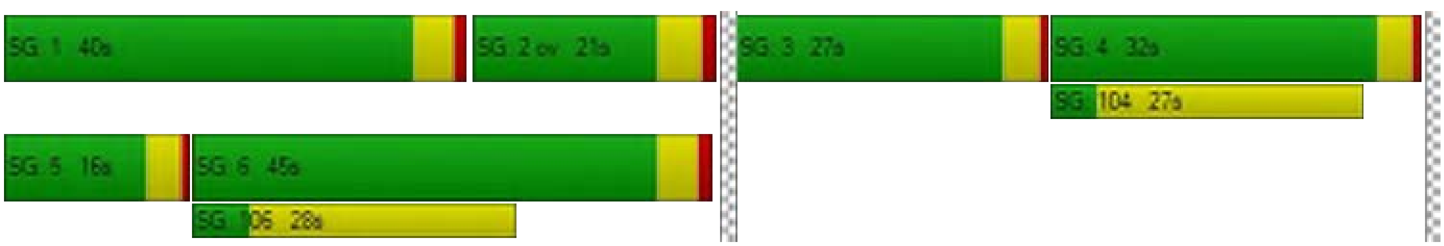
d_M, Delay for Movement [s/veh]	20.37	14.21	14.60	119.18	57.01	25.12	41.74	41.73	302.41	62.44	68.86	68.86
Movement LOS	C	B	B	F	E	C	D	D	F	E	E	E
d_A, Approach Delay [s/veh]		16.90			51.74			186.72			66.37	
Approach LOS		B			D			F			E	
d_I, Intersection Delay [s/veh]						67.46						
Intersection LOS						E						
Intersection V/C						0.765						

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	52.27	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.777	0.000	2.210
Crosswalk LOS	F	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	673	268	388	473
d_b, Bicycle Delay [s]	26.40	44.98	38.96	34.96
I_b,int, Bicycle LOS Score for Intersection	3.177	1.870	2.286	1.640
Bicycle LOS	C	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Metro Center Blvd and Shell Blvd

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.303

Intersection Setup

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	2	0	1
Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	85.00	100.00	100.00	210.00	100.00	200.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	240	26	68	3	4	9	5	105	54	167	422	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	240	26	68	3	4	9	5	105	54	167	422	41
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	7	17	1	1	2	1	27	14	43	108	10
Total Analysis Volume [veh/h]	245	27	69	3	4	9	5	107	55	170	431	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	16			7			16			6		
v_di, Inbound Pedestrian Volume crossing m	16			6			16			7		
v_co, Outbound Pedestrian Volume crossing	16			4			4			16		
v_ci, Inbound Pedestrian Volume crossing mi	16			4			4			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	65.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	6	6	0
Maximum Green [s]	20	60	0	20	35	0	20	40	0	20	40	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0
Split [s]	36	53	0	16	33	0	14	35	0	16	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	28	0	0	20	0	0	21	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.5	0.0	1.5	2.5	0.0	1.5	2.5	0.0	2.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.50	4.50	4.50	3.50	4.50	3.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.50	2.50	1.50	2.50	1.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	19	23	23	0	5	1	71	71	8	80	80
g / C, Green / Cycle	0.15	0.19	0.19	0.00	0.04	0.01	0.59	0.59	0.07	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.14	0.01	0.05	0.00	0.01	0.00	0.04	0.05	0.05	0.12	0.03
s, saturation flow rate [veh/h]	1761	1849	1494	1761	1581	1761	1849	1628	3420	3520	1556
c, Capacity [veh/h]	273	361	292	6	69	10	1092	961	237	2333	1031
d1, Uniform Delay [s]	49.82	39.46	40.67	59.72	55.33	59.55	10.54	10.59	54.72	7.79	7.02
k, delay calibration	0.33	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	24.76	0.09	0.41	49.20	1.28	37.51	0.13	0.17	4.03	0.17	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.07	0.24	0.49	0.19	0.52	0.08	0.08	0.72	0.18	0.04
d, Delay for Lane Group [s/veh]	74.58	39.55	41.08	108.92	56.62	97.06	10.68	10.76	58.76	7.96	7.10
Lane Group LOS	E	D	D	F	E	F	B	B	E	A	A
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	9.01	0.66	1.75	0.17	0.40	0.25	0.95	0.92	2.63	2.05	0.37
50th-Percentile Queue Length [ft/ln]	225.28	16.48	43.67	4.37	10.05	6.27	23.74	23.10	65.77	51.22	9.28
95th-Percentile Queue Length [veh/ln]	13.93	1.19	3.14	0.31	0.72	0.45	1.71	1.66	4.74	3.69	0.67
95th-Percentile Queue Length [ft/ln]	348.35	29.67	78.60	7.87	18.09	11.28	42.73	41.59	118.38	92.20	16.71

Movement, Approach, & Intersection Results

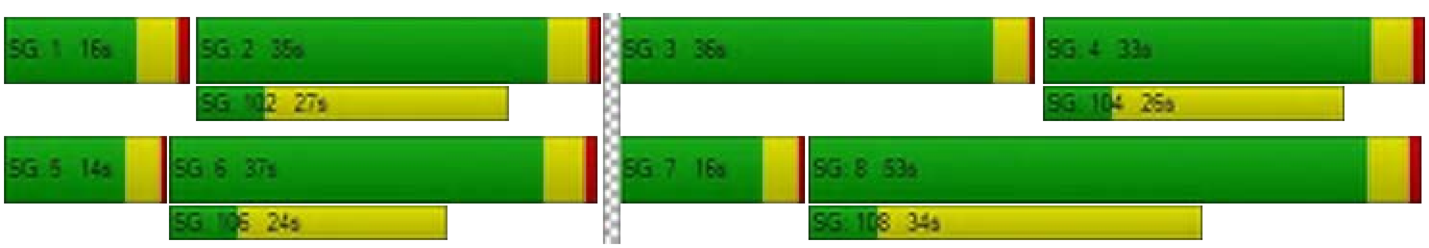
d_M, Delay for Movement [s/veh]	74.58	39.55	41.08	108.92	56.62	56.62	97.06	10.70	10.76	58.76	7.96	7.10
Movement LOS	E	D	D	F	E	E	F	B	B	E	A	A
d_A, Approach Delay [s/veh]	65.03			66.42			13.30			21.33		
Approach LOS	E			E			B			C		
d_I, Intersection Delay [s/veh]	33.57											
Intersection LOS	C											
Intersection V/C	0.303											

Other Modes

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	215.47	458.00	967.48	230.56
d_p, Pedestrian Delay [s]	50.42	50.42	50.42	50.42
I_p,int, Pedestrian LOS Score for Intersection	2.444	1.989	2.508	2.742
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	808	475	508	542
d_b, Bicycle Delay [s]	21.30	34.88	33.38	31.90
I_b,int, Bicycle LOS Score for Intersection	2.122	1.586	1.697	2.090
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Metro Center Blvd and Route 92 East Ramp

Control Type:	Signalized	Delay (sec / veh):	23.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.443

Intersection Setup

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	2	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	600.00	100.00	640.00	290.00	100.00	100.00	90.00	100.00	100.00
Speed [mph]	15.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	2	2	21	942	48	441	64	138	4	37	178	196
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	2	21	942	48	441	64	138	4	37	178	196
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	5	243	12	114	16	36	1	10	46	51
Total Analysis Volume [veh/h]	2	2	22	971	49	455	66	142	4	38	184	202
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	50.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	10	4	4	4	0	4	4	0
Maximum Green [s]	0	40	0	0	60	30	30	40	0	25	35	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	3.1	3.1	3.5	0.0	3.1	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.5	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	18	0	0	56	18	18	30	0	16	28	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	6	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	17	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	3.0	1.6	1.6	2.5	0.0	1.6	2.5	0.0
Minimum Recall		No			No	No	No	No		No	No	
Maximum Recall		No			Yes	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.20	4.20	5.00	5.00	3.60	3.60	4.50	4.50	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	3.00	3.00	0.00	1.60	2.50	2.50	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	2	2	79	79	93	8	18	18	3	12	12	12
g / C, Green / Cycle	0.02	0.02	0.66	0.66	0.77	0.07	0.15	0.15	0.03	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.29	0.29	0.16	0.02	0.04	0.04	0.02	0.07	0.08	0.08
s, saturation flow rate [veh/h]	1811	1578	1768	1776	2793	3434	1856	1839	1768	1856	1671	1578
c, Capacity [veh/h]	36	31	1169	1174	2161	245	274	271	49	193	174	164
d1, Uniform Delay [s]	57.82	58.51	9.70	9.68	3.67	52.80	45.42	45.43	57.99	52.02	52.16	52.23
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.38	25.60	1.19	1.17	0.22	0.59	0.52	0.53	22.25	4.71	5.81	6.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.71	0.44	0.43	0.21	0.27	0.27	0.27	0.77	0.71	0.73	0.74
d, Delay for Lane Group [s/veh]	59.20	84.11	10.88	10.85	3.89	53.39	45.93	45.95	80.24	56.73	57.96	58.73
Lane Group LOS	E	F	B	B	A	D	D	D	F	E	E	E
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.14	0.90	6.24	6.22	1.27	0.96	1.97	1.96	1.45	4.24	4.00	3.87
50th-Percentile Queue Length [ft/ln]	3.40	22.52	155.96	155.62	31.70	23.94	49.20	49.04	36.26	105.9	99.89	96.70
95th-Percentile Queue Length [veh/ln]	0.24	1.62	10.33	10.32	2.28	1.72	3.54	3.53	2.61	7.61	7.19	6.96
95th-Percentile Queue Length [ft/ln]	6.11	40.53	258.37	257.91	57.05	43.10	88.56	88.27	65.27	190.3	179.8	174.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.20	59.20	84.11	10.87	10.85	3.89	53.39	45.94	45.95	80.24	57.05	58.44
Movement LOS	E	E	F	B	B	A	D	D	D	F	E	E
d_A, Approach Delay [s/veh]	80.28			8.71			48.26			59.78		
Approach LOS	F			A			D			E		
d_I, Intersection Delay [s/veh]	23.64											
Intersection LOS	C											
Intersection V/C	0.443											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	51.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	19.84	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.710	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	230	850	425	392
d_b, Bicycle Delay [s]	46.99	19.84	37.21	38.80
I_b,int, Bicycle LOS Score for Intersection	1.603	3.993	1.735	1.909
Bicycle LOS	A	D	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Foster City Blvd and Metro Center Blvd

Control Type:	Signalized	Delay (sec / veh):	84.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.798

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	230.00	100.00	100.00	210.00	100.00	100.00	150.00	100.00	240.00	50.00	100.00	170.00
Speed [mph]		35.00			35.00			35.00			25.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No			No	
Crosswalk		Yes			No			No			Yes	

Volumes

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	132	955	66	137	467	194	472	183	446	52	85	494
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	132	955	66	137	467	194	472	183	446	52	85	494
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	239	17	34	117	49	118	46	112	13	21	124
Total Analysis Volume [veh/h]	132	955	66	137	467	194	472	183	446	52	85	494
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		7			0			0			8	
v_di, Inbound Pedestrian Volume crossing m		8			0			0			7	
v_co, Outbound Pedestrian Volume crossing		4			0			4			0	
v_ci, Inbound Pedestrian Volume crossing mi		4			0			4			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	103.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	5	4	1	1	3	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	4	4	6	0
Maximum Green [s]	30	40	0	25	40	0	25	40	30	30	30	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.2	3.1	3.1	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0
Split [s]	17	38	0	19	40	0	19	38	17	17	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.2	1.6	1.6	1.7	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	Yes		No	Yes			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	4.20	4.20	3.60	3.70	3.70	3.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	2.20	2.20	0.00	1.70	1.70	1.70
g_i, Effective Green Time [s]	13	48	48	11	46	46	23	23	41	21	21	21
g / C, Green / Cycle	0.11	0.40	0.40	0.09	0.38	0.38	0.19	0.19	0.34	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.07	0.19	0.19	0.08	0.09	0.07	0.14	0.05	0.16	0.03	0.05	0.31
s, saturation flow rate [veh/h]	1777	3552	1800	1777	5082	2807	3450	3552	2807	1777	1865	1586
c, Capacity [veh/h]	198	1432	726	165	1952	1078	664	684	952	315	331	281
d1, Uniform Delay [s]	51.15	26.41	26.43	53.52	25.06	24.45	45.32	41.24	31.15	41.81	42.53	49.35
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.80	1.12	2.22	10.29	0.29	0.37	1.42	0.21	0.36	0.24	0.41	354.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.47	0.47	0.83	0.24	0.18	0.71	0.27	0.47	0.16	0.26	1.76
d, Delay for Lane Group [s/veh]	54.95	27.53	28.65	63.80	25.35	24.81	46.74	41.45	31.51	42.06	42.93	403.44
Lane Group LOS	D	C	C	E	C	C	D	D	C	D	D	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.99	7.23	7.59	4.50	3.04	1.87	6.64	2.32	5.07	1.35	2.24	36.16
50th-Percentile Queue Length [ft/ln]	99.71	180.80	189.64	112.48	75.91	46.72	166.06	57.93	126.64	33.69	56.06	903.89
95th-Percentile Queue Length [veh/ln]	7.18	11.64	12.10	7.98	5.47	3.36	10.87	4.17	8.76	2.43	4.04	56.78
95th-Percentile Queue Length [ft/ln]	179.47	291.06	302.57	199.45	136.63	84.09	271.73	104.28	218.92	60.64	100.90	1419.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.95	27.86	28.65	63.80	25.35	24.81	46.74	41.45	31.51	42.06	42.93	403.44
Movement LOS	D	C	C	E	C	C	D	D	C	D	D	F
d_A, Approach Delay [s/veh]	31.01			31.82			39.69			325.10		
Approach LOS	C			C			D			F		
d_I, Intersection Delay [s/veh]	84.17											
Intersection LOS	F											
Intersection V/C	0.798											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	177.72	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.953	0.000	0.000	2.480
Crosswalk LOS	C	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	557	590	563	355
d_b, Bicycle Delay [s]	31.25	29.82	30.96	40.59
I_b,int, Bicycle LOS Score for Intersection	2.194	1.999	2.468	2.601
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Shell Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	210.00	100.00	100.00	160.00	100.00	160.00	245.00	100.00	100.00	135.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	353	181	168	43	65	53	91	555	165	54	912	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	353	181	168	43	65	53	91	555	165	54	912	77
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	90	46	43	11	17	14	23	142	42	14	233	20
Total Analysis Volume [veh/h]	360	185	171	44	66	54	93	566	168	55	931	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	17			27			27			17		
v_di, Inbound Pedestrian Volume crossing m	17			27			27			17		
v_co, Outbound Pedestrian Volume crossing	29			12			28			11		
v_ci, Inbound Pedestrian Volume crossing mi	28			11			29			12		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	73.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	4	6	0
Maximum Green [s]	25	50	0	30	40	0	30	55	0	25	45	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.0	3.6	0.0	3.1	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0	0.5	1.0	0.0
Split [s]	20	42	0	14	36	0	23	50	0	14	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.1	2.6	0.0	1.6	2.6	0.0	2.0	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.10	4.60	4.60	3.60	4.60	4.60	4.00	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.10	2.60	2.60	1.60	2.60	2.60	2.00	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	15	23	23	4	12	12	8	72	72	5	69	69
g / C, Green / Cycle	0.12	0.19	0.19	0.03	0.10	0.10	0.07	0.60	0.60	0.04	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.10	0.10	0.11	0.02	0.02	0.04	0.05	0.16	0.11	0.03	0.26	0.05
s, saturation flow rate [veh/h]	3464	1873	1487	1784	3566	1308	1784	3566	1528	1784	3566	1573
c, Capacity [veh/h]	421	354	281	59	343	126	119	2144	919	72	2038	899
d1, Uniform Delay [s]	51.74	43.83	44.26	57.60	49.98	50.77	55.18	11.35	10.68	57.06	14.92	11.60
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.10	1.20	2.13	17.35	0.27	2.30	10.48	0.30	0.44	15.17	0.74	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.52	0.61	0.75	0.19	0.43	0.78	0.26	0.18	0.76	0.46	0.09
d, Delay for Lane Group [s/veh]	56.84	45.03	46.38	74.94	50.25	53.08	65.66	11.65	11.11	72.23	15.66	11.79
Lane Group LOS	E	D	D	E	D	D	E	B	B	E	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.61	5.08	4.80	1.61	0.93	1.60	3.12	3.58	2.06	1.96	7.38	0.99
50th-Percentile Queue Length [ft/ln]	140.14	127.00	119.93	40.19	23.24	40.12	77.96	89.60	51.57	48.92	184.43	24.85
95th-Percentile Queue Length [veh/ln]	9.49	8.78	8.39	2.89	1.67	2.89	5.61	6.45	3.71	3.52	11.83	1.79
95th-Percentile Queue Length [ft/ln]	237.22	219.41	209.73	72.34	41.84	72.21	140.32	161.28	92.83	88.05	295.79	44.73

Movement, Approach, & Intersection Results

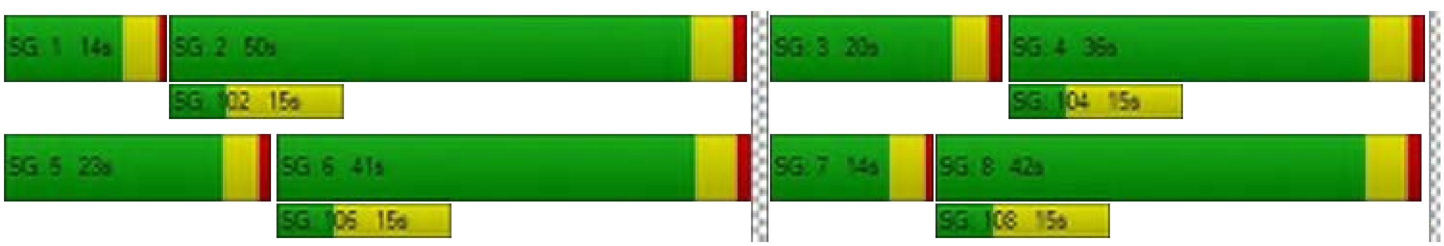
d_M, Delay for Movement [s/veh]	56.84	45.03	46.38	74.94	50.25	53.08	65.66	11.65	11.11	72.23	15.66	11.79
Movement LOS	E	D	D	E	D	D	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	51.29			57.80			17.62			18.30		
Approach LOS	D			E			B			B		
d_I, Intersection Delay [s/veh]	28.95											
Intersection LOS	C											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	83.28	265.90	124.46	153.12
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.631	2.553	2.912	2.866
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	623	523	757	607
d_b, Bicycle Delay [s]	28.44	32.72	23.20	29.12
I_b,int, Bicycle LOS Score for Intersection	2.741	1.695	2.242	2.438
Bicycle LOS	B	A	B	B

Sequence

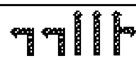
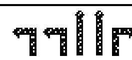
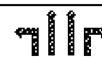
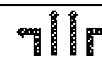
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Foster City Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	38.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.647

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	0	1	0	0	1	0	1
Pocket Length [ft]	260.00	100.00	410.00	210.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	341	727	51	255	470	310	249	305	206	69	452	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	341	727	51	255	470	310	249	305	206	69	452	165
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	189	13	66	122	81	65	79	54	18	118	43
Total Analysis Volume [veh/h]	355	757	53	266	490	323	259	318	215	72	471	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			18			12			18		
v_di, Inbound Pedestrian Volume crossing m	12			18			12			18		
v_co, Outbound Pedestrian Volume crossing	8			4			4			8		
v_ci, Inbound Pedestrian Volume crossing mi	8			4			4			8		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			2			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	35	50	0	30	40	0	30	40	0	30	40	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	27	44	0	18	35	0	30	42	0	16	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	25	0	0	25	0	0	27	0	0	27	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	15	48	48	12	44	44	20	38	38	6	24	24
g / C, Green / Cycle	0.13	0.40	0.40	0.10	0.37	0.37	0.16	0.31	0.31	0.05	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.10	0.15	0.15	0.08	0.14	0.20	0.14	0.09	0.14	0.04	0.13	0.12
s, saturation flow rate [veh/h]	3475	3578	1812	3475	3578	1587	1790	3578	1540	1790	3578	1493
c, Capacity [veh/h]	444	1429	724	342	1324	587	292	1119	481	95	725	303
d1, Uniform Delay [s]	50.86	25.47	25.49	52.84	27.60	29.86	49.17	31.12	32.76	56.10	43.95	42.77
k, delay calibration	0.11	0.50	0.50	0.11	0.11	0.17	0.15	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.37	0.76	1.50	3.84	0.17	1.23	11.70	0.14	0.65	11.77	0.99	1.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.38	0.38	0.78	0.37	0.55	0.89	0.28	0.45	0.76	0.65	0.57
d, Delay for Lane Group [s/veh]	54.24	26.23	26.99	56.67	27.77	31.09	60.87	31.26	33.41	67.87	44.94	44.45
Lane Group LOS	D	C	C	E	C	C	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.30	5.42	5.66	4.06	5.11	7.44	8.46	3.48	5.01	2.45	6.47	4.67
50th-Percentile Queue Length [ft/ln]	132.45	135.47	141.58	101.59	127.70	186.03	211.46	86.95	125.19	61.13	161.66	116.66
95th-Percentile Queue Length [veh/ln]	9.07	9.24	9.57	7.31	8.81	11.91	13.23	6.26	8.68	4.40	10.64	8.21
95th-Percentile Queue Length [ft/ln]	226.82	230.91	239.15	182.87	220.36	297.87	330.70	156.50	216.94	110.03	265.91	205.22

Movement, Approach, & Intersection Results

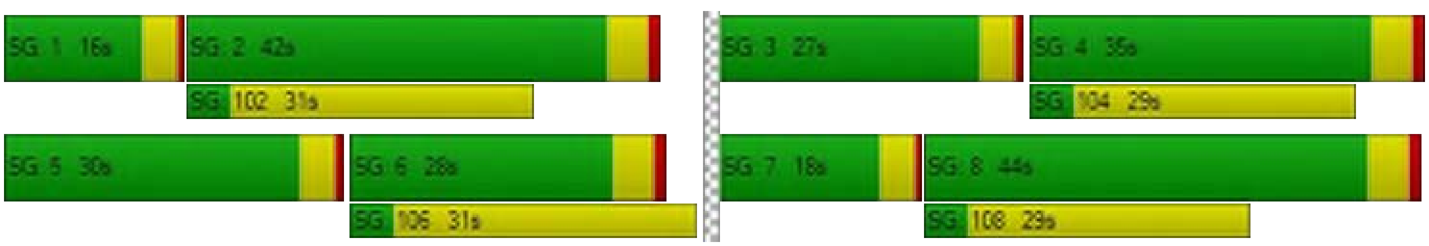
d_M, Delay for Movement [s/veh]	54.24	26.45	26.99	56.67	27.77	31.09	60.87	31.26	33.41	67.87	44.94	44.45
Movement LOS	D	C	C	E	C	C	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	34.94			35.89			41.53			47.13		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	38.93											
Intersection LOS	D											
Intersection V/C	0.647											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	158.57	131.30	298.76	356.42
d_p, Pedestrian Delay [s]	52.27	52.27	52.27	52.27
I_p,int, Pedestrian LOS Score for Intersection	2.971	3.064	2.925	2.725
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	657	507	623	390
d_b, Bicycle Delay [s]	27.07	33.45	28.46	38.90
I_b,int, Bicycle LOS Score for Intersection	2.200	2.450	2.213	2.149
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Metro Center Blvd and Vintage Park Dr

Control Type:	Signalized	Delay (sec / veh):	27.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	150.00	100.00	100.00	250.00	100.00	390.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	15	51	14	97	113	99	161	233	83	89	140	361
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	51	14	97	113	99	161	233	83	89	140	361
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	14	4	27	31	28	45	65	23	25	39	100
Total Analysis Volume [veh/h]	17	57	16	108	126	110	179	259	92	99	156	401
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	70			33			70			33		
v_di, Inbound Pedestrian Volume crossing m	70			33			70			33		
v_co, Outbound Pedestrian Volume crossing	67			57			57			68		
v_ci, Inbound Pedestrian Volume crossing mi	68			57			57			67		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	6	6	0
Maximum Green [s]	40	60	0	20	35	0	20	40	0	20	40	0
Amber [s]	3.0	3.2	0.0	3.0	3.2	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	22	0	0	22	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.2	0.0	1.5	1.7	0.0	1.5	2.5	0.0	1.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	79	79	79	79	79	79	79	79	79	79	79	79
L, Total Lost Time per Cycle [s]	3.50	4.20	4.20	3.50	3.70	3.70	3.50	4.50	4.50	3.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.20	2.20	1.50	1.70	1.70	1.50	2.50	2.50	1.50	2.50	2.50
g_i, Effective Green Time [s]	1	23	23	6	28	28	10	28	28	6	24	24
g / C, Green / Cycle	0.02	0.29	0.29	0.08	0.36	0.36	0.13	0.36	0.36	0.07	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.01	0.02	0.02	0.06	0.07	0.08	0.10	0.10	0.11	0.06	0.04	0.25
s, saturation flow rate [veh/h]	1769	1858	1599	1769	1858	1429	1769	1858	1485	1769	3538	1579
c, Capacity [veh/h]	28	539	464	141	670	515	222	666	532	130	1083	484
d1, Uniform Delay [s]	38.76	20.37	20.43	35.75	17.40	17.43	33.71	18.09	18.41	36.05	19.96	25.57
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.77	0.05	0.07	8.30	0.13	0.20	6.70	0.22	0.34	8.83	0.06	3.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.07	0.08	0.76	0.19	0.21	0.80	0.27	0.32	0.76	0.14	0.83
d, Delay for Lane Group [s/veh]	57.53	20.43	20.51	44.05	17.53	17.64	40.42	18.30	18.75	44.88	20.02	29.29
Lane Group LOS	E	C	C	D	B	B	D	B	B	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.47	0.48	0.48	2.32	1.53	1.35	3.62	2.26	2.15	2.13	1.00	7.02
50th-Percentile Queue Length [ft/ln]	11.73	12.11	12.01	57.99	38.37	33.75	90.52	56.40	53.65	53.19	24.97	175.49
95th-Percentile Queue Length [veh/ln]	0.84	0.87	0.86	4.18	2.76	2.43	6.52	4.06	3.86	3.83	1.80	11.36
95th-Percentile Queue Length [ft/ln]	21.11	21.79	21.62	104.38	69.06	60.75	162.94	101.52	96.57	95.75	44.95	284.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.53	20.45	20.51	44.05	17.53	17.64	40.42	18.44	18.75	44.88	20.02	29.29
Movement LOS	E	C	C	D	B	B	D	B	B	D	C	C
d_A, Approach Delay [s/veh]	27.47			25.89			25.91			29.44		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	27.42											
Intersection LOS	C											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	49.74	36.63	65.08	69.32
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.232	2.493	2.486	2.651
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	778	889	889
d_b, Bicycle Delay [s]	5.00	16.81	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	1.634	2.127	1.997	2.101
Bicycle LOS	A	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 10: Edgewater Blvd and Mariners Island Blvd

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	2	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	40.00	400.00	100.00	400.00	190.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	5	2	7	638	2	473	89	308	4	8	750	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	2	7	638	2	473	89	308	4	8	750	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	2	166	1	123	23	80	1	2	195	14
Total Analysis Volume [veh/h]	5	2	7	665	2	493	93	321	4	8	781	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			1		
v_di, Inbound Pedestrian Volume crossing m	1			0			0			0		
v_co, Outbound Pedestrian Volume crossing	3			3			2			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			2			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	84.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups							4,5					
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	6	0	4	6	0	4	6	0
Maximum Green [s]	0	40	0	0	60	0	30	65	0	20	50	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	0.0	3.1	4.0	0.0	3.1	4.0	0.0
All red [s]	0.0	0.5	0.0	0.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	38	0	0	30	0	17	47	0	15	45	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	18	0	0	25	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	3.0	0.0	1.6	3.0	0.0	1.6	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			Yes		No	No		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.70	3.70	5.00	5.00	5.00	4.30	5.00	5.00	3.60	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	3.00	3.00	3.00	0.00	3.00	3.00	1.60	3.00	3.00
g_i, Effective Green Time [s]	2	2	54	54	54	66	56	56	1	50	50
g / C, Green / Cycle	0.02	0.02	0.41	0.41	0.41	0.50	0.43	0.43	0.01	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.22	0.24	0.17	0.06	0.09	0.09	0.00	0.22	0.03
s, saturation flow rate [veh/h]	1811	1568	1422	1438	2822	1469	1876	1866	1787	3572	1584
c, Capacity [veh/h]	33	28	617	647	1162	479	805	801	15	1371	608
d1, Uniform Delay [s]	63.05	63.09	29.04	29.53	27.31	17.24	23.25	23.26	64.34	31.64	25.61
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.21	4.45	3.01	3.26	1.14	0.90	0.12	0.12	26.52	1.72	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.25	0.51	0.54	0.42	0.19	0.20	0.20	0.53	0.57	0.09
d, Delay for Lane Group [s/veh]	66.26	67.53	32.05	32.79	28.45	18.14	23.37	23.38	90.87	33.36	25.90
Lane Group LOS	E	E	C	C	C	B	C	C	F	C	C
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.26	0.26	7.96	9.09	5.67	1.57	3.15	3.14	0.37	9.90	1.14
50th-Percentile Queue Length [ft/ln]	6.46	6.61	198.98	227.27	141.63	39.37	78.77	78.56	9.33	247.44	28.51
95th-Percentile Queue Length [veh/ln]	0.47	0.48	12.59	14.04	9.57	2.83	5.67	5.66	0.67	15.06	2.05
95th-Percentile Queue Length [ft/ln]	11.63	11.90	314.65	350.89	239.21	70.87	141.79	141.41	16.80	376.43	51.32

Movement, Approach, & Intersection Results

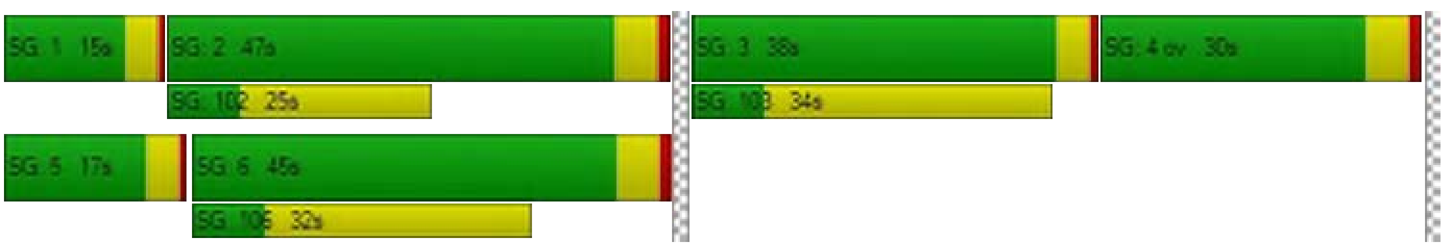
d_M, Delay for Movement [s/veh]	66.26	66.26	67.53	32.44	32.79	28.45	18.14	23.38	23.38	90.87	33.36	25.90
Movement LOS	E	E	E	C	C	C	B	C	C	F	C	C
d_A, Approach Delay [s/veh]	66.90			30.75			22.21			33.42		
Approach LOS	E			C			C			C		
d_I, Intersection Delay [s/veh]	30.42											
Intersection LOS	C											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	1119.77	0.00	0.00
d_p, Pedestrian Delay [s]	54.47	54.47	0.00	54.47
I_p,int, Pedestrian LOS Score for Intersection	1.967	2.691	0.000	3.791
Crosswalk LOS	A	B	F	D
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	528	385	646	615
d_b, Bicycle Delay [s]	35.22	42.40	29.83	31.15
I_b,int, Bicycle LOS Score for Intersection	1.583	3.474	1.904	2.256
Bicycle LOS	A	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 11: Metro Center Blvd and Edgewater Blvd

Control Type:	Signalized	Delay (sec / veh):	44.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.494

Intersection Setup

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	2	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	50.00	270.00	100.00	100.00	370.00	100.00	100.00	180.00	100.00	50.00
Speed [mph]	25.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	24	18	8	90	9	85	579	372	6	8	732	309
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	18	8	90	9	85	579	372	6	8	732	309
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	5	2	24	2	22	152	98	2	2	193	81
Total Analysis Volume [veh/h]	25	19	8	95	9	89	609	392	6	8	771	325
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			4			2			3		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			4		
v_co, Outbound Pedestrian Volume crossing	5			3			3			6		
v_ci, Inbound Pedestrian Volume crossing mi	6			3			3			5		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	102.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	8	0	4	8	0
Maximum Green [s]	0	40	0	0	35	0	40	60	0	20	45	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.1	3.9	0.0	3.1	3.9	0.0
All red [s]	0.0	0.5	0.0	0.0	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	27	0	0	37	0	26	52	0	14	40	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	22	0	0	28	0	0	14	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	1.7	0.0	1.6	2.9	0.0	1.6	2.9	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		Yes	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	200	200	200	200	200	200	200	200	200	200	200
L, Total Lost Time per Cycle [s]	3.70	3.70	3.70	3.70	3.70	3.60	4.90	4.90	3.60	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	1.70	1.70	1.70	1.60	2.90	2.90	1.60	2.90	2.90
g_i, Effective Green Time [s]	12	12	17	17	17	78	154	154	1	77	77
g / C, Green / Cycle	0.06	0.06	0.08	0.08	0.08	0.39	0.77	0.77	0.01	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.02	0.01	0.03	0.03	0.06	0.18	0.11	0.11	0.00	0.15	0.21
s, saturation flow rate [veh/h]	1823	1506	1785	1800	1536	3467	1874	1863	1785	5106	1573
c, Capacity [veh/h]	109	90	148	149	127	1359	1444	1435	13	1969	607
d1, Uniform Delay [s]	90.47	88.73	86.58	86.57	89.04	44.80	5.91	5.91	98.86	44.42	47.38
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.37	0.42	1.42	1.40	6.80	1.07	0.20	0.20	35.77	0.59	3.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.09	0.35	0.35	0.70	0.45	0.14	0.14	0.60	0.39	0.54
d, Delay for Lane Group [s/veh]	92.85	89.15	88.00	87.97	95.83	45.87	6.11	6.11	134.63	45.01	50.74
Lane Group LOS	F	F	F	F	F	D	A	A	F	D	D
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.31	0.41	2.61	2.63	4.75	11.52	2.23	2.22	0.55	9.49	13.22
50th-Percentile Queue Length [ft/ln]	57.65	10.22	65.31	65.64	118.69	287.98	55.76	55.48	13.78	237.24	330.56
95th-Percentile Queue Length [veh/ln]	4.15	0.74	4.70	4.73	8.32	17.09	4.01	3.99	0.99	14.54	19.19
95th-Percentile Queue Length [ft/ln]	103.77	18.40	117.55	118.15	208.03	427.14	100.36	99.86	24.80	363.54	479.65

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	92.85	92.85	89.15	87.98	87.97	95.83	45.87	6.11	6.11	134.63	45.01	50.74
Movement LOS	F	F	F	F	F	F	D	A	A	F	D	D
d_A, Approach Delay [s/veh]	92.28			91.60			30.16			47.34		
Approach LOS	F			F			C			D		
d_I, Intersection Delay [s/veh]	44.62											
Intersection LOS	D											
Intersection V/C	0.494											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
I_p,int, Pedestrian LOS Score for Intersection	1.979	2.580	2.920	2.972
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	358	512	725	540
d_b, Bicycle Delay [s]	43.79	35.98	26.47	34.66
I_b,int, Bicycle LOS Score for Intersection	1.645	1.878	2.390	2.167
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 12: Edgewater Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	28.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.624

Intersection Setup

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	2	0	1	1	0	1
Pocket Length [ft]	190.00	100.00	190.00	310.00	100.00	110.00	406.00	100.00	75.00	310.00	100.00	230.00
Speed [mph]	40.00			35.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	404	590	108	126	213	132	387	633	122	113	897	154
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	404	590	108	126	213	132	387	633	122	113	897	154
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	104	152	28	32	55	34	100	163	31	29	231	40
Total Analysis Volume [veh/h]	416	608	111	130	220	136	399	653	126	116	925	159
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			3			3			11		
v_di, Inbound Pedestrian Volume crossing m	11			3			3			10		
v_co, Outbound Pedestrian Volume crossing	6			10			6			10		
v_ci, Inbound Pedestrian Volume crossing mi	6			10			6			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	4	6	0	4	6	0
Maximum Green [s]	50	60	0	20	50	0	30	45	0	30	50	0
Amber [s]	3.5	4.0	0.0	3.5	3.9	0.0	3.0	4.0	0.0	3.5	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	30	0	0	34	0	0	31	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	2.0	2.9	0.0	2.0	3.0	0.0	2.0	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	83	83	83	83	83	83	83	83	83	83	83	83
L, Total Lost Time per Cycle [s]	4.50	5.00	5.00	4.00	4.90	4.90	4.00	5.00	5.00	4.00	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	3.00	3.00	2.00	2.90	2.90	2.00	3.00	3.00	2.00	2.60	2.60
g_i, Effective Green Time [s]	13	23	23	6	15	15	12	29	29	7	24	24
g / C, Green / Cycle	0.16	0.28	0.28	0.07	0.18	0.18	0.15	0.35	0.35	0.09	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.12	0.20	0.20	0.04	0.06	0.09	0.12	0.13	0.08	0.06	0.18	0.10
s, saturation flow rate [veh/h]	3467	1874	1752	3467	3569	1551	3467	5106	1555	1785	5106	1540
c, Capacity [veh/h]	559	519	485	239	642	279	516	1792	546	154	1497	451
d1, Uniform Delay [s]	33.14	26.98	27.08	37.34	29.72	30.49	33.95	20.02	18.96	37.04	25.29	23.01
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.99	1.82	2.04	1.93	0.32	1.32	2.52	0.12	0.21	7.34	0.42	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.71	0.72	0.54	0.34	0.49	0.77	0.36	0.23	0.76	0.62	0.35
d, Delay for Lane Group [s/veh]	35.14	28.80	29.12	39.27	30.03	31.81	36.47	20.14	19.17	44.37	25.71	23.47
Lane Group LOS	D	C	C	D	C	C	D	C	B	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.92	6.37	6.08	1.30	1.87	2.44	3.84	2.91	1.62	2.53	5.00	2.38
50th-Percentile Queue Length [ft/ln]	98.08	159.13	152.12	32.47	46.82	61.06	95.99	72.77	40.42	63.34	125.12	59.47
95th-Percentile Queue Length [veh/ln]	7.06	10.50	10.13	2.34	3.37	4.40	6.91	5.24	2.91	4.56	8.67	4.28
95th-Percentile Queue Length [ft/ln]	176.54	262.58	253.26	58.45	84.28	109.90	172.78	130.99	72.75	114.01	216.84	107.05

Movement, Approach, & Intersection Results

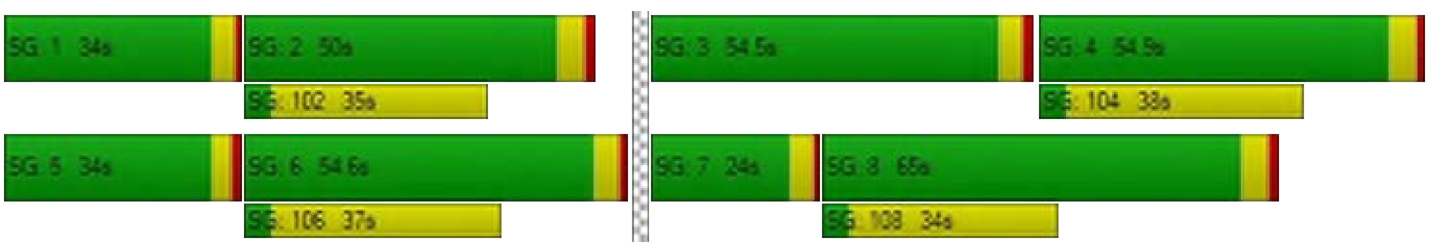
d_M, Delay for Movement [s/veh]	35.14	28.93	29.12	39.27	30.03	31.81	36.47	20.14	19.17	44.37	25.71	23.47
Movement LOS	D	C	C	D	C	C	D	C	B	D	C	C
d_A, Approach Delay [s/veh]	31.22			33.00			25.57			27.22		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	28.57											
Intersection LOS	C											
Intersection V/C	0.624											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	565.05	357.43	1284.87	367.19
d_p, Pedestrian Delay [s]	37.36	37.36	37.36	37.36
I_p,int, Pedestrian LOS Score for Intersection	2.801	2.963	3.235	3.026
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	1111	1000	1111
d_b, Bicycle Delay [s]	5.01	8.91	11.27	8.90
I_b,int, Bicycle LOS Score for Intersection	2.496	1.961	2.208	2.220
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 13: Center Park Ln and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	10.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.408

Intersection Setup

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	390.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Base Volume Input [veh/h]	62	29	151	741	1158	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.80	1.80	1.80	1.80	1.80	1.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	29	151	741	1158	54
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	8	39	193	302	14
Total Analysis Volume [veh/h]	65	30	157	772	1206	56
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		15	
v_di, Inbound Pedestrian Volume crossing m	0		0		14	
v_co, Outbound Pedestrian Volume crossing	5		14		5	
v_ci, Inbound Pedestrian Volume crossing mi	5		15		5	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	19.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	4	0	6	5	5	0
Maximum Green [s]	35	0	30	40	40	0
Amber [s]	3.5	0.0	3.1	3.5	3.5	0.0
All red [s]	0.5	0.0	0.5	1.0	1.0	0.0
Split [s]	31	0	36	89	53	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0
Pedestrian Clearance [s]	20	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	1.6	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	0.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	7	7	13	104	88	88
g / C, Green / Cycle	0.06	0.06	0.11	0.87	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate	0.04	0.02	0.09	0.15	0.24	0.23
s, saturation flow rate [veh/h]	1519	1592	1784	5102	3566	1822
c, Capacity [veh/h]	89	93	189	4442	2620	1339
d1, Uniform Delay [s]	55.50	54.14	52.54	1.18	5.52	5.48
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.94	1.97	9.11	0.09	0.32	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.32	0.83	0.17	0.32	0.31
d, Delay for Lane Group [s/veh]	66.43	56.11	61.65	1.27	5.84	6.10
Lane Group LOS	E	E	E	A	A	A
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.22	0.93	5.07	0.40	3.27	3.36
50th-Percentile Queue Length [ft/ln]	55.49	23.22	126.74	9.95	81.73	83.98
95th-Percentile Queue Length [veh/ln]	4.00	1.67	8.76	0.72	5.88	6.05
95th-Percentile Queue Length [ft/ln]	99.88	41.80	219.06	17.91	147.12	151.16

Movement, Approach, & Intersection Results

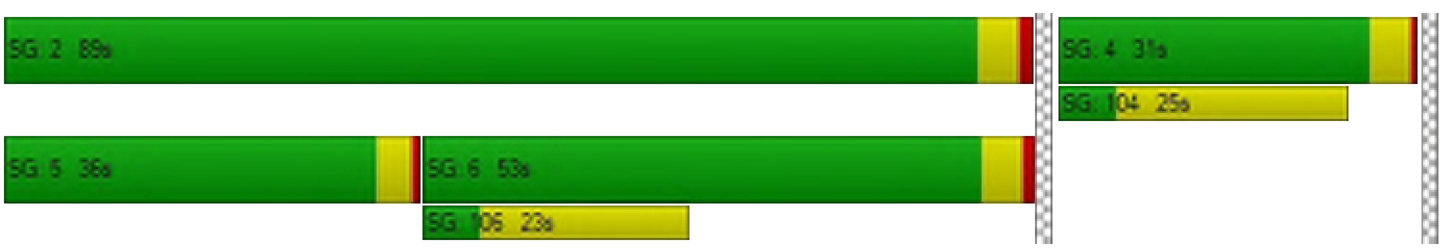
d_M, Delay for Movement [s/veh]	66.43	56.11	61.65	1.27	5.92	6.10
Movement LOS	E	E	E	A	A	A
d_A, Approach Delay [s/veh]	63.17		11.47		5.93	
Approach LOS	E		B		A	
d_I, Intersection Delay [s/veh]	10.56					
Intersection LOS	B					
Intersection V/C	0.408					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	488.82	0.00	251.53
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.039	0.000	2.866
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.643	4.827
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foster City Metro Center Hotel EIR

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Report File: \...\EPP AM Report.pdf

Scenario 3 Existing Plus Project AM

12/10/2019

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Vintage Park Dr and Chess Dr	109	314	145	14	54	29	64	147	81	184	257	119	1517

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Chess Dr and Route 92 West Ramp	393	35	731	2	16	5	1	130	122	713	195	11	2354

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Foster City Blvd and Chess Dr	827	900	194	3	299	67	322	61	480	19	25	4	3201

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Metro Center Blvd and Shell Blvd	240	26	68	3	4	9	5	105	54	167	422	41	1144

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Metro Center Blvd and Route 92 East Ramp	2	2	21	942	48	441	64	138	4	37	178	196	2073

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foster City Blvd and Metro Center Blvd	132	955	66	137	467	194	472	183	446	52	85	494	3683

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Shell Blvd and E Hillsdale Blvd	353	181	168	43	65	53	91	555	165	54	912	77	2717

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	Foster City Blvd and E Hillsdale Blvd	341	727	51	255	470	310	249	305	206	69	452	165	3600

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	Metro Center Blvd and Vintage Park Dr	15	51	14	97	113	99	161	233	83	89	140	361	1456

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	Edgewater Blvd and Mariners Island Blvd	5	2	7	638	2	473	89	308	4	8	750	53	2339

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11	Metro Center Blvd and Edgewater Blvd	24	18	8	90	9	85	579	372	6	8	732	309	2240

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12	Edgewater Blvd and E Hillsdale Blvd	404	590	108	126	213	132	387	633	122	113	897	154	3879

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
13	Center Park Ln and E Hillsdale Blvd	62	29	151	741	1158	54	2195

Study Intersections

Foster City Metro Center Hotel EIR

Vistro File: \...\FC Metro Center Hotel 9.26.19.vistro | Scenario 4 Existing Plus Project PM

Report File: \...\EPP PM Report.pdf | 12/10/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Vintage Park Dr and Chess Dr	Signalized	HCM 6th Edition	EB Left	0.699	25.9	C
2	Chess Dr and Route 92 West Ramp	Signalized	HCM 6th Edition	SB Thru	0.665	32.5	C
3	Foster City Blvd and Chess Dr	Signalized	HCM 6th Edition	EB Right	0.973	115.2	F
4	Metro Center Blvd and Shell Blvd	Signalized	HCM 6th Edition	EB Left	0.441	32.1	C
5	Metro Center Blvd and Route 92 East Ramp	Signalized	HCM 6th Edition	WB Right	0.585	70.8	E
6	Foster City Blvd and Metro Center Blvd	Signalized	HCM 6th Edition	WB Right	0.672	35.9	D
7	Shell Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	WB Left	0.629	29.5	C
8	Foster City Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Left	0.570	42.3	D
9	Metro Center Blvd and Vintage Park Dr	Signalized	HCM 6th Edition	SB Left	0.720	46.7	D
10	Edgewater Blvd and Mariners Island Blvd	Signalized	HCM 6th Edition	WB Left	0.354	31.0	C
11	Metro Center Blvd and Edgewater Blvd	Signalized	HCM 6th Edition	WB Left	0.396	31.1	C
12	Edgewater Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	WB Left	0.794	42.4	D
13	Center Park Ln and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Left	0.547	21.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Vintage Park Dr and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	25.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.699

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	280.00	100.00	100.00	265.00	100.00	100.00	140.00	100.00	100.00	215.00	100.00	100.00
Speed [mph]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	186	53	489	273	305	90	29	276	290	81	181	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	53	489	273	305	90	29	276	290	81	181	11
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	14	131	73	82	24	8	74	78	22	49	3
Total Analysis Volume [veh/h]	200	57	526	294	328	97	31	297	312	87	195	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	11			4			10			3		
v_di, Inbound Pedestrian Volume crossing m	10			3			11			4		
v_co, Outbound Pedestrian Volume crossing	3			9			10			3		
v_ci, Inbound Pedestrian Volume crossing mi	3			10			9			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	4	0	4	4	0	4	4	0	4	4	0
Maximum Green [s]	40	50	0	30	40	0	20	40	0	20	40	0
Amber [s]	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0
All red [s]	0.5	0.5	0.0	1.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	23	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	1.7	0.0	2.1	2.2	0.0	1.6	2.2	0.0	1.6	2.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	69	69	69	69	69	69	69	69	69	69	69	69	69
L, Total Lost Time per Cycle [s]	3.60	3.70	3.70	3.70	4.10	4.20	4.20	3.60	4.20	4.20	3.60	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.70	1.70	1.70	2.10	2.20	2.20	1.60	2.20	2.20	1.60	2.20	2.20
g_i, Effective Green Time [s]	10	16	16	16	14	20	20	2	19	19	4	22	22
g / C, Green / Cycle	0.14	0.23	0.23	0.23	0.20	0.29	0.29	0.03	0.28	0.28	0.06	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.11	0.03	0.17	0.17	0.16	0.12	0.12	0.02	0.16	0.20	0.05	0.06	0.06
s, saturation flow rate [veh/h]	1792	1882	1587	1587	1792	1882	1707	1792	1882	1563	1792	1882	1842
c, Capacity [veh/h]	259	436	368	368	360	542	491	47	522	434	117	596	583
d1, Uniform Delay [s]	28.57	21.12	24.54	24.51	26.52	19.94	20.00	33.49	21.50	22.62	31.88	17.16	17.17
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.82	0.13	2.60	2.60	4.58	0.49	0.56	14.76	0.98	2.25	9.04	0.14	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.13	0.71	0.71	0.82	0.41	0.42	0.66	0.57	0.72	0.75	0.17	0.18
d, Delay for Lane Group [s/veh]	33.40	21.25	27.14	27.10	31.10	20.43	20.56	48.25	22.48	24.88	40.92	17.30	17.31
Lane Group LOS	C	C	C	C	C	C	C	D	C	C	D	B	B
Critical Lane Group	No	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.40	0.71	4.01	4.01	4.85	2.77	2.59	0.70	4.10	4.65	1.67	1.15	1.14
50th-Percentile Queue Length [ft/ln]	84.99	17.87	100.2	100.1	121.20	69.33	64.71	17.47	102.54	116.21	41.82	28.81	28.54
95th-Percentile Queue Length [veh/ln]	6.12	1.29	7.22	7.21	8.46	4.99	4.66	1.26	7.38	8.18	3.01	2.07	2.05
95th-Percentile Queue Length [ft/ln]	152.9	32.16	180.5	180.2	211.47	124.79	116.47	31.45	184.57	204.60	75.27	51.86	51.37

Movement, Approach, & Intersection Results

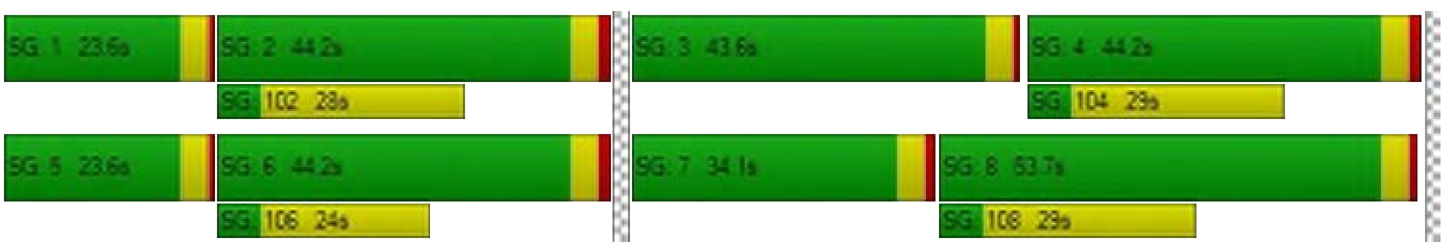
d_M, Delay for Movement [s/veh]	33.40	21.25	27.12	31.10	20.47	20.56	48.25	22.48	24.88	40.92	17.30	17.31
Movement LOS	C	C	C	C	C	C	D	C	C	D	B	B
d_A, Approach Delay [s/veh]	28.30			24.83			24.90			24.29		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.90											
Intersection LOS	C											
Intersection V/C	0.699											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	240.78	1324.64	408.65	306.65
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.700	2.461	2.485	2.684
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1111	889	889	889
d_b, Bicycle Delay [s]	8.89	13.90	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.206	2.153	2.088	1.802
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Chess Dr and Route 92 West Ramp

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.665

Intersection Setup

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	480.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	81	2	197	10	20	4	0	262	780	919	180	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	2	197	10	20	4	0	262	780	919	180	1
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	1	53	3	5	1	0	70	210	247	48	0
Total Analysis Volume [veh/h]	87	2	212	11	22	4	0	282	839	988	194	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	4	0	0	1	6	1	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	4	0	0	6	5	6	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	30	55	0
Amber [s]	0.0	3.5	0.0	0.0	3.2	0.0	0.0	3.2	3.1	3.2	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	0.5	0.0	0.0	1.0	1.0	1.0	2.0	0.0
Split [s]	0	27	0	0	20	0	0	20	47	20	43	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	17	0	0	0	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.5	0.0	0.0	1.7	0.0	0.0	2.2	2.1	2.2	3.5	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		Yes	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	3.70	4.20	4.10	5.50	5.50	5.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	1.70	2.20	2.10	3.50	3.50	3.50
g_i, Effective Green Time [s]	17	17	17	3	19	41	53	53	53
g / C, Green / Cycle	0.16	0.16	0.16	0.03	0.17	0.37	0.48	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.13	0.02	0.15	0.30	0.28	0.28	0.11
s, saturation flow rate [veh/h]	1791	1795	1598	1819	1880	2829	1791	1791	1710
c, Capacity [veh/h]	280	281	250	49	323	1048	863	863	824
d1, Uniform Delay [s]	40.16	40.16	45.15	53.21	44.42	31.04	20.39	20.39	16.67
k, delay calibration	0.11	0.11	0.11	0.11	0.12	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.26	0.26	7.73	20.70	7.91	1.47	2.75	2.75	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.16	0.85	0.76	0.87	0.80	0.57	0.57	0.24
d, Delay for Lane Group [s/veh]	40.42	40.42	52.88	73.91	52.33	32.51	23.14	23.14	17.35
Lane Group LOS	D	D	D	E	D	C	C	C	B
Critical Lane Group	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.06	1.07	6.14	1.30	8.15	9.98	9.48	9.48	3.00
50th-Percentile Queue Length [ft/ln]	26.62	26.66	153.41	32.41	203.87	249.61	236.92	236.92	74.99
95th-Percentile Queue Length [veh/ln]	1.92	1.92	10.20	2.33	12.84	15.17	14.53	14.53	5.40
95th-Percentile Queue Length [ft/ln]	47.91	48.00	254.97	58.34	320.95	379.17	363.14	363.14	134.99

Movement, Approach, & Intersection Results

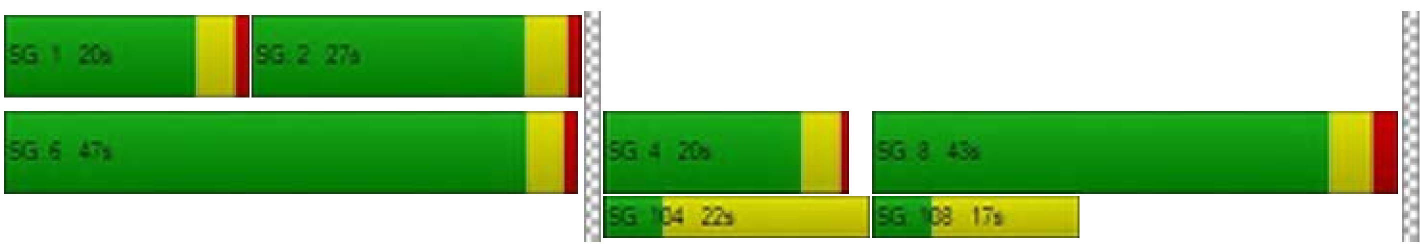
d_M, Delay for Movement [s/veh]	40.42	40.42	52.88	73.91	73.91	73.91	52.33	52.33	32.51	23.14	17.35	17.35
Movement LOS	D	D	D	E	E	E	D	D	C	C	B	B
d_A, Approach Delay [s/veh]		49.19			73.91			37.49			22.19	
Approach LOS		D			E			D			C	
d_I, Intersection Delay [s/veh]	32.48											
Intersection LOS	C											
Intersection V/C	0.665											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	1.746	2.585	0.000
Crosswalk LOS	F	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	409	296	287	682
d_b, Bicycle Delay [s]	34.80	39.93	40.33	23.89
I_b,int, Bicycle LOS Score for Intersection	2.056	1.621	3.409	2.536
Bicycle LOS	B	A	C	B

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Foster City Blvd and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	115.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.973

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	510.00	100.00	100.00	80.00	100.00	180.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	703	217	19	2	996	235	38	13	418	108	161	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	703	217	19	2	996	235	38	13	418	108	161	4
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	179	55	5	1	254	60	10	3	107	28	41	1
Total Analysis Volume [veh/h]	717	221	19	2	1016	240	39	13	427	110	164	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	3	3	3	0	1	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	4	4	4	0	4	4	0
Maximum Green [s]	55	65	0	20	35	30	30	30	0	55	35	0
Amber [s]	3.5	3.6	0.0	3.1	3.9	3.2	3.2	3.2	0.0	3.5	3.1	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0	1.0	0.5	0.0
Split [s]	27	55	0	14	42	20	20	20	0	27	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	0	4	0
Pedestrian Clearance [s]	0	23	0	0	0	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.6	0.0	1.6	2.9	1.7	1.7	1.7	0.0	2.5	1.6	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	Yes	Yes		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.60	4.60	3.60	4.90	3.70	3.70	3.70	3.70	3.60	3.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.60	2.60	1.60	2.90	0.00	1.70	1.70	1.70	1.60	1.60
g_i, Effective Green Time [s]	37	74	74	0	36	58	17	17	17	13	13
g / C, Green / Cycle	0.31	0.62	0.62	0.00	0.30	0.48	0.14	0.14	0.14	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.21	0.06	0.06	0.00	0.28	0.15	0.02	0.01	0.29	0.06	0.09
s, saturation flow rate [veh/h]	3467	1874	1823	1785	3569	1593	1785	1874	1450	1785	1867
c, Capacity [veh/h]	1058	1155	1123	5	1085	771	249	262	202	201	210
d1, Uniform Delay [s]	36.57	9.46	9.46	59.83	40.71	18.83	45.50	44.81	51.72	50.45	52.03
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.49	0.18	0.19	44.11	4.58	0.23	0.29	0.08	516.33	2.32	6.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.11	0.11	0.40	0.94	0.31	0.16	0.05	2.11	0.55	0.80
d, Delay for Lane Group [s/veh]	40.06	9.65	9.65	103.94	45.29	19.06	45.79	44.89	568.04	52.78	58.93
Lane Group LOS	D	A	A	F	D	B	D	D	F	D	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	9.69	1.35	1.31	0.12	14.98	4.03	1.05	0.34	35.08	3.29	5.38
50th-Percentile Queue Length [ft/ln]	242.15	33.72	32.83	3.05	374.44	100.72	26.22	8.59	876.91	82.26	134.52
95th-Percentile Queue Length [veh/ln]	14.79	2.43	2.36	0.22	21.32	7.25	1.89	0.62	55.84	5.92	9.18
95th-Percentile Queue Length [ft/ln]	369.76	60.70	59.10	5.49	533.11	181.29	47.20	15.46	1395.88	148.07	229.62

Movement, Approach, & Intersection Results

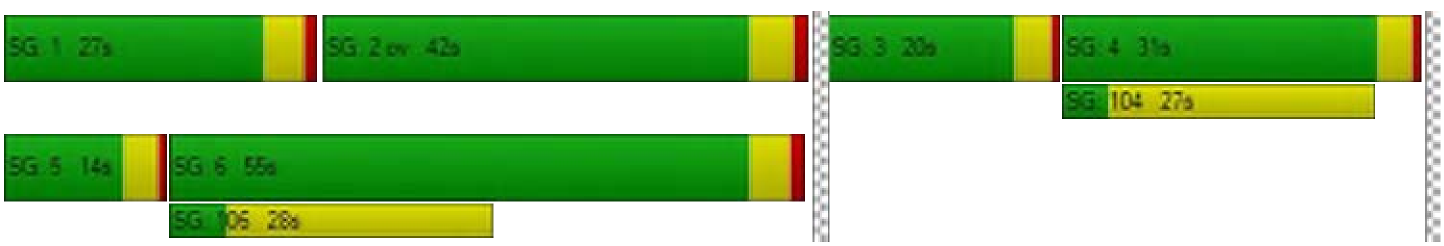
d_M, Delay for Movement [s/veh]	40.06	9.65	9.65	103.94	45.29	19.06	45.79	44.89	568.04	52.78	58.93	58.93
Movement LOS	D	A	A	F	D	B	D	D	F	D	E	E
d_A, Approach Delay [s/veh]	32.44			40.38			511.32			56.49		
Approach LOS	C			D			F			E		
d_I, Intersection Delay [s/veh]	115.23											
Intersection LOS	F											
Intersection V/C	0.973											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	52.27	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.757	0.000	2.210
Crosswalk LOS	F	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	840	618	272	457
d_b, Bicycle Delay [s]	20.18	28.64	44.81	35.73
I_b,int, Bicycle LOS Score for Intersection	2.349	2.597	1.955	2.018
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Metro Center Blvd and Shell Blvd

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.441

Intersection Setup

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	2	0	1
Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	85.00	100.00	100.00	210.00	100.00	200.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	181	63	181	64	45	85	14	544	173	27	49	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	181	63	181	64	45	85	14	544	173	27	49	70
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	16	46	16	11	22	4	139	44	7	13	18
Total Analysis Volume [veh/h]	185	64	185	65	46	87	14	555	177	28	50	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	16			7			16			6		
v_di, Inbound Pedestrian Volume crossing m	16			6			16			7		
v_co, Outbound Pedestrian Volume crossing	16			4			4			16		
v_ci, Inbound Pedestrian Volume crossing mi	16			4			4			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	65.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	6	6	0
Maximum Green [s]	20	60	0	20	35	0	20	40	0	20	40	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0
Split [s]	36	53	0	16	33	0	14	35	0	16	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	28	0	0	20	0	0	21	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.5	0.0	1.5	2.5	0.0	1.5	2.5	0.0	2.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.50	4.50	4.50	3.50	4.50	3.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.50	2.50	1.50	2.50	1.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	14	23	23	6	15	2	70	70	4	73	73
g / C, Green / Cycle	0.12	0.20	0.20	0.05	0.12	0.01	0.59	0.59	0.03	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.10	0.03	0.12	0.04	0.08	0.01	0.20	0.21	0.01	0.01	0.04
s, saturation flow rate [veh/h]	1791	1880	1520	1791	1663	1791	1880	1711	3478	3580	1581
c, Capacity [veh/h]	216	368	298	85	204	23	1098	999	108	2185	965
d1, Uniform Delay [s]	51.80	40.21	43.93	56.54	50.24	58.97	13.03	13.08	56.86	9.25	9.55
k, delay calibration	0.17	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.77	0.22	2.12	13.01	3.48	21.90	0.87	0.97	1.26	0.02	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.17	0.62	0.76	0.65	0.60	0.35	0.35	0.26	0.02	0.07
d, Delay for Lane Group [s/veh]	65.57	40.44	46.05	69.54	53.72	80.87	13.90	14.05	58.13	9.27	9.70
Lane Group LOS	E	D	D	E	D	F	B	B	E	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.24	1.59	5.14	2.24	3.98	0.56	5.39	5.01	0.43	0.26	0.77
50th-Percentile Queue Length [ft/ln]	155.94	39.87	128.49	56.04	99.50	14.09	134.63	125.25	10.78	6.39	19.29
95th-Percentile Queue Length [veh/ln]	10.33	2.87	8.86	4.03	7.16	1.01	9.19	8.68	0.78	0.46	1.39
95th-Percentile Queue Length [ft/ln]	258.33	71.77	221.44	100.87	179.10	25.35	229.78	217.02	19.41	11.50	34.72

Movement, Approach, & Intersection Results

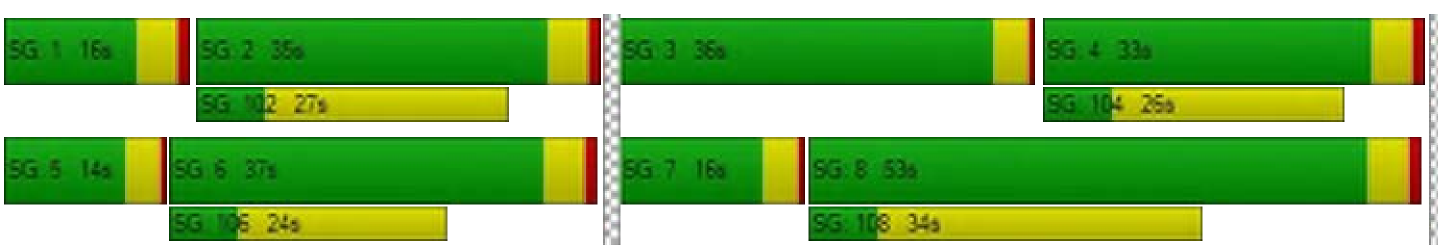
d_M, Delay for Movement [s/veh]	65.57	40.44	46.05	69.54	53.72	53.72	80.87	13.95	14.05	58.13	9.27	9.70
Movement LOS	E	D	D	E	D	D	F	B	B	E	A	A
d_A, Approach Delay [s/veh]	53.54			58.91			15.23			18.66		
Approach LOS	D			E			B			B		
d_I, Intersection Delay [s/veh]	32.12											
Intersection LOS	C											
Intersection V/C	0.441											

Other Modes

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	148.92	399.75	796.36	182.89
d_p, Pedestrian Delay [s]	50.42	50.42	50.42	50.42
I_p,int, Pedestrian LOS Score for Intersection	2.470	2.086	2.557	2.763
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	808	475	508	542
d_b, Bicycle Delay [s]	21.30	34.88	33.38	31.90
I_b,int, Bicycle LOS Score for Intersection	2.276	1.886	2.175	1.683
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Metro Center Blvd and Route 92 East Ramp

Control Type:	Signalized	Delay (sec / veh):	70.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.585

Intersection Setup

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	2	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	600.00	100.00	640.00	290.00	100.00	100.00	90.00	100.00	100.00
Speed [mph]	15.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	2	49	21	108	4	44	508	278	6	8	102	972
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	49	21	108	4	44	508	278	6	8	102	972
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	13	5	28	1	11	131	72	2	2	26	251
Total Analysis Volume [veh/h]	2	51	22	111	4	45	524	287	6	8	105	1002
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	30.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	10	4	4	4	0	4	4	0
Maximum Green [s]	0	40	0	0	60	30	30	40	0	25	35	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	3.1	3.1	3.5	0.0	3.1	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.5	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	18	0	0	36	36	36	48	0	18	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	6	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	17	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	3.0	1.6	1.6	2.5	0.0	1.6	2.5	0.0
Minimum Recall		No			No	No	No	No		No	No	
Maximum Recall		No			Yes	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.20	4.20	5.00	5.00	3.60	3.60	4.50	4.50	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	3.00	3.00	0.00	1.60	2.50	2.50	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	5	5	41	41	68	22	56	56	1	35	35	35
g / C, Green / Cycle	0.04	0.04	0.34	0.34	0.56	0.18	0.46	0.46	0.01	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.03	0.01	0.03	0.03	0.02	0.15	0.08	0.08	0.00	0.06	0.31	0.31
s, saturation flow rate [veh/h]	1868	1591	1782	1788	2816	3461	1871	1858	1782	1871	1591	1591
c, Capacity [veh/h]	81	69	610	612	1587	622	865	859	15	544	463	463
d1, Uniform Delay [s]	56.64	55.81	26.88	26.88	11.64	47.66	18.88	18.88	59.35	32.02	42.63	42.63
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.72	2.64	0.31	0.31	0.03	3.19	0.09	0.09	24.34	0.17	65.89	65.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.32	0.09	0.09	0.03	0.84	0.17	0.17	0.52	0.19	1.08	1.08
d, Delay for Lane Group [s/veh]	65.36	58.45	27.19	27.19	11.67	50.85	18.97	18.97	83.69	32.20	108.5	108.5
Lane Group LOS	E	E	C	C	B	D	B	B	F	C	F	F
Critical Lane Group	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.82	0.71	1.17	1.17	0.27	7.77	2.39	2.37	0.35	2.34	22.02	22.02
50th-Percentile Queue Length [ft/ln]	45.44	17.85	29.22	29.27	6.73	194.25	59.70	59.29	8.68	58.39	550.5	550.5
95th-Percentile Queue Length [veh/ln]	3.27	1.28	2.10	2.11	0.48	12.34	4.30	4.27	0.62	4.20	31.23	31.23
95th-Percentile Queue Length [ft/ln]	81.79	32.12	52.60	52.69	12.11	308.53	107.47	106.72	15.62	105.1	780.6	780.6

Movement, Approach, & Intersection Results

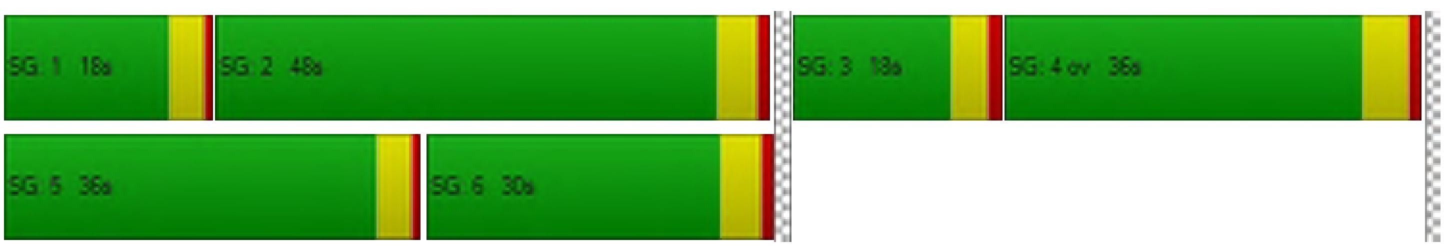
d_M, Delay for Movement [s/veh]	65.36	65.36	58.45	27.19	27.19	11.67	50.85	18.97	18.97	83.69	32.20	108.52
Movement LOS	E	E	E	C	C	B	D	B	B	F	C	F
d_A, Approach Delay [s/veh]	63.34			22.82			39.42			101.16		
Approach LOS	E			C			D			F		
d_I, Intersection Delay [s/veh]	70.79											
Intersection LOS	E											
Intersection V/C	0.585											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	31.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	33.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.749	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	230	517	725	425
d_b, Bicycle Delay [s]	46.99	33.00	24.38	37.21
I_b,int, Bicycle LOS Score for Intersection	1.683	1.824	2.234	2.479
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Foster City Blvd and Metro Center Blvd

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.672

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	230.00	100.00	100.00	210.00	100.00	100.00	150.00	100.00	240.00	50.00	100.00	170.00
Speed [mph]	35.00			35.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	235	547	64	198	615	729	124	130	153	62	118	268
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	235	547	64	198	615	729	124	130	153	62	118	268
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	137	16	50	154	182	31	33	38	16	30	67
Total Analysis Volume [veh/h]	235	547	64	198	615	729	124	130	153	62	118	268
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	7			0			0			8		
v_di, Inbound Pedestrian Volume crossing m	8			0			0			7		
v_co, Outbound Pedestrian Volume crossing	4			0			4			0		
v_ci, Inbound Pedestrian Volume crossing mi	4			0			4			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	43.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	5	4	1	1	3	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	4	4	6	0
Maximum Green [s]	30	40	0	25	40	0	25	40	30	30	30	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.2	3.1	3.1	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0
Split [s]	24	36	0	20	32	0	20	39	24	24	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.2	1.6	1.6	1.7	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	Yes		No	Yes			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	4.20	4.20	3.60	3.70	3.70	3.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	2.20	2.20	0.00	1.70	1.70	1.70
g_i, Effective Green Time [s]	18	57	57	15	54	54	11	11	33	21	21	21
g / C, Green / Cycle	0.15	0.47	0.47	0.13	0.45	0.45	0.09	0.09	0.27	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.13	0.11	0.12	0.11	0.12	0.26	0.04	0.04	0.05	0.03	0.06	0.17
s, saturation flow rate [veh/h]	1781	3560	1766	1781	5094	2813	3459	3560	2813	1781	1870	1589
c, Capacity [veh/h]	266	1678	832	225	2283	1261	314	323	774	316	332	282
d1, Uniform Delay [s]	49.99	18.93	18.96	51.53	20.78	24.67	51.46	51.49	33.33	42.05	43.32	48.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.22
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.37	0.34	0.70	10.71	0.29	1.94	0.81	0.81	0.12	0.30	0.64	24.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.24	0.25	0.88	0.27	0.58	0.40	0.40	0.20	0.20	0.36	0.95
d, Delay for Lane Group [s/veh]	59.36	19.27	19.66	62.24	21.08	26.60	52.27	52.30	33.45	42.35	43.97	73.71
Lane Group LOS	E	B	B	E	C	C	D	D	C	D	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	7.53	3.41	3.51	6.46	3.62	7.85	1.79	1.87	1.72	1.62	3.18	9.93
50th-Percentile Queue Length [ft/ln]	188.15	85.15	87.74	161.61	90.50	196.21	44.64	46.82	42.95	40.42	79.44	248.28
95th-Percentile Queue Length [veh/ln]	12.02	6.13	6.32	10.63	6.52	12.44	3.21	3.37	3.09	2.91	5.72	15.10
95th-Percentile Queue Length [ft/ln]	300.62	153.27	157.93	265.85	162.90	311.08	80.36	84.28	77.31	72.75	143.00	377.49

Movement, Approach, & Intersection Results

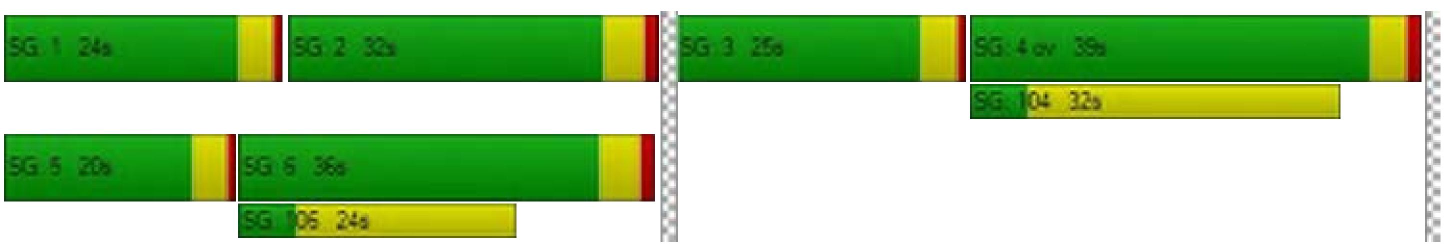
d_M, Delay for Movement [s/veh]	59.36	19.37	19.66	62.24	21.08	26.60	52.27	52.30	33.45	42.35	43.97	73.71
Movement LOS	E	B	B	E	C	C	D	D	C	D	D	E
d_A, Approach Delay [s/veh]	30.50			28.98			45.21			61.54		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	35.91											
Intersection LOS	D											
Intersection V/C	0.672											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	608.08	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.881	0.000	0.000	2.452
Crosswalk LOS	C	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	523	457	580	355
d_b, Bicycle Delay [s]	32.71	35.73	30.25	40.59
I_b,int, Bicycle LOS Score for Intersection	2.025	2.408	1.895	2.299
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Shell Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	29.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.629

Intersection Setup

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	210.00	100.00	100.00	160.00	100.00	160.00	100.00	100.00	100.00	135.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	292	193	92	116	207	98	0	1055	497	119	478	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	292	193	92	116	207	98	0	1055	497	119	478	76
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	49	23	30	53	25	0	269	127	30	122	19
Total Analysis Volume [veh/h]	298	197	94	118	211	100	0	1077	507	121	488	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	17			27			27			17		
v_di, Inbound Pedestrian Volume crossing m	17			27			27			17		
v_co, Outbound Pedestrian Volume crossing	29			12			28			11		
v_ci, Inbound Pedestrian Volume crossing mi	28			11			29			12		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	40.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	0	6	0	4	6	0
Maximum Green [s]	25	50	0	30	40	0	0	55	0	25	45	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	0.0	3.6	0.0	3.1	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.5	1.0	0.0
Split [s]	24	37	0	24	37	0	0	39	0	20	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.1	2.6	0.0	1.6	2.6	0.0	0.0	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No			No		No	No	
Maximum Recall	No	No		No	No			Yes		No	Yes	
Pedestrian Recall	No	No		No	No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.10	4.60	4.60	3.60	4.60	4.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.10	2.60	2.60	1.60	2.60	2.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	13	17	17	10	13	13	67	67	10	81	81
g / C, Green / Cycle	0.11	0.14	0.14	0.08	0.11	0.11	0.56	0.56	0.08	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate	0.09	0.10	0.06	0.07	0.06	0.07	0.30	0.33	0.07	0.14	0.05
s, saturation flow rate [veh/h]	3497	1891	1469	1801	3600	1353	3600	1539	1801	3600	1591
c, Capacity [veh/h]	373	261	203	149	396	149	2015	861	150	2422	1070
d1, Uniform Delay [s]	52.39	49.80	47.38	54.08	50.54	50.73	16.62	17.02	54.12	7.44	6.76
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.96	4.40	1.64	9.08	1.12	5.17	1.02	2.94	9.82	0.19	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.75	0.46	0.79	0.53	0.67	0.53	0.59	0.81	0.20	0.07
d, Delay for Lane Group [s/veh]	56.35	54.20	49.03	63.16	51.65	55.91	17.65	19.96	63.94	7.63	6.90
Lane Group LOS	E	D	D	E	D	E	B	B	E	A	A
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.59	6.01	2.68	3.88	3.07	3.07	9.34	9.43	4.00	2.33	0.70
50th-Percentile Queue Length [ft/ln]	114.72	150.20	66.88	96.89	76.65	76.82	233.43	235.73	100.04	58.14	17.41
95th-Percentile Queue Length [veh/ln]	8.10	10.03	4.82	6.98	5.52	5.53	14.35	14.47	7.20	4.19	1.25
95th-Percentile Queue Length [ft/ln]	202.55	250.69	120.39	174.40	137.96	138.27	358.72	361.63	180.06	104.65	31.34

Movement, Approach, & Intersection Results

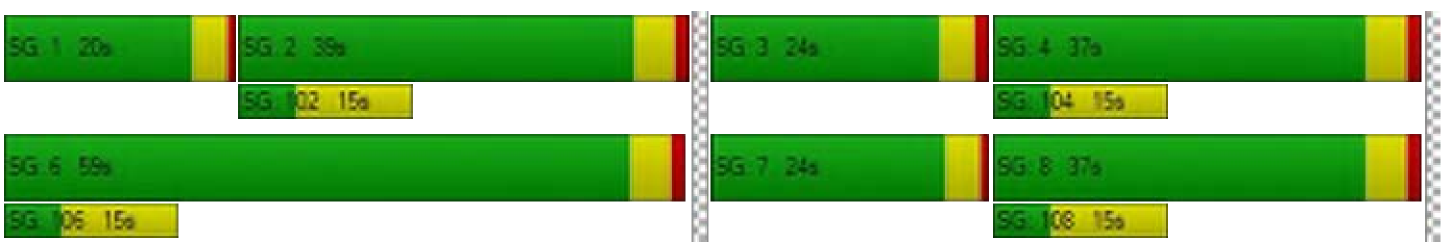
d_M, Delay for Movement [s/veh]	56.35	54.20	49.03	63.16	51.65	55.91	0.00	17.65	19.96	63.94	7.63	6.90
Movement LOS	E	D	D	E	D	E		B	B	E	A	A
d_A, Approach Delay [s/veh]	54.46			55.81			18.39			17.47		
Approach LOS	D			E			B			B		
d_I, Intersection Delay [s/veh]	29.54											
Intersection LOS	C											
Intersection V/C	0.629											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	266.55	113.30	182.89
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.700	2.583	2.869	2.884
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	540	540	573	907
d_b, Bicycle Delay [s]	31.99	31.99	30.55	17.93
I_b,int, Bicycle LOS Score for Intersection	2.531	1.914	2.866	2.126
Bicycle LOS	B	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Foster City Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	42.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.570

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	0	1	0	0	1	0	1
Pocket Length [ft]	260.00	100.00	410.00	210.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	148	383	34	197	471	152	355	461	440	69	256	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	148	383	34	197	471	152	355	461	440	69	256	77
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	100	9	51	123	40	92	120	115	18	67	20
Total Analysis Volume [veh/h]	154	399	35	205	491	158	370	480	458	72	267	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			18			12			18		
v_di, Inbound Pedestrian Volume crossing m	12			18			12			18		
v_co, Outbound Pedestrian Volume crossing	8			4			4			8		
v_ci, Inbound Pedestrian Volume crossing mi	8			4			4			8		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			2			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	40.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	35	50	0	30	40	0	30	40	0	30	40	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	20	34	0	23	37	0	27	43	0	20	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	25	0	0	25	0	0	27	0	0	27	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	124	124	124	124	124	124	124	124	124	124	124	124
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	8	50	50	10	52	52	27	41	41	6	20	20
g / C, Green / Cycle	0.06	0.40	0.40	0.08	0.42	0.42	0.22	0.33	0.33	0.05	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.04	0.08	0.08	0.06	0.14	0.10	0.21	0.13	0.29	0.04	0.07	0.05
s, saturation flow rate [veh/h]	3503	3606	1812	3503	3606	1601	1804	3606	1555	1804	3606	1485
c, Capacity [veh/h]	217	1456	731	273	1514	672	398	1205	519	93	596	245
d1, Uniform Delay [s]	57.00	23.92	23.96	55.92	24.14	23.12	47.31	31.68	38.38	57.99	46.61	45.41
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.35	0.11	0.28	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.24	0.30	0.62	4.13	0.57	0.82	23.63	0.21	11.77	12.45	0.53	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.20	0.20	0.75	0.32	0.24	0.93	0.40	0.88	0.77	0.45	0.33
d, Delay for Lane Group [s/veh]	61.24	24.23	24.58	60.05	24.71	23.94	70.95	31.89	50.15	70.43	47.14	46.18
Lane Group LOS	E	C	C	E	C	C	E	C	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.46	2.74	2.86	3.27	4.90	3.10	13.64	5.51	14.36	2.53	3.73	2.21
50th-Percentile Queue Length [ft/ln]	61.40	68.39	71.61	81.71	122.49	77.50	340.91	137.83	359.05	63.35	93.32	55.15
95th-Percentile Queue Length [veh/ln]	4.42	4.92	5.16	5.88	8.53	5.58	19.69	9.36	20.58	4.56	6.72	3.97
95th-Percentile Queue Length [ft/ln]	110.52	123.10	128.90	147.08	213.24	139.49	492.31	234.10	514.43	114.04	167.97	99.27

Movement, Approach, & Intersection Results

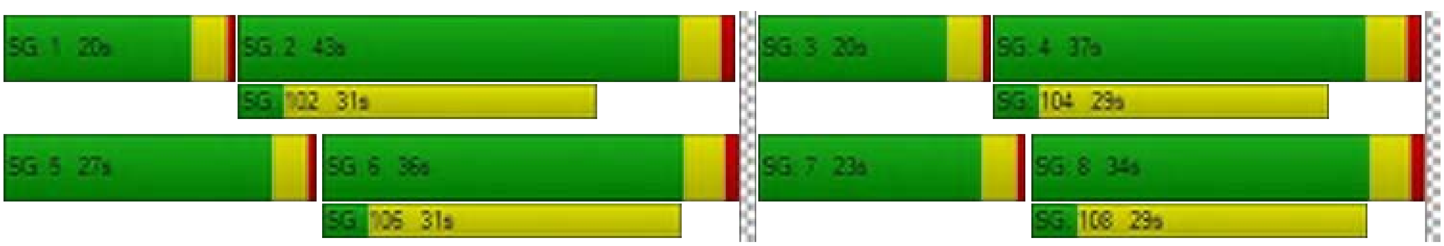
d_M, Delay for Movement [s/veh]	61.24	24.33	24.58	60.05	24.71	23.94	70.95	31.89	50.15	70.43	47.14	46.18
Movement LOS	E	C	C	E	C	C	E	C	D	E	D	D
d_A, Approach Delay [s/veh]	34.01			33.05			49.33			50.96		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	42.32											
Intersection LOS	D											
Intersection V/C	0.570											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	25.24	161.20	571.11	373.34
d_p, Pedestrian Delay [s]	52.27	52.27	52.27	52.27
I_p,int, Pedestrian LOS Score for Intersection	2.909	2.984	2.917	2.685
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	490	540	640	523
d_b, Bicycle Delay [s]	34.20	31.97	27.77	32.72
I_b,int, Bicycle LOS Score for Intersection	1.883	2.264	2.639	1.905
Bicycle LOS	A	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Metro Center Blvd and Vintage Park Dr

Control Type:	Signalized	Delay (sec / veh):	46.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.720

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	150.00	100.00	100.00	250.00	100.00	390.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	23	246	108	315	150	186	136	381	43	35	171	345
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	246	108	315	150	186	136	381	43	35	171	345
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	68	30	88	42	52	38	106	12	10	48	96
Total Analysis Volume [veh/h]	26	273	120	350	167	207	151	423	48	39	190	383
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	70			33			70			33		
v_di, Inbound Pedestrian Volume crossing m	70			33			70			33		
v_co, Outbound Pedestrian Volume crossing	67			57			57			68		
v_ci, Inbound Pedestrian Volume crossing mi	68			57			57			67		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	54.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	5	6	0
Maximum Green [s]	25	40	0	30	45	0	30	40	0	25	40	0
Amber [s]	3.0	3.2	0.0	3.0	3.2	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	20	35	0	25	40	0	25	38	0	22	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	22	0	0	22	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.2	0.0	1.5	1.7	0.0	1.5	2.5	0.0	1.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.50	4.20	4.20	3.50	3.70	3.70	3.50	4.50	4.50	3.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.20	2.20	1.50	1.70	1.70	1.50	2.50	2.50	1.50	2.50	2.50
g_i, Effective Green Time [s]	2	27	27	22	46	46	12	52	52	4	44	44
g / C, Green / Cycle	0.02	0.22	0.22	0.18	0.39	0.39	0.10	0.44	0.44	0.03	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.01	0.11	0.13	0.20	0.09	0.14	0.08	0.13	0.13	0.02	0.05	0.24
s, saturation flow rate [veh/h]	1791	1880	1473	1791	1880	1457	1791	1880	1736	1791	3580	1598
c, Capacity [veh/h]	36	421	330	321	728	564	181	817	755	56	1307	584
d1, Uniform Delay [s]	58.44	40.52	41.46	49.25	24.74	25.89	52.97	21.97	22.13	57.56	25.54	31.80
k, delay calibration	0.11	0.11	0.11	0.30	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.02	0.86	1.57	65.89	0.16	0.40	9.70	0.91	1.05	14.37	0.23	5.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.48	0.57	1.09	0.23	0.37	0.84	0.29	0.31	0.70	0.15	0.66
d, Delay for Lane Group [s/veh]	81.47	41.38	43.03	115.14	24.90	26.29	62.68	22.88	23.18	71.92	25.77	37.48
Lane Group LOS	F	D	D	F	C	C	E	C	C	E	C	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.02	5.35	5.14	15.44	3.25	4.23	4.92	4.51	4.42	1.39	1.85	10.01
50th-Percentile Queue Length [ft/ln]	25.45	133.76	128.46	386.03	81.14	105.80	122.93	112.80	110.62	34.69	46.31	250.19
95th-Percentile Queue Length [veh/ln]	1.83	9.14	8.86	22.87	5.84	7.61	8.55	8.00	7.87	2.50	3.33	15.20
95th-Percentile Queue Length [ft/ln]	45.80	228.60	221.40	571.69	146.06	190.15	213.85	199.89	196.86	62.44	83.36	379.90

Movement, Approach, & Intersection Results

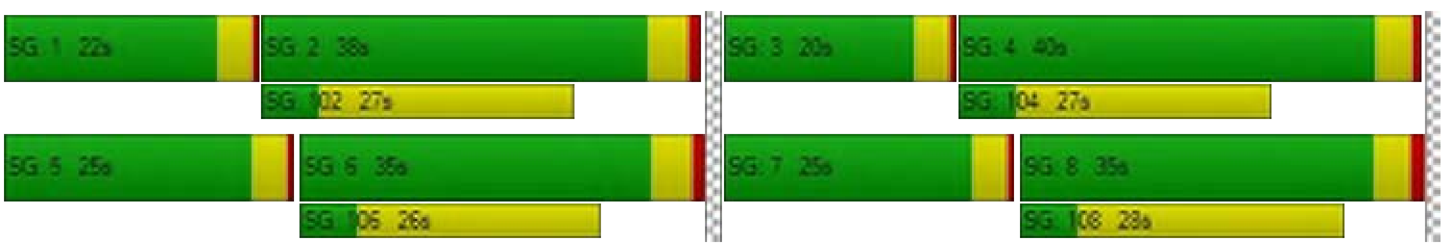
d_M, Delay for Movement [s/veh]	81.47	41.80	43.03	115.14	24.90	26.29	62.68	23.01	23.18	71.92	25.77	37.48
Movement LOS	F	D	D	F	C	C	E	C	C	E	C	D
d_A, Approach Delay [s/veh]	44.61			68.92			32.65			36.04		
Approach LOS	D			E			C			D		
d_I, Intersection Delay [s/veh]	46.68											
Intersection LOS	D											
Intersection V/C	0.720											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	39.97	5.77	29.76	39.87
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.310	2.614	2.553	2.753
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	513	605	558	508
d_b, Bicycle Delay [s]	33.15	29.19	31.18	33.38
I_b,int, Bicycle LOS Score for Intersection	1.905	2.754	2.073	2.065
Bicycle LOS	A	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 10: Edgewater Blvd and Mariners Island Blvd

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.354

Intersection Setup

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	2	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	40.00	400.00	100.00	400.00	190.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	3	6	5	189	2	97	564	705	10	17	735	292
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	6	5	189	2	97	564	705	10	17	735	292
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	1	49	1	25	147	184	3	4	191	76
Total Analysis Volume [veh/h]	3	6	5	197	2	101	588	734	10	18	766	304
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			1		
v_di, Inbound Pedestrian Volume crossing m	1			0			0			0		
v_co, Outbound Pedestrian Volume crossing	3			3			2			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			2			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	49.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups							4,5					
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	6	0	4	6	0	4	6	0
Maximum Green [s]	0	40	0	0	60	0	30	65	0	20	50	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	0.0	3.1	4.0	0.0	3.1	4.0	0.0
All red [s]	0.0	0.5	0.0	0.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	32	0	0	29	0	22	41	0	18	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	18	0	0	25	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	3.0	0.0	1.6	3.0	0.0	1.6	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			Yes		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.70	3.70	5.00	5.00	5.00	4.30	5.00	5.00	3.60	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	3.00	3.00	3.00	0.00	3.00	3.00	1.60	3.00	3.00
g_i, Effective Green Time [s]	2	2	41	41	41	76	58	58	2	30	30
g / C, Green / Cycle	0.02	0.02	0.34	0.34	0.34	0.63	0.48	0.48	0.02	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.06	0.07	0.04	0.37	0.20	0.20	0.01	0.21	0.19
s, saturation flow rate [veh/h]	1857	1577	1431	1456	2840	1601	1888	1877	1798	3595	1589
c, Capacity [veh/h]	32	27	524	556	970	948	910	905	28	890	393
d1, Uniform Delay [s]	58.29	58.19	27.89	27.88	27.02	14.00	20.10	20.11	58.83	43.22	41.96
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.57	3.12	0.72	0.78	0.22	3.05	0.30	0.30	22.65	2.59	3.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.18	0.17	0.19	0.10	0.62	0.41	0.41	0.65	0.86	0.77
d, Delay for Lane Group [s/veh]	62.85	61.31	28.61	28.66	27.24	17.04	20.40	20.41	81.48	45.81	45.21
Lane Group LOS	E	E	C	C	C	B	C	C	F	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.31	0.17	1.96	2.33	1.03	8.77	6.66	6.63	0.72	11.03	8.61
50th-Percentile Queue Length [ft/ln]	7.79	4.35	49.02	58.24	25.69	219.28	166.48	165.87	17.88	275.69	215.17
95th-Percentile Queue Length [veh/ln]	0.56	0.31	3.53	4.19	1.85	13.63	10.89	10.86	1.29	16.47	13.42
95th-Percentile Queue Length [ft/ln]	14.02	7.82	88.24	104.84	46.24	340.70	272.28	271.48	32.18	411.84	335.46

Movement, Approach, & Intersection Results

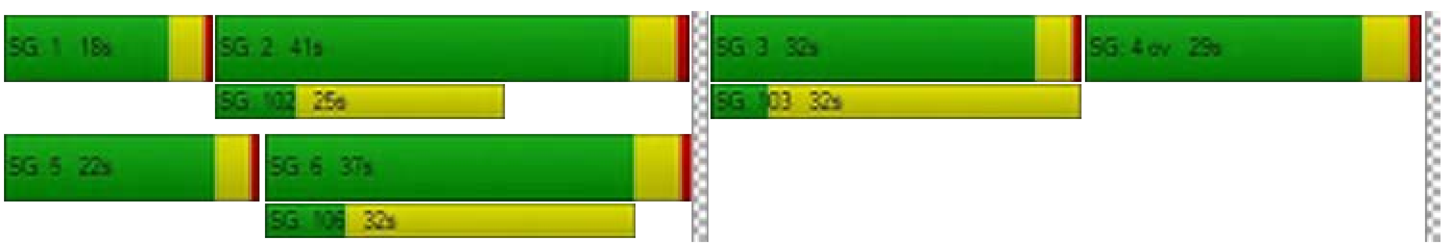
d_M, Delay for Movement [s/veh]	62.85	62.85	61.31	28.64	28.66	27.24	17.04	20.40	20.41	81.48	45.81	45.21
Movement LOS	E	E	E	C	C	C	B	C	C	F	D	D
d_A, Approach Delay [s/veh]	62.30			28.17			18.92			46.23		
Approach LOS	E			C			B			D		
d_I, Intersection Delay [s/veh]	31.03											
Intersection LOS	C											
Intersection V/C	0.354											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	1.968	3.126	0.000	3.144
Crosswalk LOS	A	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	472	400	600	533
d_b, Bicycle Delay [s]	35.04	38.40	29.44	32.27
I_b,int, Bicycle LOS Score for Intersection	1.583	2.055	2.659	2.457
Bicycle LOS	A	B	B	B

Sequence

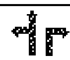
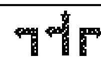
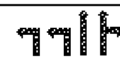
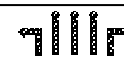
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Metro Center Blvd and Edgewater Blvd

Control Type:	Signalized	Delay (sec / veh):	31.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.396

Intersection Setup

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	2	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	50.00	270.00	100.00	100.00	370.00	100.00	100.00	180.00	100.00	50.00
Speed [mph]	25.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	29	13	6	327	12	193	214	679	17	21	653	155
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	13	6	327	12	193	214	679	17	21	653	155
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	3	2	86	3	51	56	179	4	6	172	41
Total Analysis Volume [veh/h]	31	14	6	344	13	203	225	715	18	22	687	163
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			4			2			3		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			4		
v_co, Outbound Pedestrian Volume crossing	5			3			3			6		
v_ci, Inbound Pedestrian Volume crossing mi	6			3			3			5		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	3.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	8	0	4	8	0
Maximum Green [s]	0	40	0	0	35	0	40	60	0	20	45	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.1	3.9	0.0	3.1	3.9	0.0
All red [s]	0.0	0.5	0.0	0.0	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	39	0	0	40	0	20	47	0	14	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	28	0	0	28	0	0	14	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	1.7	0.0	1.6	2.9	0.0	1.6	2.9	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	3.70	3.70	3.70	3.70	3.70	3.60	4.90	4.90	3.60	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	1.70	1.70	1.70	1.60	2.90	2.90	1.60	2.90	2.90
g_i, Effective Green Time [s]	11	11	22	22	22	11	89	89	2	80	80
g / C, Green / Cycle	0.08	0.08	0.16	0.16	0.16	0.08	0.64	0.64	0.02	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.02	0.00	0.10	0.10	0.13	0.06	0.19	0.20	0.01	0.13	0.10
s, saturation flow rate [veh/h]	1825	1536	1798	1804	1565	3492	1888	1869	1798	5143	1585
c, Capacity [veh/h]	140	118	282	283	245	281	1202	1190	30	2945	908
d1, Uniform Delay [s]	61.19	59.91	55.27	55.27	57.00	63.26	11.49	11.49	68.53	14.75	14.23
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.31	0.18	2.35	2.34	7.01	5.23	0.66	0.67	28.95	0.19	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.05	0.63	0.63	0.83	0.80	0.31	0.31	0.73	0.23	0.18
d, Delay for Lane Group [s/veh]	62.51	60.09	57.61	57.60	64.01	68.49	12.15	12.16	97.48	14.94	14.66
Lane Group LOS	E	E	E	E	E	E	B	B	F	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.59	0.21	6.06	6.08	7.38	4.13	5.25	5.21	1.02	3.62	2.56
50th-Percentile Queue Length [ft/ln]	39.65	5.15	151.41	151.90	184.43	103.26	131.28	130.25	25.58	90.40	63.92
95th-Percentile Queue Length [veh/ln]	2.85	0.37	10.09	10.12	11.83	7.43	9.01	8.95	1.84	6.51	4.60
95th-Percentile Queue Length [ft/ln]	71.36	9.28	252.31	252.97	295.78	185.86	225.23	223.84	46.05	162.72	115.05

Movement, Approach, & Intersection Results

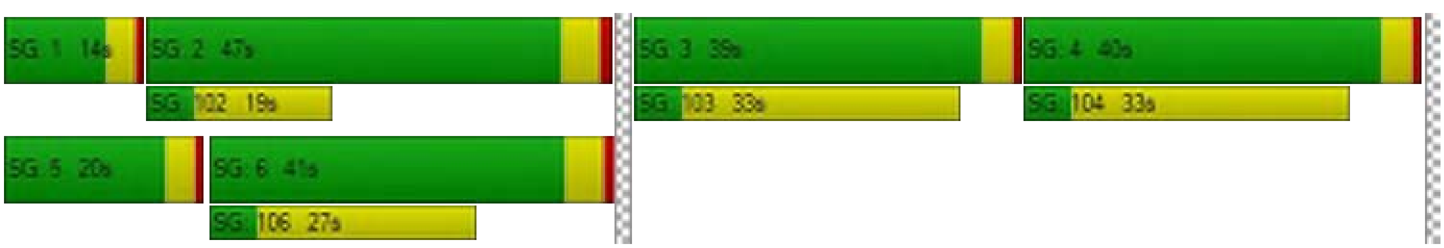
d_M, Delay for Movement [s/veh]	62.51	62.51	60.09	57.61	57.60	64.01	68.49	12.15	12.16	97.48	14.94	14.66
Movement LOS	E	E	E	E	E	E	E	B	B	F	B	B
d_A, Approach Delay [s/veh]	62.22			59.93			25.38			16.97		
Approach LOS	E			E			C			B		
d_I, Intersection Delay [s/veh]	31.07											
Intersection LOS	C											
Intersection V/C	0.396											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	61.29	61.29	61.29	61.29
I_p,int, Pedestrian LOS Score for Intersection	1.991	2.541	2.922	3.023
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	504	519	601	516
d_b, Bicycle Delay [s]	39.15	38.43	34.28	38.57
I_b,int, Bicycle LOS Score for Intersection	1.644	2.484	2.350	2.039
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Edgewater Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	42.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.794

Intersection Setup

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	1	0	1
Pocket Length [ft]	190.00	100.00	190.00	310.00	100.00	110.00	100.00	100.00	75.00	310.00	100.00	230.00
Speed [mph]	40.00			35.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	301	549	102	210	542	273	0	1340	501	226	838	213
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	301	549	102	210	542	273	0	1340	501	226	838	213
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	78	141	26	54	140	70	0	345	129	58	216	55
Total Analysis Volume [veh/h]	310	566	105	216	559	281	0	1381	516	233	864	220
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			3			3			11		
v_di, Inbound Pedestrian Volume crossing m	11			3			3			10		
v_co, Outbound Pedestrian Volume crossing	6			10			6			10		
v_ci, Inbound Pedestrian Volume crossing mi	6			10			6			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	75.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	4	6	0
Maximum Green [s]	30	60	0	20	50	0	0	45	0	30	50	0
Amber [s]	3.5	4.0	0.0	3.5	3.9	0.0	0.0	4.0	0.0	3.5	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.5	1.0	0.0
Split [s]	27	52	0	18	43	0	0	42	0	28	70	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	30	0	0	34	0	0	31	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	2.0	2.9	0.0	0.0	3.0	0.0	2.0	2.6	0.0
Minimum Recall	No	No		No	No			No		No	No	
Maximum Recall	No	No		No	No			Yes		No	Yes	
Pedestrian Recall	No	No		No	No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	R	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.50	5.00	5.00	4.00	4.90	4.90	5.00	5.00	4.00	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	3.00	3.00	2.00	2.90	2.90	3.00	3.00	2.00	2.60	2.60
g_i, Effective Green Time [s]	15	34	34	11	30	30	57	57	20	81	81
g / C, Green / Cycle	0.11	0.24	0.24	0.08	0.21	0.21	0.41	0.41	0.14	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.09	0.18	0.19	0.06	0.16	0.18	0.27	0.33	0.13	0.17	0.14
s, saturation flow rate [veh/h]	3497	1891	1763	3497	3600	1568	5151	1571	1801	5151	1571
c, Capacity [veh/h]	375	461	430	277	766	334	2083	636	260	2988	911
d1, Uniform Delay [s]	61.26	49.02	49.19	63.31	51.41	52.63	33.95	36.60	58.94	14.84	14.31
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.16	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.64	2.46	2.79	4.73	1.36	5.77	1.68	10.83	14.70	0.24	0.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.75	0.76	0.78	0.73	0.84	0.66	0.81	0.90	0.29	0.24
d, Delay for Lane Group [s/veh]	65.90	51.48	51.97	68.04	52.77	58.40	35.63	47.43	73.64	15.09	14.94
Lane Group LOS	E	D	D	E	D	E	D	D	E	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.58	11.32	10.78	3.95	9.25	9.91	12.78	16.96	9.14	4.64	3.53
50th-Percentile Queue Length [ft/ln]	139.57	283.02	269.56	98.71	231.35	247.75	319.49	424.06	228.54	115.95	88.13
95th-Percentile Queue Length [veh/ln]	9.46	16.84	16.17	7.11	14.24	15.07	18.64	23.72	14.10	8.17	6.35
95th-Percentile Queue Length [ft/ln]	236.45	420.98	404.19	177.69	356.07	376.82	466.06	592.92	352.50	204.25	158.64

Movement, Approach, & Intersection Results

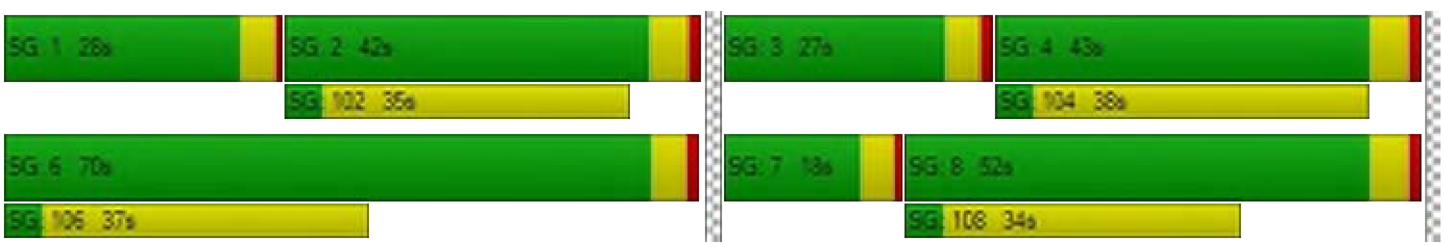
d_M, Delay for Movement [s/veh]	65.90	51.67	51.97	68.04	52.77	58.40	0.00	35.63	47.43	73.64	15.09	14.94
Movement LOS	E	D	D	E	D	E		D	D	E	B	B
d_A, Approach Delay [s/veh]	56.20			57.39			38.84			25.42		
Approach LOS	E			E			D			C		
d_I, Intersection Delay [s/veh]	42.45											
Intersection LOS	D											
Intersection V/C	0.794											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	160.42	484.17	216.94
d_p, Pedestrian Delay [s]	62.23	62.23	62.23	62.23
I_p,int, Pedestrian LOS Score for Intersection	2.972	3.010	3.239	3.178
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	671	544	529	934
d_b, Bicycle Delay [s]	30.94	37.16	37.95	19.90
I_b,int, Bicycle LOS Score for Intersection	2.369	2.431	2.603	2.284
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Center Park Ln and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	21.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	390.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Base Volume Input [veh/h]	185	112	363	1336	825	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.50	0.50	0.50	0.50	0.50	0.50
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	185	112	363	1336	825	49
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	29	95	348	215	13
Total Analysis Volume [veh/h]	193	117	378	1392	859	51
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		15	
v_di, Inbound Pedestrian Volume crossing m	0		0		14	
v_co, Outbound Pedestrian Volume crossing	5		14		5	
v_ci, Inbound Pedestrian Volume crossing mi	5		15		5	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	19.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	4	0	6	5	5	0
Maximum Green [s]	35	0	30	40	40	0
Amber [s]	3.5	0.0	3.1	3.5	3.5	0.0
All red [s]	0.5	0.0	0.5	1.0	1.0	0.0
Split [s]	36	0	37	84	47	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0
Pedestrian Clearance [s]	20	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	1.6	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	0.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	16	16	27	95	64	64
g / C, Green / Cycle	0.14	0.14	0.23	0.79	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.11	0.07	0.21	0.27	0.17	0.17
s, saturation flow rate [veh/h]	1688	1609	1802	5155	3603	1827
c, Capacity [veh/h]	231	220	406	4085	1935	981
d1, Uniform Delay [s]	50.44	48.18	45.50	3.54	15.44	15.40
k, delay calibration	0.11	0.11	0.34	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.83	2.00	23.17	0.23	0.42	0.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.53	0.93	0.34	0.31	0.31
d, Delay for Lane Group [s/veh]	58.27	50.17	68.67	3.76	15.87	16.22
Lane Group LOS	E	D	E	A	B	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.19	3.41	13.46	2.51	4.61	4.71
50th-Percentile Queue Length [ft/ln]	154.73	85.37	336.61	62.64	115.24	117.66
95th-Percentile Queue Length [veh/ln]	10.27	6.15	19.48	4.51	8.13	8.26
95th-Percentile Queue Length [ft/ln]	256.73	153.67	487.05	112.76	203.27	206.60

Movement, Approach, & Intersection Results

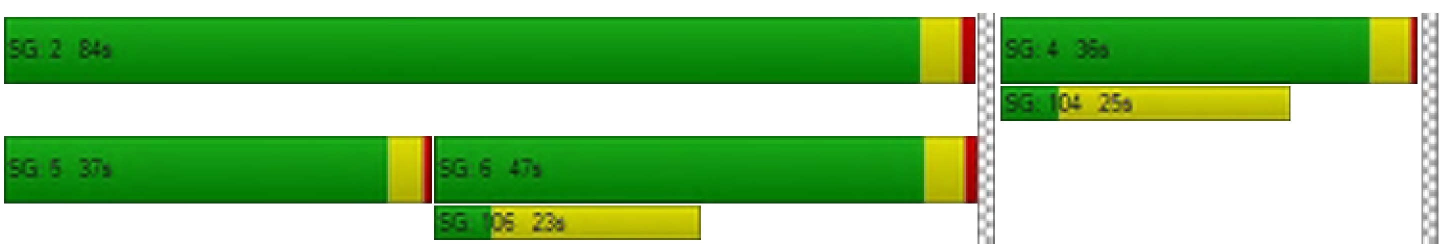
d_M, Delay for Movement [s/veh]	58.27	50.17	68.67	3.76	15.97	16.22
Movement LOS	E	D	E	A	B	B
d_A, Approach Delay [s/veh]	55.21		17.63		15.99	
Approach LOS	E		B		B	
d_I, Intersection Delay [s/veh]	21.02					
Intersection LOS	C					
Intersection V/C	0.547					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	501.89	0.00	251.53
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.156	0.000	2.941
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.106	4.633
Bicycle LOS	D	F	E

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foster City Metro Center Hotel EIR

Vistro File: \...\FC Metro Center Hotel 9.26.19.vistro

Scenario 4 Existing Plus Project PM

Report File: \...\EPP PM Report.pdf

12/10/2019

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Vintage Park Dr and Chess Dr	186	53	489	273	305	90	29	276	290	81	181	11	2264

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Chess Dr and Route 92 West Ramp	81	2	197	10	20	4	0	262	780	919	180	1	2456

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Foster City Blvd and Chess Dr	703	217	19	2	996	235	38	13	418	108	161	4	2914

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Metro Center Blvd and Shell Blvd	181	63	181	64	45	85	14	544	173	27	49	70	1496

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Metro Center Blvd and Route 92 East Ramp	2	49	21	108	4	44	508	278	6	8	102	972	2102

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foster City Blvd and Metro Center Blvd	235	547	64	198	615	729	124	130	153	62	118	268	3243

ID	Intersection Name	Northbound			Southbound			Eastbound		Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Thru	Right	Left	Thru	Right	
7	Shell Blvd and E Hillsdale Blvd	292	193	92	116	207	98	1055	497	119	478	76	3223

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	Foster City Blvd and E Hillsdale Blvd	148	383	34	197	471	152	355	461	440	69	256	77	3043

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	Metro Center Blvd and Vintage Park Dr	23	246	108	315	150	186	136	381	43	35	171	345	2139

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	Edgewater Blvd and Mariners Island Blvd	3	6	5	189	2	97	564	705	10	17	735	292	2625

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11	Metro Center Blvd and Edgewater Blvd	29	13	6	327	12	193	214	679	17	21	653	155	2319

ID	Intersection Name	Northbound			Southbound			Eastbound		Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Thru	Right	Left	Thru	Right	
12	Edgewater Blvd and E Hillsdale Blvd	301	549	102	210	542	273	1340	501	226	838	213	5095

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
13	Center Park Ln and E Hillsdale Blvd	185	112	363	1336	825	49	2870

Study Intersections

Foster City Metro Center Hotel EIR

Vistro File: \...\FC Metro Center Hotel 9.26.19.vistro
Scenario 5 Cumulative AM

Report File: \...\Cumulative AM Report.pdf
12/10/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Vintage Park Dr and Chess Dr	Signalized	HCM 6th Edition	SB Left	0.697	22.2	C
2	Chess Dr and Route 92 West Ramp	Signalized	HCM 6th Edition	NB Right	1.233	334.2	F
3	Foster City Blvd and Chess Dr	Signalized	HCM 6th Edition	EB Right	0.910	96.3	F
4	Metro Center Blvd and Shell Blvd	Signalized	HCM 6th Edition	SB Left	0.463	15.8	B
5	Metro Center Blvd and Route 92 East Ramp	Signalized	HCM 6th Edition	WB Left	0.606	28.4	C
6	Foster City Blvd and Metro Center Blvd	Signalized	HCM 6th Edition	WB Right	0.954	83.3	F
7	Shell Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	SB Left	0.605	31.3	C
8	Foster City Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Left	0.812	44.3	D
9	Metro Center Blvd and Vintage Park Dr	Signalized	HCM 6th Edition	EB Left	1.003	147.5	F
10	Edgewater Blvd and Mariners Island Blvd	Signalized	HCM 6th Edition	WB Left	0.670	35.8	D
11	Metro Center Blvd and Edgewater Blvd	Signalized	HCM 6th Edition	SB Left	0.717	73.0	E
12	Edgewater Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	WB Left	0.727	36.6	D
13	Center Park Ln and E Hillsdale Blvd	Signalized	HCM 6th Edition	SB Left	0.479	11.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Vintage Park Dr and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	22.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.697

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	280.00	100.00	100.00	265.00	100.00	100.00	140.00	100.00	100.00	215.00	100.00	100.00
Speed [mph]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	150	900	160	30	120	60	80	170	130	190	360	250
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	900	160	30	120	60	80	170	130	190	360	250
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	242	43	8	32	16	22	46	35	51	97	67
Total Analysis Volume [veh/h]	161	968	172	32	129	65	86	183	140	204	387	269
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	11			4			10			3		
v_di, Inbound Pedestrian Volume crossing m	10			3			11			4		
v_co, Outbound Pedestrian Volume crossing	3			9			10			3		
v_ci, Inbound Pedestrian Volume crossing mi	3			10			9			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	4	0	4	4	0	4	4	0	4	4	0
Maximum Green [s]	40	50	0	30	40	0	20	40	0	20	40	0
Amber [s]	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0
All red [s]	0.5	0.5	0.0	1.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	23	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	1.7	0.0	2.1	2.2	0.0	1.6	2.2	0.0	1.6	2.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	64	64	64	64	64	64	64	64	64	64	64	64	64
L, Total Lost Time per Cycle [s]	3.60	3.70	3.70	3.70	4.10	4.20	4.20	3.60	4.20	4.20	3.60	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.70	1.70	1.70	2.10	2.20	2.20	1.60	2.20	2.20	1.60	2.20	2.20
g_i, Effective Green Time [s]	8	25	25	25	2	19	19	4	12	12	9	18	18
g / C, Green / Cycle	0.12	0.39	0.39	0.39	0.03	0.29	0.29	0.06	0.19	0.19	0.15	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.09	0.21	0.31	0.11	0.02	0.05	0.06	0.05	0.09	0.10	0.12	0.19	0.19
s, saturation flow rate [veh/h]	1765	1853	1853	1568	1765	1853	1614	1765	1853	1548	1765	1853	1593
c, Capacity [veh/h]	215	720	720	609	48	544	474	115	357	298	261	510	439
d1, Uniform Delay [s]	27.12	15.24	17.28	13.43	30.80	16.86	16.95	29.38	22.93	23.12	26.26	20.71	20.75
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.12	0.67	2.02	0.25	14.45	0.16	0.20	9.34	0.98	1.37	5.10	1.66	1.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.55	0.79	0.28	0.66	0.18	0.20	0.75	0.48	0.51	0.78	0.69	0.69
d, Delay for Lane Group [s/veh]	32.24	15.90	19.30	13.68	45.25	17.02	17.15	38.72	23.91	24.49	31.36	22.38	22.74
Lane Group LOS	C	B	B	B	D	B	B	D	C	C	C	C	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.55	4.17	6.95	1.58	0.66	1.04	1.00	1.56	2.27	2.09	3.19	4.55	3.99
50th-Percentile Queue Length [ft/ln]	63.78	104.1	173.8	39.47	16.53	25.88	24.88	38.88	56.81	52.36	79.69	113.81	99.78
95th-Percentile Queue Length [veh/ln]	4.59	7.50	11.28	2.84	1.19	1.86	1.79	2.80	4.09	3.77	5.74	8.05	7.18
95th-Percentile Queue Length [ft/ln]	114.8	187.4	281.9	71.04	29.76	46.58	44.78	69.98	102.26	94.26	143.44	201.29	179.60

Movement, Approach, & Intersection Results

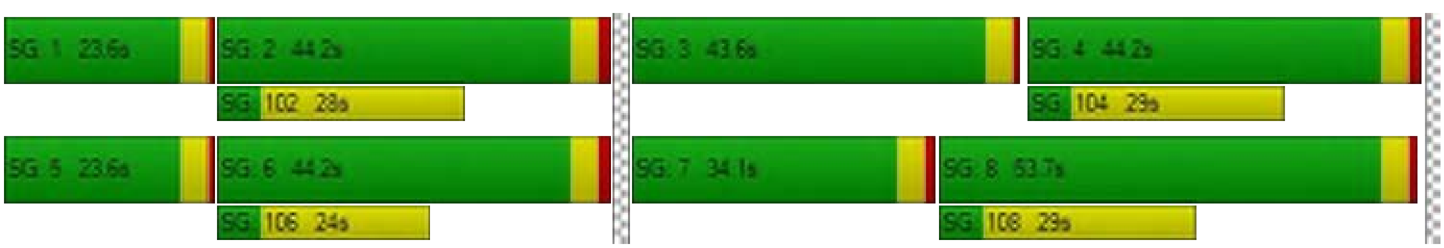
d_M, Delay for Movement [s/veh]	32.24	17.90	13.68	45.25	17.05	17.15	38.72	23.96	24.49	31.36	22.41	22.74
Movement LOS	C	B	B	D	B	B	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	19.12			21.07			27.24			24.64		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	22.16											
Intersection LOS	C											
Intersection V/C	0.697											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	364.04	679.88	438.17	1196.46
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.743	2.603	2.467	2.657
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1111	889	889	889
d_b, Bicycle Delay [s]	8.89	13.90	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.633	1.746	1.897	2.269
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Chess Dr and Route 92 West Ramp

Control Type:	Signalized	Delay (sec / veh):	334.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.233

Intersection Setup

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	480.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	610	40	1060	10	20	10	10	220	140	750	220	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	610	40	1060	10	20	10	10	220	140	750	220	20
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	164	11	285	3	5	3	3	59	38	202	59	5
Total Analysis Volume [veh/h]	656	43	1140	11	22	11	11	237	151	806	237	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	35.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	4	0	0	1	6	1	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	4	0	0	6	5	6	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	30	55	0
Amber [s]	0.0	3.5	0.0	0.0	3.2	0.0	0.0	3.2	3.1	3.2	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	0.5	0.0	0.0	1.0	1.0	1.0	2.0	0.0
Split [s]	0	30	0	0	26	0	0	20	50	20	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	17	0	0	0	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.5	0.0	0.0	1.7	0.0	0.0	2.2	2.1	2.2	3.5	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		Yes	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	3.70	4.20	4.10	5.50	5.50	5.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	1.70	2.20	2.10	3.50	3.50	3.50
g_i, Effective Green Time [s]	30	30	30	4	18	53	50	50	50
g / C, Green / Cycle	0.25	0.25	0.25	0.03	0.15	0.44	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.20	0.20	0.72	0.03	0.13	0.05	0.23	0.23	0.16
s, saturation flow rate [veh/h]	1767	1777	1577	1756	1851	2791	1767	1767	1663
c, Capacity [veh/h]	441	444	394	58	285	1233	732	732	689
d1, Uniform Delay [s]	42.17	42.11	45.08	57.59	49.66	19.78	26.72	26.72	24.43
k, delay calibration	0.29	0.29	0.50	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.29	7.96	860.26	17.50	8.04	0.04	2.97	2.97	1.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.79	2.90	0.75	0.87	0.12	0.55	0.55	0.38
d, Delay for Lane Group [s/veh]	50.46	50.07	905.34	75.09	57.70	19.83	29.69	29.69	25.99
Lane Group LOS	D	D	F	E	E	B	C	C	C
Critical Lane Group	No	No	Yes	Yes	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.66	10.61	105.67	1.61	7.90	1.26	9.29	9.29	5.40
50th-Percentile Queue Length [ft/ln]	266.54	265.32	2641.75	40.25	197.40	31.59	232.28	232.28	135.10
95th-Percentile Queue Length [veh/ln]	16.02	15.96	166.68	2.90	12.50	2.27	14.29	14.29	9.22
95th-Percentile Queue Length [ft/ln]	400.41	398.89	4167.09	72.45	312.61	56.87	357.26	357.26	230.41

Movement, Approach, & Intersection Results

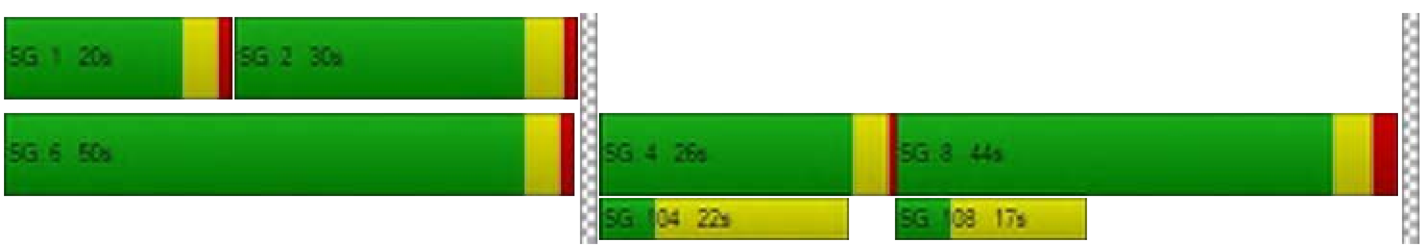
d_M, Delay for Movement [s/veh]	50.28	50.07	905.34	75.09	75.09	75.09	57.70	57.70	19.83	29.69	25.99	25.99
Movement LOS	D	D	F	E	E	E	E	E	B	C	C	C
d_A, Approach Delay [s/veh]	580.33			75.09			43.37			28.79		
Approach LOS	F			E			D			C		
d_I, Intersection Delay [s/veh]	334.18											
Intersection LOS	F											
Intersection V/C	1.233											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	1.789	2.569	0.000
Crosswalk LOS	F	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	425	372	263	642
d_b, Bicycle Delay [s]	37.21	39.79	45.24	27.68
I_b,int, Bicycle LOS Score for Intersection	4.594	1.632	2.218	2.438
Bicycle LOS	E	A	B	B

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Foster City Blvd and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	96.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.910

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	850.00	100.00	150.00	80.00	100.00	180.00	100.00	100.00	100.00	250.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	850	1150	400	60	320	80	500	200	590	60	60	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	850	1150	400	60	320	80	500	200	590	60	60	10
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	217	293	102	15	82	20	128	51	151	15	15	3
Total Analysis Volume [veh/h]	867	1173	408	61	327	82	510	204	602	61	61	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	30.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	3	3	3	0	1	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	4	4	4	0	4	4	0
Maximum Green [s]	55	65	0	20	35	30	30	30	0	55	35	0
Amber [s]	3.5	3.6	0.0	3.1	3.9	3.2	3.2	3.2	0.0	3.5	3.1	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0	1.0	0.5	0.0
Split [s]	40	45	0	16	21	27	27	27	0	40	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	0	4	0
Pedestrian Clearance [s]	0	23	0	0	0	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.6	0.0	1.6	2.9	1.7	1.7	1.7	0.0	2.5	1.6	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	Yes	Yes		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.60	4.60	3.60	4.90	3.70	3.70	3.70	3.70	3.60	3.60	3.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.60	2.60	1.60	2.90	0.00	1.70	1.70	1.70	1.60	1.60	1.60
g_i, Effective Green Time [s]	58	67	67	5	13	44	26	26	26	6	6	6
g / C, Green / Cycle	0.48	0.56	0.56	0.04	0.11	0.37	0.22	0.22	0.22	0.05	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.25	0.33	0.26	0.03	0.09	0.05	0.20	0.20	0.42	0.03	0.02	0.02
s, saturation flow rate [veh/h]	3439	3540	1581	1771	3540	1581	1771	1820	1438	1771	1859	1771
c, Capacity [veh/h]	1657	1976	882	80	394	581	382	392	310	92	97	92
d1, Uniform Delay [s]	21.54	17.51	15.79	56.69	52.22	25.31	46.11	46.08	47.08	55.85	54.98	55.02
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.31	0.31	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.18	1.32	1.74	14.09	4.54	0.11	21.59	20.65	435.41	7.83	2.33	2.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.59	0.46	0.77	0.83	0.14	0.92	0.92	1.94	0.66	0.37	0.38
d, Delay for Lane Group [s/veh]	22.72	18.83	17.53	70.78	56.76	25.42	67.70	66.73	482.48	63.68	57.31	57.61
Lane Group LOS	C	B	B	E	E	C	E	E	F	E	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.62	10.77	6.95	2.13	5.03	1.57	12.53	12.73	46.68	2.03	1.12	1.11
50th-Percentile Queue Length [ft/ln]	215.59	269.18	173.78	53.17	125.64	39.25	313.16	318.18	1167.12	50.73	27.92	27.70
95th-Percentile Queue Length [veh/ln]	13.44	16.15	11.28	3.83	8.70	2.83	18.33	18.58	74.03	3.65	2.01	1.99
95th-Percentile Queue Length [ft/ln]	335.99	403.72	281.88	95.70	217.55	70.64	458.27	464.45	1850.66	91.32	50.26	49.87

Movement, Approach, & Intersection Results

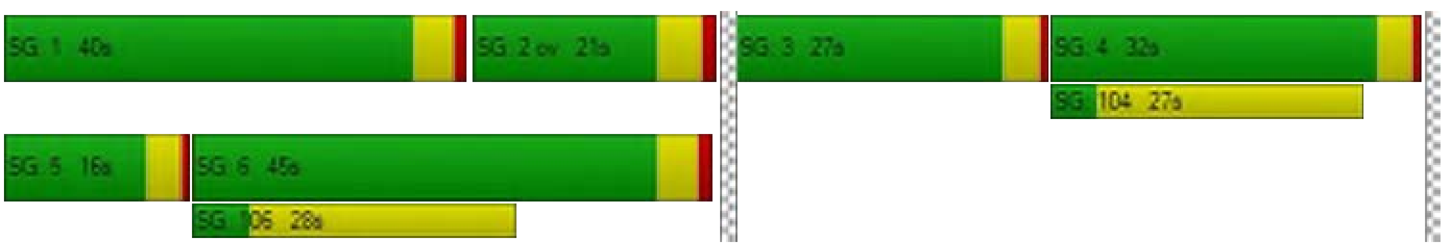
d_M, Delay for Movement [s/veh]	22.72	18.83	17.53	70.78	56.76	25.42	67.41	66.73	482.48	63.68	57.43	57.61
Movement LOS	C	B	B	E	E	C	E	E	F	E	E	E
d_A, Approach Delay [s/veh]	19.99			53.11			257.18			60.33		
Approach LOS	B			D			F			E		
d_I, Intersection Delay [s/veh]	96.27											
Intersection LOS	F											
Intersection V/C	0.910											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	52.27	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.879	0.000	2.446
Crosswalk LOS	F	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	673	268	388	473
d_b, Bicycle Delay [s]	26.40	44.98	38.96	34.96
I_b,int, Bicycle LOS Score for Intersection	3.579	1.947	2.645	1.669
Bicycle LOS	D	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Metro Center Blvd and Shell Blvd

Control Type:	Signalized	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.463

Intersection Setup

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	2	0	1
Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	85.00	100.00	100.00	210.00	100.00	200.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	300	30	100	10	10	10	10	180	90	240	520	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	300	30	100	10	10	10	10	180	90	240	520	50
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	77	8	26	3	3	3	3	46	23	61	133	13
Total Analysis Volume [veh/h]	306	31	102	10	10	10	10	184	92	245	531	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	16			7			16			6		
v_di, Inbound Pedestrian Volume crossing m	16			6			16			7		
v_co, Outbound Pedestrian Volume crossing	16			4			4			16		
v_ci, Inbound Pedestrian Volume crossing mi	16			4			4			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	6	6	0
Maximum Green [s]	40	40	0	20	20	0	20	40	0	20	40	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	28	0	0	20	0	0	21	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.5	0.0	1.5	2.5	0.0	1.5	2.5	0.0	2.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	46	46	46	46	46	46	46	46	46	46	46
L, Total Lost Time per Cycle [s]	3.50	4.50	4.50	3.50	4.50	3.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.50	2.50	1.50	2.50	1.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	10	13	13	0	3	0	10	10	6	16	16
g / C, Green / Cycle	0.23	0.27	0.27	0.01	0.06	0.01	0.22	0.22	0.13	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.17	0.02	0.07	0.01	0.01	0.01	0.08	0.08	0.07	0.15	0.03
s, saturation flow rate [veh/h]	1761	1849	1517	1761	1660	1761	1849	1597	3420	3520	1543
c, Capacity [veh/h]	402	509	417	19	95	19	407	352	428	1255	550
d1, Uniform Delay [s]	16.62	12.32	12.95	22.69	20.73	22.69	15.18	15.29	19.00	11.24	9.86
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.01	0.05	0.30	21.64	1.08	21.64	0.51	0.68	1.21	0.23	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.06	0.24	0.53	0.21	0.53	0.35	0.38	0.57	0.42	0.09
d, Delay for Lane Group [s/veh]	19.62	12.37	13.25	44.33	21.80	44.33	15.69	15.97	20.21	11.46	9.93
Lane Group LOS	B	B	B	D	C	D	B	B	C	B	A
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.83	0.20	0.71	0.21	0.21	0.21	1.11	1.07	1.13	1.64	0.28
50th-Percentile Queue Length [ft/ln]	70.87	5.02	17.65	5.20	5.23	5.20	27.79	26.68	28.37	40.90	7.00
95th-Percentile Queue Length [veh/ln]	5.10	0.36	1.27	0.37	0.38	0.37	2.00	1.92	2.04	2.94	0.50
95th-Percentile Queue Length [ft/ln]	127.56	9.04	31.77	9.37	9.41	9.37	50.02	48.02	51.07	73.61	12.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.62	12.37	13.25	44.33	21.80	21.80	44.33	15.75	15.97	20.21	11.46	9.93
Movement LOS	B	B	B	D	C	C	D	B	B	C	B	A
d_A, Approach Delay [s/veh]	17.63			29.31			16.82			13.96		
Approach LOS	B			C			B			B		
d_I, Intersection Delay [s/veh]	15.79											
Intersection LOS	B											
Intersection V/C	0.463											

Other Modes

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	277.66	621.46	1295.00	303.75
d_p, Pedestrian Delay [s]	35.56	35.56	35.56	35.56
I_p,int, Pedestrian LOS Score for Intersection	2.479	1.987	2.558	2.777
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	444	889	889
d_b, Bicycle Delay [s]	13.89	27.22	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.284	1.609	1.796	2.242
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Metro Center Blvd and Route 92 East Ramp

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	2	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	600.00	100.00	640.00	290.00	100.00	100.00	90.00	100.00	100.00
Speed [mph]	15.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	10	10	30	1290	50	460	100	220	10	40	280	240
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	10	30	1290	50	460	100	220	10	40	280	240
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	8	332	13	119	26	57	3	10	72	62
Total Analysis Volume [veh/h]	10	10	31	1330	52	474	103	227	10	41	289	247
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	50.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	10	4	4	4	0	4	4	0
Maximum Green [s]	0	40	0	0	60	30	30	40	0	25	35	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	3.1	3.1	3.5	0.0	3.1	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.5	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	18	0	0	56	18	18	30	0	16	28	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	6	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	17	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	3.0	1.6	1.6	2.5	0.0	1.6	2.5	0.0
Minimum Recall		No			No	No	No	No		No	No	
Maximum Recall		No			Yes	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.20	4.20	5.00	5.00	3.60	3.60	4.50	4.50	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	3.00	3.00	0.00	1.60	2.50	2.50	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	4	4	72	72	88	11	23	23	4	16	16	16
g / C, Green / Cycle	0.03	0.03	0.60	0.60	0.73	0.09	0.19	0.19	0.03	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.01	0.02	0.39	0.39	0.17	0.03	0.06	0.06	0.02	0.10	0.10	0.11
s, saturation flow rate [veh/h]	1811	1578	1768	1774	2793	3434	1856	1829	1768	1856	1720	1578
c, Capacity [veh/h]	56	48	1061	1064	2043	309	362	357	53	251	233	214
d1, Uniform Delay [s]	57.03	57.53	15.77	15.74	5.21	51.26	41.54	41.56	57.82	50.01	50.08	50.16
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.88	13.23	3.11	3.07	0.27	0.63	0.52	0.54	20.56	4.67	5.27	6.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.64	0.65	0.65	0.23	0.33	0.33	0.33	0.77	0.76	0.77	0.78
d, Delay for Lane Group [s/veh]	60.92	70.76	18.89	18.81	5.48	51.89	42.06	42.09	78.37	54.68	55.35	56.18
Lane Group LOS	E	E	B	B	A	D	D	D	E	D	E	E
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.67	1.13	12.49	12.45	1.74	1.47	3.07	3.05	1.54	5.84	5.52	5.18
50th-Percentile Queue Length [ft/ln]	16.72	28.25	312.25	311.36	43.52	36.85	76.78	76.18	38.50	146.0	138.0	129.5
95th-Percentile Queue Length [veh/ln]	1.20	2.03	18.29	18.24	3.13	2.65	5.53	5.49	2.77	9.81	9.38	8.91
95th-Percentile Queue Length [ft/ln]	30.10	50.86	457.15	456.06	78.34	66.32	138.21	137.13	69.30	245.1	234.3	222.8

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.92	60.92	70.76	18.85	18.81	5.48	51.89	42.08	42.09	78.37	54.90	55.93
Movement LOS	E	E	E	B	B	A	D	D	D	E	D	E
d_A, Approach Delay [s/veh]	66.90			15.43			45.05			57.00		
Approach LOS	E			B			D			E		
d_I, Intersection Delay [s/veh]	28.42											
Intersection LOS	C											
Intersection V/C	0.606											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	51.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	19.84	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.752	0.000
Crosswalk LOS	F	F	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	230	850	425	392
d_b, Bicycle Delay [s]	46.99	19.84	37.21	38.80
I_b,int, Bicycle LOS Score for Intersection	1.644	4.622	1.840	2.036
Bicycle LOS	A	E	A	B

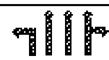
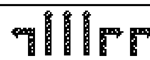
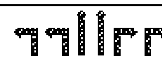
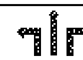
Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Foster City Blvd and Metro Center Blvd

Control Type:	Signalized	Delay (sec / veh):	83.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.954

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	230.00	100.00	100.00	210.00	100.00	100.00	150.00	100.00	240.00	50.00	100.00	170.00
Speed [mph]	35.00			35.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	200	1130	80	160	600	210	760	290	490	60	150	510
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	1130	80	160	600	210	760	290	490	60	150	510
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	283	20	40	150	53	190	73	123	15	38	128
Total Analysis Volume [veh/h]	200	1130	80	160	600	210	760	290	490	60	150	510
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	7			0			0			8		
v_di, Inbound Pedestrian Volume crossing m	8			0			0			7		
v_co, Outbound Pedestrian Volume crossing	4			0			4			0		
v_ci, Inbound Pedestrian Volume crossing mi	4			0			4			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	103.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	5	4	1	1	3	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	4	4	6	0
Maximum Green [s]	30	40	0	25	40	0	25	40	30	30	30	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.2	3.1	3.1	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0
Split [s]	17	38	0	19	40	0	19	38	17	17	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.2	1.6	1.6	1.7	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	Yes		No	Yes			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	4.20	4.20	3.60	3.70	3.70	3.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	2.20	2.20	0.00	1.70	1.70	1.70
g_i, Effective Green Time [s]	13	39	39	13	38	38	31	31	49	21	21	21
g / C, Green / Cycle	0.11	0.32	0.32	0.11	0.32	0.32	0.26	0.26	0.41	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.11	0.23	0.23	0.09	0.12	0.07	0.22	0.08	0.17	0.03	0.08	0.32
s, saturation flow rate [veh/h]	1777	3552	1797	1777	5082	2807	3450	3552	2807	1777	1865	1586
c, Capacity [veh/h]	198	1150	582	188	1616	893	892	919	1138	315	331	281
d1, Uniform Delay [s]	53.30	35.44	35.48	52.72	31.64	30.16	42.29	35.91	25.71	42.01	44.14	49.35
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	31.70	3.52	6.87	10.22	0.66	0.62	2.41	0.20	0.26	0.29	0.97	379.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.70	0.70	0.85	0.37	0.24	0.85	0.32	0.43	0.19	0.45	1.81
d, Delay for Lane Group [s/veh]	85.00	38.97	42.35	62.93	32.30	30.78	44.70	36.10	25.96	42.30	45.11	428.51
Lane Group LOS	F	D	D	E	C	C	D	D	C	D	D	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	7.67	10.63	11.34	5.23	4.55	2.30	10.83	3.44	5.00	1.56	4.13	38.12
50th-Percentile Queue Length [ft/ln]	191.63	265.70	283.47	130.73	113.67	57.58	270.73	85.91	125.08	39.07	103.19	952.89
95th-Percentile Queue Length [veh/ln]	12.25	15.97	16.86	8.98	8.04	4.15	16.23	6.19	8.67	2.81	7.43	59.93
95th-Percentile Queue Length [ft/ln]	306.16	399.36	421.53	224.48	201.09	103.64	405.65	154.64	216.78	70.33	185.74	1498.20

Movement, Approach, & Intersection Results

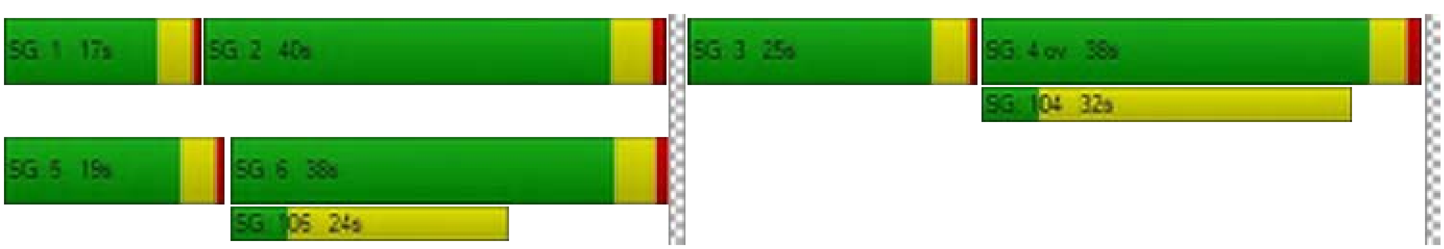
d_M, Delay for Movement [s/veh]	85.00	39.95	42.35	62.93	32.30	30.78	44.70	36.10	25.96	42.30	45.11	428.51
Movement LOS	F	D	D	E	C	C	D	D	C	D	D	F
d_A, Approach Delay [s/veh]	46.47			37.02			37.12			316.45		
Approach LOS	D			D			D			F		
d_I, Intersection Delay [s/veh]	83.29											
Intersection LOS	F											
Intersection V/C	0.954											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	113.10	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.025	0.000	0.000	2.518
Crosswalk LOS	C	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	557	590	563	355
d_b, Bicycle Delay [s]	31.25	29.82	30.96	40.59
I_b,int, Bicycle LOS Score for Intersection	2.335	2.093	2.830	2.748
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Shell Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	31.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	210.00	100.00	100.00	160.00	100.00	160.00	245.00	100.00	100.00	135.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	400	280	200	50	120	50	120	720	190	60	1030	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	400	280	200	50	120	50	120	720	190	60	1030	90
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	102	71	51	13	31	13	31	184	48	15	263	23
Total Analysis Volume [veh/h]	408	286	204	51	122	51	122	735	194	61	1051	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	17			27			27			17		
v_di, Inbound Pedestrian Volume crossing m	17			27			27			17		
v_co, Outbound Pedestrian Volume crossing	29			12			28			11		
v_ci, Inbound Pedestrian Volume crossing mi	28			11			29			12		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	73.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	4	6	0
Maximum Green [s]	25	50	0	30	40	0	30	55	0	25	45	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.0	3.6	0.0	3.1	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0	0.5	1.0	0.0
Split [s]	20	42	0	14	36	0	23	50	0	14	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.1	2.6	0.0	1.6	2.6	0.0	2.0	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.10	4.60	4.60	3.60	4.60	4.60	4.00	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.10	2.60	2.60	1.60	2.60	2.60	2.00	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	16	24	24	5	12	12	10	70	70	5	65	65
g / C, Green / Cycle	0.13	0.20	0.20	0.04	0.10	0.10	0.08	0.58	0.58	0.04	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.12	0.15	0.14	0.03	0.03	0.04	0.07	0.21	0.13	0.03	0.29	0.06
s, saturation flow rate [veh/h]	3464	1873	1490	1784	3566	1312	1784	3566	1527	1784	3566	1572
c, Capacity [veh/h]	459	367	292	69	349	129	152	2082	891	81	1927	849
d1, Uniform Delay [s]	51.27	45.85	44.56	57.19	50.64	50.53	53.98	13.12	11.86	56.74	18.02	13.49
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.03	3.60	3.02	14.26	0.60	1.97	9.35	0.47	0.56	13.42	1.12	0.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.78	0.70	0.74	0.35	0.40	0.80	0.35	0.22	0.76	0.55	0.11
d, Delay for Lane Group [s/veh]	57.30	49.46	47.58	71.45	51.23	52.50	63.34	13.59	12.42	70.17	19.13	13.74
Lane Group LOS	E	D	D	E	D	D	E	B	B	E	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.41	8.45	5.85	1.81	1.75	1.51	4.02	5.21	2.56	2.13	9.55	1.27
50th-Percentile Queue Length [ft/ln]	160.25	211.27	146.20	45.17	43.73	37.64	100.41	130.32	64.04	53.28	238.75	31.83
95th-Percentile Queue Length [veh/ln]	10.56	13.22	9.81	3.25	3.15	2.71	7.23	8.96	4.61	3.84	14.62	2.29
95th-Percentile Queue Length [ft/ln]	264.05	330.46	245.35	81.30	78.71	67.75	180.73	223.93	115.28	95.90	365.45	57.29

Movement, Approach, & Intersection Results

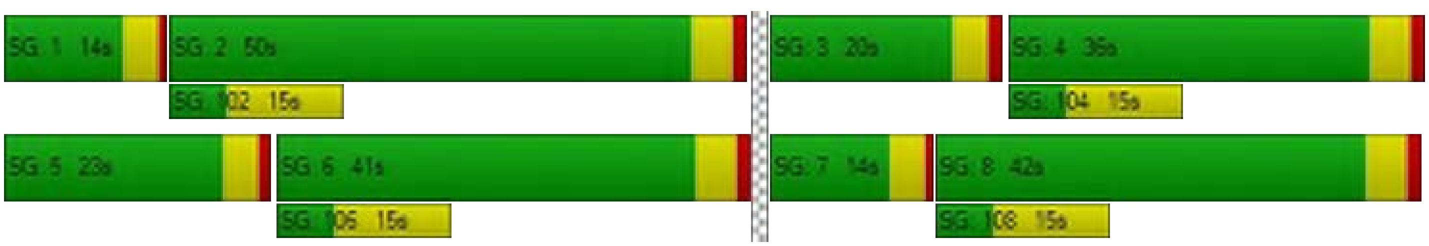
d_M, Delay for Movement [s/veh]	57.30	49.46	47.58	71.45	51.23	52.50	63.34	13.59	12.42	70.17	19.13	13.74
Movement LOS	E	D	D	E	D	D	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	52.59			56.13			19.15			21.30		
Approach LOS	D			E			B			C		
d_I, Intersection Delay [s/veh]	31.26											
Intersection LOS	C											
Intersection V/C	0.605											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	76.47	257.41	125.19	140.36
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.675	2.586	2.966	2.915
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	623	523	757	607
d_b, Bicycle Delay [s]	28.44	32.72	23.20	29.12
I_b,int, Bicycle LOS Score for Intersection	3.041	1.744	2.427	2.553
Bicycle LOS	C	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Foster City Blvd and E Hillsdale Blvd

Control Type:	Signalized		Delay (sec / veh):	44.3
Analysis Method:	HCM 6th Edition		Level Of Service:	D
Analysis Period:	15 minutes		Volume to Capacity (v/c):	0.812

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	0	1	0	0	1	0	1
Pocket Length [ft]	260.00	100.00	410.00	210.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	380	820	60	260	490	390	370	400	220	80	500	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	380	820	60	260	490	390	370	400	220	80	500	190
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	99	214	16	68	128	102	96	104	57	21	130	49
Total Analysis Volume [veh/h]	396	854	63	271	510	406	385	417	229	83	521	198
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			18			12			18		
v_di, Inbound Pedestrian Volume crossing m	12			18			12			18		
v_co, Outbound Pedestrian Volume crossing	8			4			4			8		
v_ci, Inbound Pedestrian Volume crossing mi	8			4			4			8		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			2			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	35	50	0	30	40	0	30	40	0	30	40	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	27	44	0	18	35	0	30	42	0	16	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	25	0	0	25	0	0	27	0	0	27	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	17	42	42	12	37	37	26	43	43	7	23	23
g / C, Green / Cycle	0.14	0.35	0.35	0.10	0.31	0.31	0.22	0.35	0.35	0.06	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.11	0.17	0.17	0.08	0.14	0.26	0.22	0.12	0.15	0.05	0.15	0.13
s, saturation flow rate [veh/h]	3475	3578	1808	3475	3578	1585	1790	3578	1544	1790	3578	1489
c, Capacity [veh/h]	489	1256	635	340	1103	489	393	1266	546	109	696	290
d1, Uniform Delay [s]	50.05	30.47	30.49	53.00	33.50	38.52	46.56	28.38	29.27	55.56	45.59	44.46
k, delay calibration	0.11	0.50	0.50	0.11	0.11	0.28	0.36	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.27	1.34	2.65	4.28	0.30	9.12	33.38	0.15	0.51	10.60	1.64	2.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.48	0.49	0.80	0.46	0.83	0.98	0.33	0.42	0.76	0.75	0.68
d, Delay for Lane Group [s/veh]	53.32	31.81	33.14	57.28	33.80	47.64	79.94	28.53	29.78	66.16	47.23	47.30
Lane Group LOS	D	C	C	E	C	D	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.88	6.94	7.28	4.17	5.98	12.10	14.88	4.37	5.00	2.78	7.40	5.59
50th-Percentile Queue Length [ft/ln]	147.05	173.61	181.98	104.16	149.52	302.54	372.05	109.35	125.05	69.39	184.92	139.86
95th-Percentile Queue Length [veh/ln]	9.86	11.27	11.70	7.50	9.99	17.81	21.21	7.80	8.67	5.00	11.86	9.47
95th-Percentile Queue Length [ft/ln]	246.49	281.65	292.59	187.49	249.79	445.17	530.22	195.09	216.75	124.91	296.43	236.83

Movement, Approach, & Intersection Results

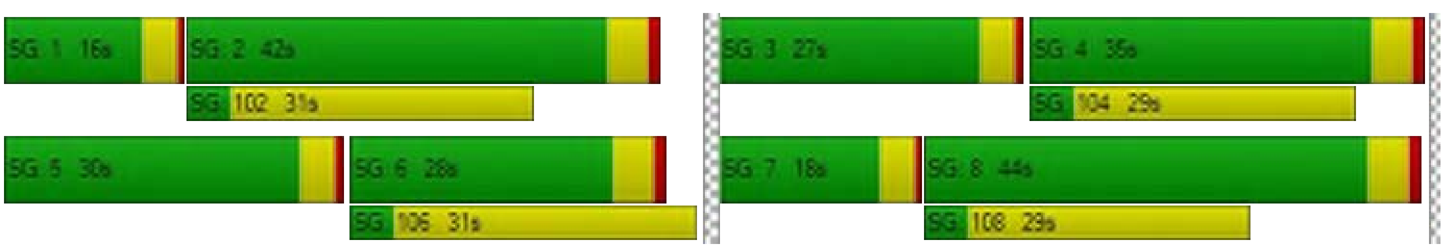
d_M, Delay for Movement [s/veh]	53.32	32.19	33.14	57.28	33.80	47.64	79.94	28.53	29.78	66.16	47.23	47.30
Movement LOS	D	C	C	E	C	D	E	C	C	E	D	D
d_A, Approach Delay [s/veh]		38.61			43.90			48.00			49.21	
Approach LOS		D			D			D			D	
d_I, Intersection Delay [s/veh]	44.25											
Intersection LOS	D											
Intersection V/C	0.812											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	150.89	122.85	161.76	347.01
d_p, Pedestrian Delay [s]	52.27	52.27	52.27	52.27
I_p,int, Pedestrian LOS Score for Intersection	3.006	3.115	2.992	2.763
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	657	507	623	390
d_b, Bicycle Delay [s]	27.07	33.45	28.46	38.90
I_b,int, Bicycle LOS Score for Intersection	2.282	2.539	2.410	2.221
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Metro Center Blvd and Vintage Park Dr

Control Type:	Signalized	Delay (sec / veh):	147.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.003

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	150.00	100.00	100.00	250.00	100.00	390.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	20	60	30	140	120	160	650	280	90	100	190	510
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	60	30	140	120	160	650	280	90	100	190	510
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	17	8	39	33	44	181	78	25	28	53	142
Total Analysis Volume [veh/h]	22	67	33	156	133	178	722	311	100	111	211	567
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	70			33			70			33		
v_di, Inbound Pedestrian Volume crossing m	70			33			70			33		
v_co, Outbound Pedestrian Volume crossing	67			57			57			68		
v_ci, Inbound Pedestrian Volume crossing mi	68			57			57			67		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	5	6	0
Maximum Green [s]	25	40	0	30	45	0	30	40	0	25	40	0
Amber [s]	3.0	3.2	0.0	3.0	3.2	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	22	0	0	22	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.2	0.0	1.5	1.7	0.0	1.5	2.5	0.0	1.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	125	125	125	125	125	125	125	125	125	125	125	125
L, Total Lost Time per Cycle [s]	3.50	4.20	4.20	3.50	3.70	3.70	3.50	4.50	4.50	3.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.20	2.20	1.50	1.70	1.70	1.50	2.50	2.50	1.50	2.50	2.50
g_i, Effective Green Time [s]	2	26	26	13	37	37	30	60	60	10	40	40
g / C, Green / Cycle	0.02	0.21	0.21	0.10	0.30	0.30	0.24	0.48	0.48	0.08	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.03	0.09	0.07	0.13	0.41	0.12	0.13	0.06	0.06	0.36
s, saturation flow rate [veh/h]	1769	1858	1421	1769	1858	1399	1769	1858	1560	1769	3538	1579
c, Capacity [veh/h]	32	388	296	186	557	420	425	896	752	139	1133	506
d1, Uniform Delay [s]	61.00	40.21	40.52	54.83	32.96	34.49	47.45	18.94	19.17	56.60	30.69	42.45
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.77	0.15	0.26	9.52	0.22	0.68	324.46	0.14	0.18	10.13	0.08	77.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.13	0.17	0.84	0.24	0.42	1.70	0.24	0.26	0.80	0.19	1.12
d, Delay for Lane Group [s/veh]	84.77	40.36	40.78	64.35	33.18	35.17	371.92	19.07	19.36	66.73	30.77	120.09
Lane Group LOS	F	D	D	E	C	D	F	B	B	E	C	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.90	1.30	1.28	5.31	3.10	4.37	51.29	3.62	3.38	3.81	2.31	26.12
50th-Percentile Queue Length [ft/ln]	22.59	32.40	31.90	132.70	77.45	109.26	1282.34	90.46	84.42	95.18	57.66	652.95
95th-Percentile Queue Length [veh/ln]	1.63	2.33	2.30	9.09	5.58	7.80	79.34	6.51	6.08	6.85	4.15	37.11
95th-Percentile Queue Length [ft/ln]	40.67	58.31	57.43	227.16	139.41	194.97	1983.47	162.83	151.96	171.33	103.78	927.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	84.77	40.46	40.78	64.35	33.18	35.17	371.92	19.16	19.36	66.73	30.77	120.09
Movement LOS	F	D	D	E	C	D	F	B	B	E	C	F
d_A, Approach Delay [s/veh]		48.54			44.35			243.97			92.23	
Approach LOS		D			D			F			F	
d_I, Intersection Delay [s/veh]						147.47						
Intersection LOS						F						
Intersection V/C						1.003						

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	48.57	0.00	54.79	67.46
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.246	2.657	2.653	2.718
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	1000	889	889
d_b, Bicycle Delay [s]	13.89	11.25	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	1.660	2.330	2.494	2.293
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report

Intersection 10: Edgewater Blvd and Mariners Island Blvd

Control Type:	Signalized	Delay (sec / veh):	35.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	2	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	40.00	400.00	100.00	400.00	190.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	10	10	10	920	10	500	100	380	10	10	810	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	10	10	920	10	500	100	380	10	10	810	100
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	3	240	3	130	26	99	3	3	211	26
Total Analysis Volume [veh/h]	10	10	10	958	10	521	104	396	10	10	844	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			1		
v_di, Inbound Pedestrian Volume crossing m	1			0			0			0		
v_co, Outbound Pedestrian Volume crossing	3			3			2			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			2			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	84.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups							4,5					
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	6	0	4	6	0	4	6	0
Maximum Green [s]	0	40	0	0	60	0	30	65	0	20	50	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	0.0	3.1	4.0	0.0	3.1	4.0	0.0
All red [s]	0.0	0.5	0.0	0.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	38	0	0	30	0	17	47	0	15	45	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	18	0	0	25	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	3.0	0.0	1.6	3.0	0.0	1.6	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			Yes		No	No		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.70	3.70	5.00	5.00	5.00	4.30	5.00	5.00	3.60	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	3.00	3.00	3.00	0.00	3.00	3.00	1.60	3.00	3.00
g_i, Effective Green Time [s]	3	3	52	52	52	65	56	56	1	50	50
g / C, Green / Cycle	0.03	0.03	0.40	0.40	0.40	0.50	0.43	0.43	0.01	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.01	0.01	0.32	0.35	0.18	0.07	0.11	0.11	0.01	0.24	0.07
s, saturation flow rate [veh/h]	1830	1576	1422	1443	2822	1448	1876	1857	1787	3572	1584
c, Capacity [veh/h]	48	41	597	628	1121	272	814	806	18	1371	608
d1, Uniform Delay [s]	62.48	62.19	34.96	36.35	29.02	17.96	23.42	23.43	64.21	32.37	26.45
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.79	3.03	9.09	11.05	1.39	4.04	0.16	0.16	24.72	2.08	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.42	0.24	0.77	0.81	0.46	0.38	0.25	0.25	0.56	0.62	0.17
d, Delay for Lane Group [s/veh]	68.27	65.22	44.05	47.40	30.40	22.00	23.58	23.59	88.92	34.45	27.06
Lane Group LOS	E	E	D	D	C	C	C	C	F	C	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.73	0.36	14.23	16.83	6.25	1.97	4.00	3.98	0.45	10.98	2.23
50th-Percentile Queue Length [ft/ln]	18.27	9.00	355.86	420.75	156.15	49.36	100.03	99.41	11.28	274.40	55.83
95th-Percentile Queue Length [veh/ln]	1.32	0.65	20.42	23.56	10.34	3.55	7.20	7.16	0.81	16.41	4.02
95th-Percentile Queue Length [ft/ln]	32.88	16.20	510.54	588.95	258.62	88.84	180.05	178.94	20.31	410.23	100.50

Movement, Approach, & Intersection Results

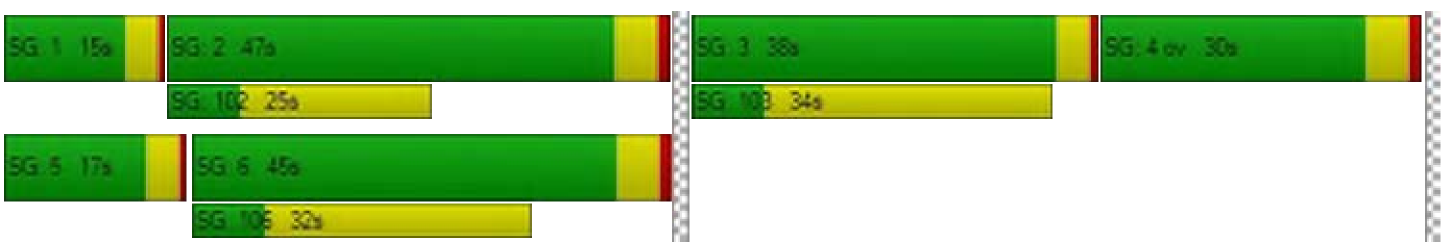
d_M, Delay for Movement [s/veh]	68.27	68.27	65.22	45.80	47.40	30.40	22.00	23.58	23.59	88.92	34.45	27.06
Movement LOS	E	E	E	D	D	C	C	C	C	F	C	C
d_A, Approach Delay [s/veh]	67.25			40.43			23.26			34.22		
Approach LOS	E			D			C			C		
d_I, Intersection Delay [s/veh]	35.77											
Intersection LOS	D											
Intersection V/C	0.670											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	915.53	0.00	0.00
d_p, Pedestrian Delay [s]	54.47	54.47	0.00	54.47
I_p,int, Pedestrian LOS Score for Intersection	1.977	2.782	0.000	4.312
Crosswalk LOS	A	C	F	E
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	528	385	646	615
d_b, Bicycle Delay [s]	35.22	42.40	29.83	31.15
I_b,int, Bicycle LOS Score for Intersection	1.609	4.016	1.980	2.350
Bicycle LOS	A	D	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Metro Center Blvd and Edgewater Blvd

Control Type:	Signalized	Delay (sec / veh):	73.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.717

Intersection Setup

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	2	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	50.00	270.00	100.00	100.00	370.00	100.00	100.00	180.00	100.00	50.00
Speed [mph]	25.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	30	50	160	410	30	90	570	430	10	70	760	400
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	50	160	410	30	90	570	430	10	70	760	400
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	13	42	108	8	24	150	113	3	18	200	105
Total Analysis Volume [veh/h]	32	53	168	432	32	95	600	453	11	74	800	421
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			4			2			3		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			4		
v_co, Outbound Pedestrian Volume crossing	5			3			3			6		
v_ci, Inbound Pedestrian Volume crossing mi	6			3			3			5		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	102.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	8	0	4	8	0
Maximum Green [s]	0	40	0	0	35	0	40	60	0	20	45	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.1	3.9	0.0	3.1	3.9	0.0
All red [s]	0.0	0.5	0.0	0.0	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	27	0	0	37	0	26	52	0	14	40	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	22	0	0	28	0	0	14	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	1.7	0.0	1.6	2.9	0.0	1.6	2.9	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		Yes	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	225	225	225	225	225	225	225	225	225	225	225
L, Total Lost Time per Cycle [s]	3.70	3.70	3.70	3.70	3.70	3.60	4.90	4.90	3.60	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	1.70	1.70	1.70	1.60	2.90	2.90	1.60	2.90	2.90
g_i, Effective Green Time [s]	26	26	32	32	32	76	140	140	11	75	75
g / C, Green / Cycle	0.12	0.12	0.14	0.14	0.14	0.34	0.62	0.62	0.05	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.13	0.13	0.06	0.17	0.12	0.12	0.04	0.16	0.27
s, saturation flow rate [veh/h]	1840	1548	1785	1797	1552	3467	1874	1856	1785	5106	1573
c, Capacity [veh/h]	216	181	252	254	219	1173	1165	1153	89	1698	523
d1, Uniform Delay [s]	91.74	97.81	95.14	95.14	88.07	59.44	18.38	18.39	105.78	59.30	67.96
k, delay calibration	0.11	0.17	0.34	0.34	0.11	0.50	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.17	24.80	29.84	29.68	1.35	1.60	0.39	0.39	17.94	0.94	12.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.93	0.92	0.92	0.43	0.51	0.20	0.20	0.84	0.47	0.80
d, Delay for Lane Group [s/veh]	92.91	122.61	124.97	124.81	89.42	61.03	18.77	18.78	123.72	60.24	80.38
Lane Group LOS	F	F	F	F	F	E	B	B	F	E	F
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.75	11.10	15.51	15.60	5.19	14.12	5.59	5.55	4.78	12.35	23.88
50th-Percentile Queue Length [ft/ln]	118.65	277.57	387.70	389.92	129.64	353.12	139.86	138.77	119.57	308.66	596.96
95th-Percentile Queue Length [veh/ln]	8.32	16.57	21.97	22.07	8.92	20.29	9.47	9.41	8.37	18.11	31.89
95th-Percentile Queue Length [ft/ln]	207.96	414.19	549.16	551.84	223.00	507.21	236.84	235.37	209.23	452.73	797.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	92.91	92.91	122.61	124.90	124.81	89.42	61.03	18.77	18.78	123.72	60.24	80.38
Movement LOS	F	F	F	F	F	F	E	B	B	F	E	F
d_A, Approach Delay [s/veh]	112.63			118.86			42.60			70.41		
Approach LOS	F			F			D			E		
d_I, Intersection Delay [s/veh]	72.99											
Intersection LOS	E											
Intersection V/C	0.717											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
I_p,int, Pedestrian LOS Score for Intersection	2.059	2.690	2.936	3.078
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	358	512	725	540
d_b, Bicycle Delay [s]	43.79	35.98	26.47	34.66
I_b,int, Bicycle LOS Score for Intersection	1.977	2.482	2.437	2.272
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 12: Edgewater Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	36.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.727

Intersection Setup

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	2	0	1	1	0	1
Pocket Length [ft]	190.00	100.00	190.00	310.00	100.00	110.00	406.00	100.00	75.00	310.00	100.00	230.00
Speed [mph]	40.00			35.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	490	620	130	150	270	230	520	770	150	120	950	160
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	490	620	130	150	270	230	520	770	150	120	950	160
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	160	34	39	70	59	134	198	39	31	245	41
Total Analysis Volume [veh/h]	505	639	134	155	278	237	536	794	155	124	979	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			3			3			11		
v_di, Inbound Pedestrian Volume crossing m	11			3			3			10		
v_co, Outbound Pedestrian Volume crossing	6			10			6			10		
v_ci, Inbound Pedestrian Volume crossing mi	6			10			6			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	4	6	0	4	6	0
Maximum Green [s]	30	60	0	20	50	0	30	45	0	30	50	0
Amber [s]	3.5	4.0	0.0	3.5	3.9	0.0	3.0	4.0	0.0	3.5	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	30	0	0	34	0	0	31	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	2.0	2.9	0.0	2.0	3.0	0.0	2.0	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	106	106	106	106	106	106	106	106	106	106	106	106
L, Total Lost Time per Cycle [s]	4.50	5.00	5.00	4.00	4.90	4.90	4.00	5.00	5.00	4.00	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	3.00	3.00	2.00	2.90	2.90	2.00	3.00	3.00	2.00	2.60	2.60
g_i, Effective Green Time [s]	19	33	33	7	21	21	19	39	39	9	29	29
g / C, Green / Cycle	0.18	0.31	0.31	0.07	0.19	0.19	0.18	0.37	0.37	0.09	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.15	0.21	0.22	0.04	0.08	0.15	0.15	0.16	0.10	0.07	0.19	0.11
s, saturation flow rate [veh/h]	3467	1874	1739	3467	3569	1553	3467	5106	1556	1785	5106	1538
c, Capacity [veh/h]	614	580	538	230	695	302	631	1870	570	158	1411	425
d1, Uniform Delay [s]	42.00	32.08	32.25	48.34	37.26	40.36	41.93	25.20	23.57	47.31	34.32	30.95
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.84	1.45	1.66	3.42	0.37	4.46	3.31	0.15	0.25	8.31	0.62	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.69	0.70	0.67	0.40	0.78	0.85	0.42	0.27	0.79	0.69	0.39
d, Delay for Lane Group [s/veh]	44.84	33.53	33.91	51.76	37.63	44.83	45.24	25.35	23.83	55.62	34.94	31.52
Lane Group LOS	D	C	C	D	D	D	D	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.40	8.78	8.38	2.08	3.13	6.09	6.85	4.81	2.66	3.52	7.41	3.41
50th-Percentile Queue Length [ft/ln]	160.02	219.47	209.45	52.04	78.32	152.37	171.24	120.37	66.59	87.95	185.15	85.19
95th-Percentile Queue Length [veh/ln]	10.55	13.64	13.13	3.75	5.64	10.14	11.14	8.41	4.79	6.33	11.87	6.13
95th-Percentile Queue Length [ft/ln]	263.75	340.95	328.13	93.67	140.98	253.59	278.55	210.34	119.87	158.31	296.73	153.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.84	33.67	33.91	51.76	37.63	44.83	45.24	25.35	23.83	55.62	34.94	31.52
Movement LOS	D	C	C	D	D	D	D	C	C	E	C	C
d_A, Approach Delay [s/veh]	38.11			43.44			32.37			36.52		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	36.63											
Intersection LOS	D											
Intersection V/C	0.727											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	528.64	353.91	1106.61	354.34
d_p, Pedestrian Delay [s]	37.36	37.36	37.36	37.36
I_p,int, Pedestrian LOS Score for Intersection	2.853	3.014	3.315	3.062
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	1111	1000	1111
d_b, Bicycle Delay [s]	5.01	8.91	11.27	8.90
I_b,int, Bicycle LOS Score for Intersection	2.614	2.112	2.376	2.257
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 13: Center Park Ln and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.479

Intersection Setup

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	390.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Base Volume Input [veh/h]	70	30	180	890	1370	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.80	1.80	1.80	1.80	1.80	1.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	30	180	890	1370	60
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	8	47	232	357	16
Total Analysis Volume [veh/h]	73	31	188	927	1427	63
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		15	
v_di, Inbound Pedestrian Volume crossing m	0		0		14	
v_co, Outbound Pedestrian Volume crossing	5		14		5	
v_ci, Inbound Pedestrian Volume crossing mi	5		15		5	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	19.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	4	0	6	5	5	0
Maximum Green [s]	35	0	30	40	40	0
Amber [s]	3.5	0.0	3.1	3.5	3.5	0.0
All red [s]	0.5	0.0	0.5	1.0	1.0	0.0
Split [s]	31	0	36	89	53	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0
Pedestrian Clearance [s]	20	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	1.6	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	0.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	8	8	15	104	85	85
g / C, Green / Cycle	0.06	0.06	0.12	0.87	0.71	0.71
(v / s)_i Volume / Saturation Flow Rate	0.05	0.02	0.11	0.18	0.28	0.27
s, saturation flow rate [veh/h]	1540	1592	1784	5102	3566	1824
c, Capacity [veh/h]	98	101	221	4415	2538	1298
d1, Uniform Delay [s]	55.15	53.58	51.45	1.33	6.90	6.84
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.54	1.68	8.98	0.11	0.46	0.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.31	0.85	0.21	0.39	0.38
d, Delay for Lane Group [s/veh]	65.69	55.26	60.43	1.44	7.36	7.70
Lane Group LOS	E	E	E	A	A	A
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.47	0.95	6.03	0.56	4.63	4.74
50th-Percentile Queue Length [ft/ln]	61.85	23.74	150.77	14.05	115.78	118.52
95th-Percentile Queue Length [veh/ln]	4.45	1.71	10.06	1.01	8.16	8.31
95th-Percentile Queue Length [ft/ln]	111.33	42.72	251.46	25.29	204.01	207.79

Movement, Approach, & Intersection Results

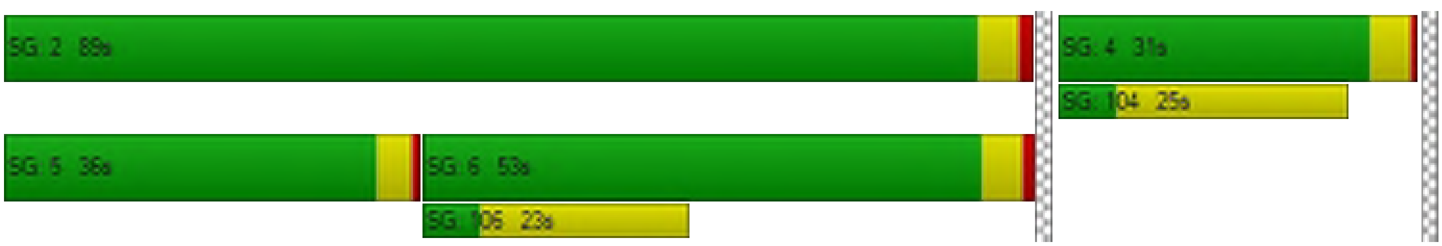
d_M, Delay for Movement [s/veh]	65.69	55.26	60.43	1.44	7.46	7.70
Movement LOS	E	E	E	A	A	A
d_A, Approach Delay [s/veh]	62.58		11.38		7.47	
Approach LOS	E		B		A	
d_I, Intersection Delay [s/veh]	11.20					
Intersection LOS	B					
Intersection V/C	0.479					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	470.53	0.00	251.53
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.052	0.000	2.940
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.746	4.952
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foster City Metro Center Hotel EIR

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Scenario 5 Cumulative AM

Report File: \...\Cumulative AM Report.pdf

12/10/2019

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Vintage Park Dr and Chess Dr	150	900	160	30	120	60	80	170	130	190	360	250	2600

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Chess Dr and Route 92 West Ramp	610	40	1060	10	20	10	10	220	140	750	220	20	3110

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Foster City Blvd and Chess Dr	850	1150	400	60	320	80	500	200	590	60	60	10	4280

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Metro Center Blvd and Shell Blvd	300	30	100	10	10	10	10	180	90	240	520	50	1550

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Metro Center Blvd and Route 92 East Ramp	10	10	30	1290	50	460	100	220	10	40	280	240	2740

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foster City Blvd and Metro Center Blvd	200	1130	80	160	600	210	760	290	490	60	150	510	4640

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Shell Blvd and E Hillsdale Blvd	400	280	200	50	120	50	120	720	190	60	1030	90	3310

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	Foster City Blvd and E Hillsdale Blvd	380	820	60	260	490	390	370	400	220	80	500	190	4160

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	Metro Center Blvd and Vintage Park Dr	20	60	30	140	120	160	650	280	90	100	190	510	2350

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	Edgewater Blvd and Mariners Island Blvd	10	10	10	920	10	500	100	380	10	10	810	100	2870

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11	Metro Center Blvd and Edgewater Blvd	30	50	160	410	30	90	570	430	10	70	760	400	3010

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12	Edgewater Blvd and E Hillsdale Blvd	490	620	130	150	270	230	520	770	150	120	950	160	4560

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
13	Center Park Ln and E Hillsdale Blvd	70	30	180	890	1370	60	2600

Study Intersections

Foster City Metro Center Hotel EIR

Vistro File: \...\FC Metro Center Hotel 9.26.19.vistro

Report File: \...\Cumulative PM Report.pdf

Scenario 6 Cumulative PM

12/10/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Vintage Park Dr and Chess Dr	Signalized	HCM 6th Edition	EB Left	0.816	39.6	D
2	Chess Dr and Route 92 West Ramp	Signalized	HCM 6th Edition	SB Thru	0.829	41.2	D
3	Foster City Blvd and Chess Dr	Signalized	HCM 6th Edition	EB Right	1.165	147.7	F
4	Metro Center Blvd and Shell Blvd	Signalized	HCM 6th Edition	EB Left	0.598	34.3	C
5	Metro Center Blvd and Route 92 East Ramp	Signalized	HCM 6th Edition	WB Right	0.742	93.6	F
6	Foster City Blvd and Metro Center Blvd	Signalized	HCM 6th Edition	WB Right	0.852	46.6	D
7	Shell Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	SB Left	0.725	33.4	C
8	Foster City Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Left	0.642	52.0	D
9	Metro Center Blvd and Vintage Park Dr	Signalized	HCM 6th Edition	SB Left	0.985	76.1	E
10	Edgewater Blvd and Mariners Island Blvd	Signalized	HCM 6th Edition	WB Left	0.535	32.8	C
11	Metro Center Blvd and Edgewater Blvd	Signalized	HCM 6th Edition	WB Left	0.593	53.1	D
12	Edgewater Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Right	0.903	51.5	D
13	Center Park Ln and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Left	0.614	22.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Vintage Park Dr and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	39.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.816

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	280.00	100.00	100.00	265.00	100.00	100.00	140.00	100.00	100.00	215.00	100.00	100.00
Speed [mph]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	200	130	500	380	730	310	30	290	300	110	240	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	130	500	380	730	310	30	290	300	110	240	30
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	35	134	102	196	83	8	78	81	30	65	8
Total Analysis Volume [veh/h]	215	140	538	409	785	333	32	312	323	118	258	32
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	11			4			10			3		
v_di, Inbound Pedestrian Volume crossing m	10			3			11			4		
v_co, Outbound Pedestrian Volume crossing	3			9			10			3		
v_ci, Inbound Pedestrian Volume crossing mi	3			10			9			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	4	0	4	4	0	4	4	0	4	4	0
Maximum Green [s]	40	50	0	30	40	0	20	40	0	20	40	0
Amber [s]	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0
All red [s]	0.5	0.5	0.0	1.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	23	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	1.7	0.0	2.1	2.2	0.0	1.6	2.2	0.0	1.6	2.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	99	99	99	99	99	99	99	99	99	99	99	99	99
L, Total Lost Time per Cycle [s]	3.60	3.70	3.70	3.70	4.10	4.20	4.20	3.60	4.20	4.20	3.60	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.70	1.70	1.70	2.10	2.20	2.20	1.60	2.20	2.20	1.60	2.20	2.20
g_i, Effective Green Time [s]	14	25	25	25	25	36	36	2	25	25	8	31	31
g / C, Green / Cycle	0.14	0.25	0.25	0.25	0.25	0.36	0.36	0.02	0.25	0.25	0.08	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.12	0.07	0.17	0.17	0.23	0.31	0.32	0.02	0.17	0.21	0.07	0.08	0.08
s, saturation flow rate [veh/h]	1792	1882	1588	1588	1792	1882	1665	1792	1882	1560	1792	1882	1807
c, Capacity [veh/h]	260	476	402	402	451	678	599	43	476	395	151	590	567
d1, Uniform Delay [s]	41.15	29.85	33.26	33.21	35.93	29.30	30.01	48.07	33.13	34.85	44.45	25.30	25.34
k, delay calibration	0.11	0.11	0.11	0.11	0.27	0.28	0.31	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.61	0.34	1.93	1.93	15.19	7.85	13.04	22.81	1.54	4.22	8.38	0.22	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.29	0.67	0.67	0.91	0.85	0.90	0.75	0.66	0.82	0.78	0.25	0.25
d, Delay for Lane Group [s/veh]	47.75	30.19	35.19	35.14	51.12	37.16	43.05	70.87	34.66	39.07	52.83	25.52	25.57
Lane Group LOS	D	C	D	D	D	D	D	E	C	D	D	C	C
Critical Lane Group	Yes	No	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.51	2.71	5.92	5.91	11.26	13.76	13.88	1.06	6.88	7.73	3.16	2.58	2.52
50th-Percentile Queue Length [ft/ln]	137.6	67.74	148.0	147.8	281.58	343.91	347.03	26.42	171.95	193.30	79.07	64.45	62.92
95th-Percentile Queue Length [veh/ln]	9.36	4.88	9.91	9.90	16.77	19.84	19.99	1.90	11.18	12.29	5.69	4.64	4.53
95th-Percentile Queue Length [ft/ln]	233.9	121.9	247.7	247.5	419.18	495.97	499.79	47.55	279.47	307.31	142.33	116.01	113.26

Movement, Approach, & Intersection Results

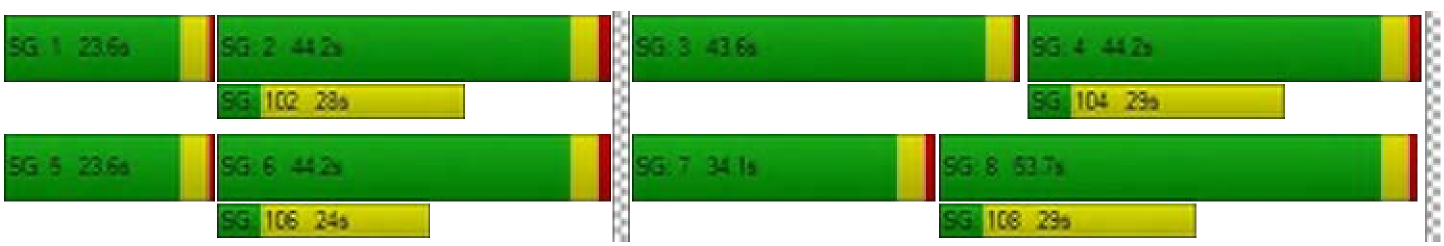
d_M, Delay for Movement [s/veh]	47.75	30.19	35.17	51.12	38.70	43.05	70.87	34.66	39.07	52.83	25.54	25.57
Movement LOS	D	C	D	D	D	D	E	C	D	D	C	C
d_A, Approach Delay [s/veh]	37.42			42.98			38.53			33.43		
Approach LOS	D			D			D			C		
d_I, Intersection Delay [s/veh]	39.59											
Intersection LOS	D											
Intersection V/C	0.816											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	232.90	1274.46	190.95	276.49
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.799	2.639	2.541	2.725
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1111	889	889	889
d_b, Bicycle Delay [s]	8.89	13.90	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.296	2.819	2.110	1.896
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Chess Dr and Route 92 West Ramp

Control Type:	Signalized	Delay (sec / veh):	41.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.829

Intersection Setup

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	480.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	100	10	250	20	30	10	10	310	880	1170	230	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	100	10	250	20	30	10	10	310	880	1170	230	10
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	3	67	5	8	3	3	83	237	315	62	3
Total Analysis Volume [veh/h]	108	11	269	22	32	11	11	333	946	1258	247	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	4	0	0	1	6	1	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	4	0	0	6	5	6	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	30	55	0
Amber [s]	0.0	3.5	0.0	0.0	3.2	0.0	0.0	3.2	3.1	3.2	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	0.5	0.0	0.0	1.0	1.0	1.0	2.0	0.0
Split [s]	0	27	0	0	20	0	0	20	47	20	43	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	17	0	0	0	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.5	0.0	0.0	1.7	0.0	0.0	2.2	2.1	2.2	3.5	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		Yes	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	3.70	4.20	4.10	5.50	5.50	5.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	1.70	2.20	2.10	3.50	3.50	3.50
g_i, Effective Green Time [s]	21	21	21	5	22	48	43	43	43
g / C, Green / Cycle	0.19	0.19	0.19	0.05	0.20	0.44	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.03	0.03	0.17	0.04	0.18	0.33	0.35	0.35	0.15
s, saturation flow rate [veh/h]	1791	1807	1598	1796	1877	2829	1791	1791	1698
c, Capacity [veh/h]	345	348	308	85	384	1242	703	703	667
d1, Uniform Delay [s]	37.12	37.12	43.16	51.82	42.63	26.03	31.30	31.30	23.95
k, delay calibration	0.11	0.11	0.16	0.11	0.21	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.23	0.23	11.08	12.94	12.98	0.99	16.18	16.18	1.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.17	0.87	0.76	0.90	0.76	0.89	0.89	0.39
d, Delay for Lane Group [s/veh]	37.36	37.35	54.23	64.75	55.61	27.02	47.49	47.49	25.64
Lane Group LOS	D	D	D	E	E	C	D	D	C
Critical Lane Group	No	No	Yes	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.36	1.37	8.00	2.08	10.41	10.32	18.34	18.34	5.08
50th-Percentile Queue Length [ft/ln]	33.97	34.25	200.01	51.92	260.36	258.00	458.56	458.56	126.93
95th-Percentile Queue Length [veh/ln]	2.45	2.47	12.64	3.74	15.71	15.59	25.37	25.37	8.77
95th-Percentile Queue Length [ft/ln]	61.14	61.65	315.98	93.45	392.68	389.72	634.15	634.15	219.31

Movement, Approach, & Intersection Results

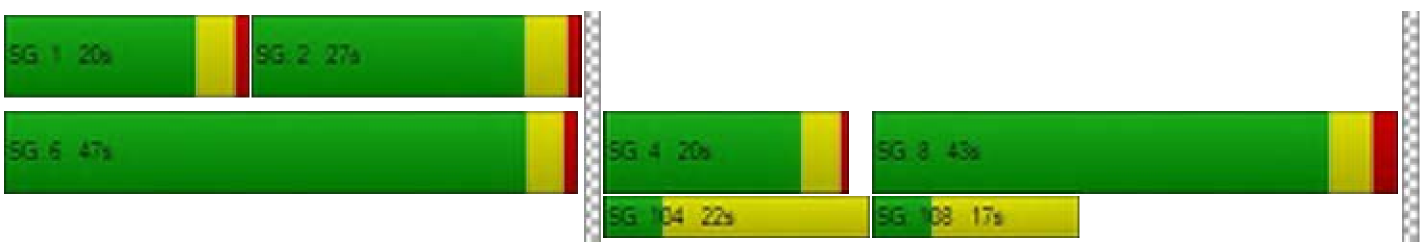
d_M, Delay for Movement [s/veh]	37.36	37.35	54.23	64.75	64.75	64.75	55.61	55.61	27.02	47.49	25.64	25.64
Movement LOS	D	D	D	E	E	E	E	E	C	D	C	C
d_A, Approach Delay [s/veh]	49.06			64.75			34.64			43.77		
Approach LOS	D			E			C			D		
d_I, Intersection Delay [s/veh]	41.20											
Intersection LOS	D											
Intersection V/C	0.829											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	1.774	2.634	0.000
Crosswalk LOS	F	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	409	296	287	682
d_b, Bicycle Delay [s]	34.80	39.93	40.33	23.89
I_b,int, Bicycle LOS Score for Intersection	2.200	1.667	3.688	2.810
Bicycle LOS	B	A	D	C

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Foster City Blvd and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	147.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.165

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	850.00	100.00	150.00	80.00	100.00	180.00	100.00	100.00	100.00	250.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	760	260	90	10	1180	290	50	40	490	250	360	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	760	260	90	10	1180	290	50	40	490	250	360	50
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	194	66	23	3	301	74	13	10	125	64	92	13
Total Analysis Volume [veh/h]	776	265	92	10	1204	296	51	41	500	255	367	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	3	3	3	0	1	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	4	4	4	0	4	4	0
Maximum Green [s]	55	65	0	20	35	30	30	30	0	55	35	0
Amber [s]	3.5	3.6	0.0	3.1	3.9	3.2	3.2	3.2	0.0	3.5	3.1	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0	1.0	0.5	0.0
Split [s]	27	55	0	14	42	20	20	20	0	27	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	0	4	0
Pedestrian Clearance [s]	0	23	0	0	0	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.6	0.0	1.6	2.9	1.7	1.7	1.7	0.0	2.5	1.6	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	Yes	Yes		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.60	4.60	3.60	4.90	3.70	3.70	3.70	3.70	3.60	3.60	3.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.60	2.60	1.60	2.90	0.00	1.70	1.70	1.70	1.60	1.60	1.60
g_i, Effective Green Time [s]	30	67	67	1	37	58	16	16	16	20	20	20
g / C, Green / Cycle	0.25	0.56	0.56	0.01	0.31	0.49	0.14	0.14	0.14	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.22	0.07	0.06	0.01	0.34	0.19	0.03	0.02	0.34	0.14	0.11	0.11
s, saturation flow rate [veh/h]	3467	3569	1593	1785	3569	1593	1785	1874	1450	1785	1874	1796
c, Capacity [veh/h]	864	1991	889	18	1101	774	244	256	198	297	312	299
d1, Uniform Delay [s]	43.63	12.70	12.47	59.22	41.56	19.51	46.12	45.81	51.89	48.70	47.10	47.13
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.15	0.11	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.01	0.14	0.23	23.73	45.93	0.44	0.42	0.29	700.81	7.09	2.63	2.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.13	0.10	0.55	1.09	0.38	0.21	0.16	2.52	0.86	0.68	0.69
d, Delay for Lane Group [s/veh]	57.64	12.84	12.71	82.95	87.48	19.95	46.54	46.09	752.70	55.80	49.73	49.90
Lane Group LOS	E	B	B	F	F	B	D	D	F	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.75	1.73	1.21	0.42	22.91	5.20	1.39	1.11	44.50	8.07	6.28	6.05
50th-Percentile Queue Length [ft/ln]	318.86	43.32	30.34	10.51	572.76	129.97	34.75	27.69	1112.56	201.75	156.90	151.26
95th-Percentile Queue Length [veh/ln]	18.61	3.12	2.18	0.76	32.55	8.94	2.50	1.99	70.28	12.73	10.38	10.08
95th-Percentile Queue Length [ft/ln]	465.29	77.98	54.61	18.91	813.68	223.46	62.55	49.84	1757.00	318.23	259.61	252.11

Movement, Approach, & Intersection Results

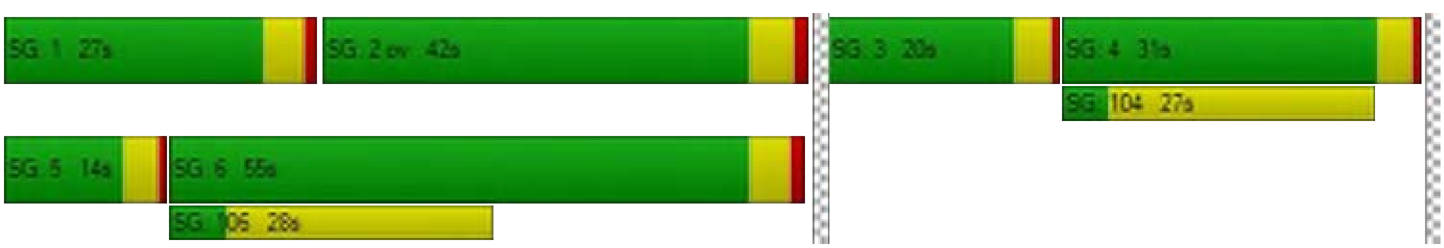
d_M, Delay for Movement [s/veh]	57.64	12.84	12.71	82.95	87.48	19.95	46.54	46.09	752.70	55.80	49.80	49.90
Movement LOS	E	B	B	F	F	B	D	D	F	E	D	D
d_A, Approach Delay [s/veh]	43.51			74.21			642.93			52.08		
Approach LOS	D			E			F			D		
d_I, Intersection Delay [s/veh]	147.65											
Intersection LOS	F											
Intersection V/C	1.165											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	52.27	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.825	0.000	2.448
Crosswalk LOS	F	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	840	618	272	457
d_b, Bicycle Delay [s]	20.18	28.64	44.81	35.73
I_b,int, Bicycle LOS Score for Intersection	2.494	2.805	2.048	2.115
Bicycle LOS	B	C	B	B

Sequence

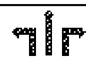
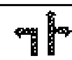
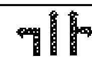
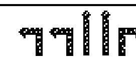
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Metro Center Blvd and Shell Blvd

Control Type:	Signalized	Delay (sec / veh):	34.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.598

Intersection Setup

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	2	0	1
Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	85.00	100.00	100.00	210.00	100.00	200.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	240	70	250	70	50	90	20	780	270	50	160	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	240	70	250	70	50	90	20	780	270	50	160	70
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	18	64	18	13	23	5	199	69	13	41	18
Total Analysis Volume [veh/h]	245	71	255	71	51	92	20	796	276	51	163	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	16			7			16			6		
v_di, Inbound Pedestrian Volume crossing m	16			6			16			7		
v_co, Outbound Pedestrian Volume crossing	16			4			4			16		
v_ci, Inbound Pedestrian Volume crossing mi	16			4			4			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	65.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	6	6	0
Maximum Green [s]	20	60	0	20	35	0	20	40	0	20	40	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0
Split [s]	36	53	0	16	33	0	14	35	0	16	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	28	0	0	20	0	0	21	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.5	0.0	1.5	2.5	0.0	1.5	2.5	0.0	2.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.50	4.50	4.50	3.50	4.50	3.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.50	2.50	1.50	2.50	1.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	18	27	27	6	14	2	65	65	5	69	69
g / C, Green / Cycle	0.15	0.22	0.22	0.05	0.12	0.02	0.54	0.54	0.04	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.14	0.04	0.17	0.04	0.09	0.01	0.30	0.30	0.01	0.05	0.04
s, saturation flow rate [veh/h]	1791	1880	1529	1791	1666	1791	1880	1699	3478	3580	1580
c, Capacity [veh/h]	274	417	340	93	201	30	1022	923	144	2063	911
d1, Uniform Delay [s]	49.94	37.79	43.26	56.24	50.79	58.72	17.84	17.93	56.02	11.30	11.29
k, delay calibration	0.32	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.55	0.19	3.36	12.31	4.58	21.98	2.11	2.40	1.47	0.07	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.17	0.75	0.77	0.71	0.66	0.55	0.55	0.35	0.08	0.08
d, Delay for Lane Group [s/veh]	73.49	37.98	46.62	68.56	55.36	80.69	19.95	20.33	57.49	11.38	11.46
Lane Group LOS	E	D	D	E	E	F	B	C	E	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.93	1.71	7.25	2.43	4.36	0.79	10.24	9.47	0.78	0.96	0.86
50th-Percentile Queue Length [ft/ln]	223.25	42.71	181.27	60.65	108.97	19.63	255.98	236.81	19.41	23.99	21.47
95th-Percentile Queue Length [veh/ln]	13.83	3.08	11.67	4.37	7.78	1.41	15.49	14.52	1.40	1.73	1.55
95th-Percentile Queue Length [ft/ln]	345.77	76.88	291.67	109.17	194.57	35.33	387.18	363.00	34.95	43.19	38.64

Movement, Approach, & Intersection Results

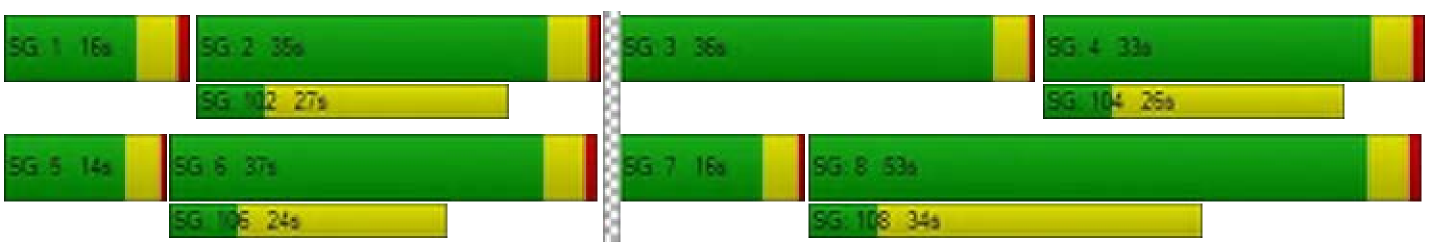
d_M, Delay for Movement [s/veh]	73.49	37.98	46.62	68.56	55.36	55.36	80.69	20.07	20.33	57.49	11.38	11.46
Movement LOS	E	D	D	E	E	E	F	C	C	E	B	B
d_A, Approach Delay [s/veh]	57.07			59.74			21.24			19.65		
Approach LOS	E			E			C			B		
d_I, Intersection Delay [s/veh]	34.31											
Intersection LOS	C											
Intersection V/C	0.598											

Other Modes

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	94.92	399.75	785.39	154.12
d_p, Pedestrian Delay [s]	50.42	50.42	50.42	50.42
I_p,int, Pedestrian LOS Score for Intersection	2.530	2.097	2.677	2.837
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	808	475	508	542
d_b, Bicycle Delay [s]	21.30	34.88	33.38	31.90
I_b,int, Bicycle LOS Score for Intersection	2.502	1.913	2.461	1.795
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Metro Center Blvd and Route 92 East Ramp

Control Type:	Signalized	Delay (sec / veh):	93.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.742

Intersection Setup

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	2	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	600.00	100.00	640.00	290.00	100.00	100.00	90.00	100.00	100.00
Speed [mph]	15.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	10	50	30	280	10	70	610	410	10	10	230	1140
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	50	30	280	10	70	610	410	10	10	230	1140
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	13	8	72	3	18	157	106	3	3	59	294
Total Analysis Volume [veh/h]	10	52	31	289	10	72	629	423	10	10	237	1175
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	30.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	10	4	4	4	0	4	4	0
Maximum Green [s]	0	40	0	0	60	30	30	40	0	25	35	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	3.1	3.1	3.5	0.0	3.1	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.5	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	18	0	0	36	36	36	48	0	18	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	6	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	17	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	3.0	1.6	1.6	2.5	0.0	1.6	2.5	0.0
Minimum Recall		No			No	No	No	No		No	No	
Maximum Recall		No			Yes	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.20	4.20	5.00	5.00	3.60	3.60	4.50	4.50	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	3.00	3.00	0.00	1.60	2.50	2.50	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	6	6	37	37	67	25	59	59	1	35	35	35
g / C, Green / Cycle	0.05	0.05	0.31	0.31	0.56	0.21	0.49	0.49	0.01	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.08	0.08	0.03	0.18	0.12	0.12	0.01	0.13	0.37	0.37
s, saturation flow rate [veh/h]	1857	1591	1782	1788	2816	3461	1871	1856	1782	1871	1591	1591
c, Capacity [veh/h]	92	79	547	548	1569	724	917	909	18	545	463	463
d1, Uniform Delay [s]	56.20	55.40	31.54	31.54	12.09	45.96	17.71	17.71	59.22	34.61	42.63	42.63
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.35	3.18	1.23	1.23	0.06	3.38	0.13	0.13	22.70	0.55	137.3	137.3
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.39	0.27	0.27	0.05	0.87	0.24	0.24	0.54	0.44	1.27	1.27
d, Delay for Lane Group [s/veh]	64.55	58.59	32.78	32.77	12.15	49.34	17.84	17.85	81.92	35.16	179.9	179.9
Lane Group LOS	E	E	C	C	B	D	B	B	F	D	F	F
Critical Lane Group	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.11	1.00	3.45	3.46	0.44	9.29	3.45	3.43	0.42	5.72	31.21	31.21
50th-Percentile Queue Length [ft/ln]	52.67	25.08	86.16	86.40	11.07	232.34	86.35	85.66	10.48	142.9	780.3	780.3
95th-Percentile Queue Length [veh/ln]	3.79	1.81	6.20	6.22	0.80	14.29	6.22	6.17	0.75	9.64	46.22	46.22
95th-Percentile Queue Length [ft/ln]	94.81	45.14	155.08	155.52	19.92	357.33	155.42	154.19	18.86	240.9	1155.	1155.

Movement, Approach, & Intersection Results

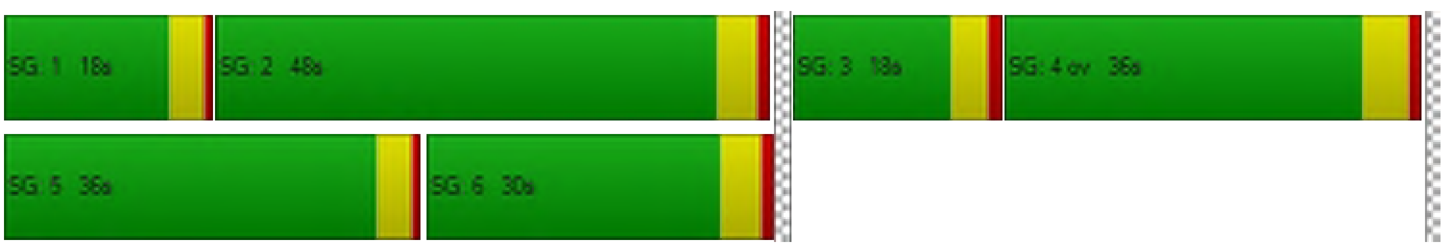
d_M, Delay for Movement [s/veh]	64.55	64.55	58.59	32.77	32.77	12.15	49.34	17.84	17.85	81.92	35.16	179.99
Movement LOS	E	E	E	C	C	B	D	B	B	F	D	F
d_A, Approach Delay [s/veh]		62.56			28.77			36.50			155.16	
Approach LOS		E			C			D			F	
d_I, Intersection Delay [s/veh]	93.59											
Intersection LOS	F											
Intersection V/C	0.742											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	31.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	33.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.816	0.000
Crosswalk LOS	F	F	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	230	517	725	425
d_b, Bicycle Delay [s]	46.99	33.00	24.38	37.21
I_b,int, Bicycle LOS Score for Intersection	1.713	2.172	2.436	2.733
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Foster City Blvd and Metro Center Blvd

Control Type:	Signalized	Delay (sec / veh):	46.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.852

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	230.00	100.00	100.00	210.00	100.00	100.00	150.00	100.00	240.00	50.00	100.00	170.00
Speed [mph]	35.00			35.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	320	620	100	210	830	880	190	310	220	70	180	300
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	320	620	100	210	830	880	190	310	220	70	180	300
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	155	25	53	208	220	48	78	55	18	45	75
Total Analysis Volume [veh/h]	320	620	100	210	830	880	190	310	220	70	180	300
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	7			0			0			8		
v_di, Inbound Pedestrian Volume crossing m	8			0			0			7		
v_co, Outbound Pedestrian Volume crossing	4			0			4			0		
v_ci, Inbound Pedestrian Volume crossing mi	4			0			4			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	43.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	5	4	1	1	3	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	4	4	6	0
Maximum Green [s]	30	40	0	25	40	0	25	40	30	30	30	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.2	3.1	3.1	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0
Split [s]	24	36	0	20	32	0	20	39	24	24	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.2	1.6	1.6	1.7	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	Yes		No	Yes			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	4.20	4.20	3.60	3.70	3.70	3.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	2.20	2.20	0.00	1.70	1.70	1.70
g_i, Effective Green Time [s]	20	50	50	16	45	45	17	17	41	21	21	21
g / C, Green / Cycle	0.17	0.42	0.42	0.13	0.38	0.38	0.14	0.14	0.35	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.18	0.14	0.14	0.12	0.16	0.31	0.05	0.09	0.08	0.04	0.10	0.19
s, saturation flow rate [veh/h]	1785	3569	1736	1785	5106	2820	3467	3569	2820	1785	1874	1593
c, Capacity [veh/h]	303	1481	720	237	1927	1064	489	503	976	317	333	283
d1, Uniform Delay [s]	49.80	23.75	23.79	51.18	27.77	33.81	46.85	48.49	27.84	42.25	44.90	49.35
k, delay calibration	0.25	0.50	0.50	0.13	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.27
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	51.68	0.59	1.22	12.72	0.70	7.37	0.51	1.23	0.12	0.35	1.37	56.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.05	0.33	0.33	0.89	0.43	0.83	0.39	0.62	0.23	0.22	0.54	1.06
d, Delay for Lane Group [s/veh]	101.48	24.34	25.01	63.89	28.48	41.18	47.35	49.73	27.96	42.59	46.27	106.12
Lane Group LOS	F	C	C	E	C	D	D	D	C	D	D	F
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	13.34	4.69	4.74	6.98	5.95	12.36	2.60	4.42	2.25	1.83	5.06	12.97
50th-Percentile Queue Length [ft/ln]	333.38	117.20	118.59	174.44	148.64	308.93	65.06	110.58	56.22	45.86	126.41	324.31
95th-Percentile Queue Length [veh/ln]	19.84	8.24	8.32	11.31	9.94	18.12	4.68	7.87	4.05	3.30	8.74	19.45
95th-Percentile Queue Length [ft/ln]	496.05	205.97	207.88	282.75	248.62	453.06	117.11	196.81	101.20	82.55	218.60	486.16

Movement, Approach, & Intersection Results

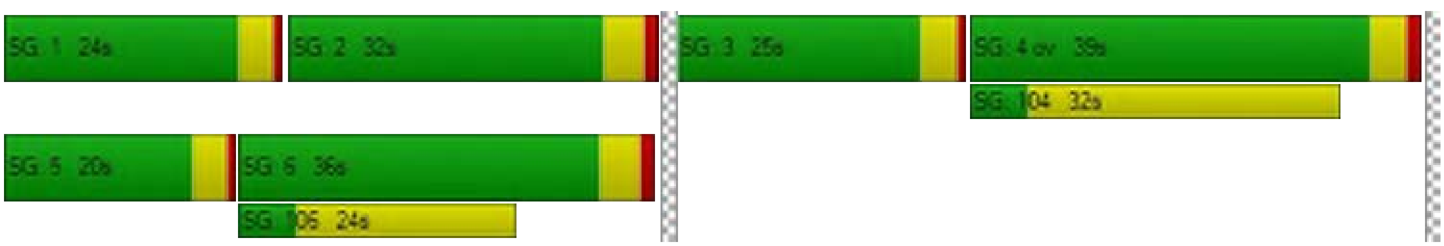
d_M, Delay for Movement [s/veh]	101.48	24.49	25.01	63.89	28.48	41.18	47.35	49.73	27.96	42.59	46.27	106.12
Movement LOS	F	C	C	E	C	D	D	D	C	D	D	F
d_A, Approach Delay [s/veh]	48.23			38.17			42.45			78.45		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	46.61											
Intersection LOS	D											
Intersection V/C	0.852											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	509.67	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.960	0.000	0.000	2.505
Crosswalk LOS	C	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	523	457	580	355
d_b, Bicycle Delay [s]	32.71	35.73	30.25	40.59
I_b,int, Bicycle LOS Score for Intersection	2.132	2.616	2.154	2.467
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Shell Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	33.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.725

Intersection Setup

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	210.00	100.00	100.00	160.00	100.00	160.00	100.00	100.00	100.00	135.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	310	220	130	120	300	100	0	1090	530	200	620	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	310	220	130	120	300	100	0	1090	530	200	620	80
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	56	33	31	77	26	0	278	135	51	158	20
Total Analysis Volume [veh/h]	316	224	133	122	306	102	0	1112	541	204	633	82
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	17			27			27			17		
v_di, Inbound Pedestrian Volume crossing m	17			27			27			17		
v_co, Outbound Pedestrian Volume crossing	29			12			28			11		
v_ci, Inbound Pedestrian Volume crossing mi	28			11			29			12		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	40.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	0	6	0	4	6	0
Maximum Green [s]	25	50	0	30	40	0	0	55	0	25	45	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	0.0	3.6	0.0	3.1	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.5	1.0	0.0
Split [s]	24	37	0	24	37	0	0	39	0	20	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.1	2.6	0.0	1.6	2.6	0.0	0.0	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No			No		No	No	
Maximum Recall	No	No		No	No			Yes		No	Yes	
Pedestrian Recall	No	No		No	No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.10	4.60	4.60	3.60	4.60	4.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.10	2.60	2.60	1.60	2.60	2.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	13	18	18	10	14	14	60	60	15	79	79
g / C, Green / Cycle	0.11	0.15	0.15	0.09	0.12	0.12	0.50	0.50	0.13	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.09	0.12	0.09	0.07	0.08	0.07	0.31	0.35	0.11	0.18	0.05
s, saturation flow rate [veh/h]	3497	1891	1480	1801	3600	1374	3600	1533	1801	3600	1590
c, Capacity [veh/h]	393	287	224	154	435	166	1790	762	233	2363	1044
d1, Uniform Delay [s]	52.08	49.09	47.18	53.91	50.79	49.62	22.00	22.92	51.38	8.61	7.48
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.12	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.91	4.64	2.49	8.75	2.10	3.67	1.63	5.54	10.71	0.28	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.78	0.59	0.79	0.70	0.61	0.62	0.71	0.88	0.27	0.08
d, Delay for Lane Group [s/veh]	55.99	53.73	49.67	62.67	52.89	53.29	23.63	28.46	62.09	8.89	7.62
Lane Group LOS	E	D	D	E	D	D	C	C	E	A	A
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.86	6.83	3.84	3.99	4.55	3.05	11.55	12.47	6.72	3.37	0.78
50th-Percentile Queue Length [ft/ln]	121.48	170.86	96.11	99.80	113.83	76.30	288.74	311.73	167.89	84.36	19.53
95th-Percentile Queue Length [veh/ln]	8.47	11.12	6.92	7.19	8.05	5.49	17.12	18.26	10.97	6.07	1.41
95th-Percentile Queue Length [ft/ln]	211.86	278.04	173.00	179.64	201.31	137.34	428.08	456.51	274.14	151.85	35.16

Movement, Approach, & Intersection Results

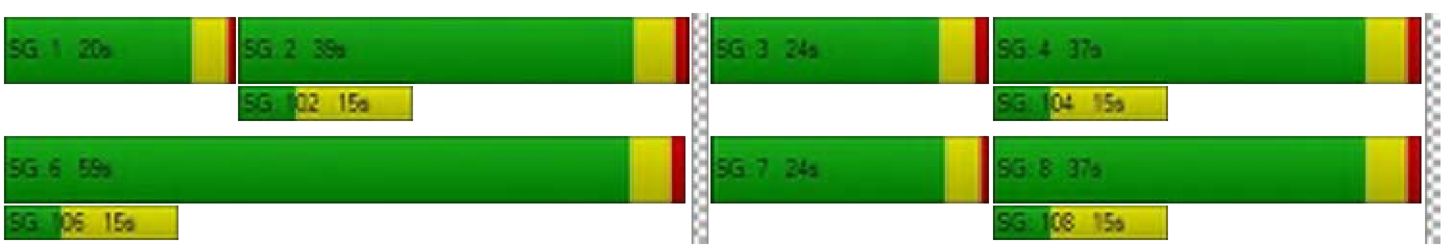
d_M, Delay for Movement [s/veh]	55.99	53.73	49.67	62.67	52.89	53.29	0.00	23.63	28.46	62.09	8.89	7.62
Movement LOS	E	D	D	E	D	D		C	C	E	A	A
d_A, Approach Delay [s/veh]	53.99			55.22			25.21			20.59		
Approach LOS	D			E			C			C		
d_I, Intersection Delay [s/veh]	33.43											
Intersection LOS	C											
Intersection V/C	0.725											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	263.94	112.82	167.81
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.748	2.604	2.908	2.928
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	540	540	573	907
d_b, Bicycle Delay [s]	31.99	31.99	30.55	17.93
I_b,int, Bicycle LOS Score for Intersection	2.670	1.997	2.923	2.318
Bicycle LOS	B	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Foster City Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	52.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.642

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	0	1	0	0	1	0	1
Pocket Length [ft]	260.00	100.00	410.00	210.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	160	410	40	300	610	280	420	480	450	90	290	120
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	410	40	300	610	280	420	480	450	90	290	120
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	107	10	78	159	73	109	125	117	23	76	31
Total Analysis Volume [veh/h]	167	427	42	313	635	292	438	500	469	94	302	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			18			12			18		
v_di, Inbound Pedestrian Volume crossing m	12			18			12			18		
v_co, Outbound Pedestrian Volume crossing	8			4			4			8		
v_ci, Inbound Pedestrian Volume crossing mi	8			4			4			8		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			2			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	40.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	35	50	0	30	40	0	30	40	0	30	40	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	20	34	0	23	37	0	27	43	0	20	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	25	0	0	25	0	0	27	0	0	27	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	133	133	133	133	133	133	133	133	133	133	133	133
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	9	50	50	14	56	56	30	43	43	9	22	22
g / C, Green / Cycle	0.06	0.38	0.38	0.11	0.42	0.42	0.23	0.33	0.33	0.07	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.09	0.09	0.18	0.18	0.24	0.14	0.30	0.05	0.08	0.08
s, saturation flow rate [veh/h]	3503	3606	1802	3503	3606	1601	1804	3606	1554	1804	3606	1486
c, Capacity [veh/h]	226	1357	678	382	1517	673	407	1174	506	119	598	246
d1, Uniform Delay [s]	61.05	28.30	28.35	57.92	27.07	27.25	51.46	35.09	42.65	61.19	50.48	50.14
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.36	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.65	0.39	0.81	4.38	0.85	2.03	66.54	0.25	20.32	11.22	0.66	1.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.23	0.23	0.82	0.42	0.43	1.08	0.43	0.93	0.79	0.51	0.51
d, Delay for Lane Group [s/veh]	65.70	28.69	29.15	62.30	27.92	29.28	118.00	35.33	62.97	72.41	51.14	51.76
Lane Group LOS	E	C	C	E	C	C	F	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.88	3.42	3.56	5.35	7.21	6.89	20.90	6.36	17.26	3.48	4.62	3.86
50th-Percentile Queue Length [ft/ln]	72.00	85.46	89.05	133.70	180.32	172.26	522.38	158.89	431.41	87.00	115.41	96.54
95th-Percentile Queue Length [veh/ln]	5.18	6.15	6.41	9.14	11.62	11.20	29.61	10.49	24.07	6.26	8.14	6.95
95th-Percentile Queue Length [ft/ln]	129.61	153.83	160.29	228.52	290.44	279.88	740.37	262.25	601.72	156.60	203.50	173.77

Movement, Approach, & Intersection Results

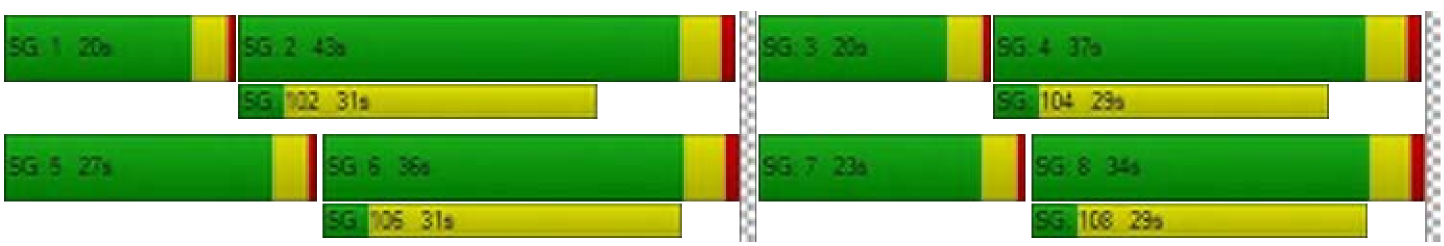
d_M, Delay for Movement [s/veh]	65.70	28.82	29.15	62.30	27.92	29.28	118.00	35.33	62.97	72.41	51.14	51.76
Movement LOS	E	C	C	E	C	C	F	D	E	E	D	D
d_A, Approach Delay [s/veh]	38.52			36.92			70.28			55.13		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	52.02											
Intersection LOS	D											
Intersection V/C	0.642											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	19.20	146.57	349.93	366.76
d_p, Pedestrian Delay [s]	52.27	52.27	52.27	52.27
I_p,int, Pedestrian LOS Score for Intersection	2.950	3.058	2.962	2.730
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	490	540	640	523
d_b, Bicycle Delay [s]	34.20	31.97	27.77	32.72
I_b,int, Bicycle LOS Score for Intersection	1.909	2.583	2.720	1.989
Bicycle LOS	A	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Metro Center Blvd and Vintage Park Dr

Control Type:	Signalized	Delay (sec / veh):	76.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.985

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	150.00	100.00	100.00	250.00	100.00	390.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	30	260	120	570	160	370	200	490	50	40	250	390
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	260	120	570	160	370	200	490	50	40	250	390
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	72	33	158	44	103	56	136	14	11	69	108
Total Analysis Volume [veh/h]	33	289	133	633	178	411	222	544	56	44	278	433
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	70			33			70			33		
v_di, Inbound Pedestrian Volume crossing m	70			33			70			33		
v_co, Outbound Pedestrian Volume crossing	67			57			57			68		
v_ci, Inbound Pedestrian Volume crossing mi	68			57			57			67		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	54.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	5	6	0
Maximum Green [s]	25	40	0	30	45	0	30	40	0	25	40	0
Amber [s]	3.0	3.2	0.0	3.0	3.2	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	41	33	0	39	31	0	17	37	0	11	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	22	0	0	22	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.2	0.0	1.5	1.7	0.0	1.5	2.5	0.0	1.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.50	4.20	4.20	3.50	3.70	3.70	3.50	4.50	4.50	3.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.20	2.20	1.50	1.70	1.70	1.50	2.50	2.50	1.50	2.50	2.50
g_i, Effective Green Time [s]	3	27	27	36	60	60	14	38	38	4	28	28
g / C, Green / Cycle	0.02	0.22	0.22	0.30	0.50	0.50	0.11	0.32	0.32	0.03	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.02	0.12	0.14	0.35	0.09	0.28	0.12	0.16	0.17	0.02	0.08	0.27
s, saturation flow rate [veh/h]	1791	1880	1463	1791	1880	1489	1791	1880	1714	1791	3580	1598
c, Capacity [veh/h]	44	423	329	530	941	745	201	595	542	58	845	377
d1, Uniform Delay [s]	58.15	40.81	41.85	42.25	16.55	20.18	53.25	33.48	33.88	57.61	37.97	45.84
k, delay calibration	0.11	0.11	0.11	0.50	0.11	0.13	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.86	0.99	1.88	105.03	0.10	0.74	61.41	3.14	3.89	18.49	1.04	93.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.52	0.62	1.19	0.19	0.55	1.10	0.51	0.54	0.76	0.33	1.15
d, Delay for Lane Group [s/veh]	80.01	41.80	43.72	147.28	16.65	20.92	114.66	36.61	37.78	76.11	39.01	138.93
Lane Group LOS	F	D	D	F	B	C	F	D	D	E	D	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.26	5.82	5.57	30.95	2.73	7.77	9.45	7.68	7.60	1.61	3.49	20.79
50th-Percentile Queue Length [ft/ln]	31.62	145.44	139.23	773.69	68.26	194.15	236.17	191.92	190.07	40.28	87.28	519.73
95th-Percentile Queue Length [veh/ln]	2.28	9.77	9.44	44.58	4.91	12.34	15.06	12.22	12.12	2.90	6.28	30.50
95th-Percentile Queue Length [ft/ln]	56.91	244.33	235.99	1114.60	122.87	308.41	376.49	305.51	303.12	72.51	157.11	762.53

Movement, Approach, & Intersection Results

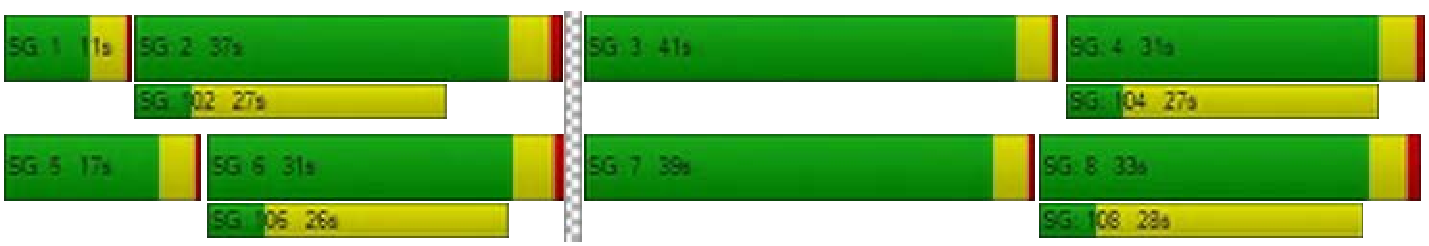
d_M, Delay for Movement [s/veh]	80.01	42.26	43.72	147.28	16.65	20.92	114.66	37.12	37.78	76.11	39.01	138.93
Movement LOS	F	D	D	F	B	C	F	D	D	E	D	F
d_A, Approach Delay [s/veh]		45.43			85.75			58.11			98.48	
Approach LOS		D			F			E			F	
d_I, Intersection Delay [s/veh]						76.08						
Intersection LOS						E						
Intersection V/C						0.985						

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	38.81	0.00	0.00	38.45
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.325	2.737	2.666	2.860
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	480	455	542	442
d_b, Bicycle Delay [s]	34.66	35.81	31.90	36.43
I_b,int, Bicycle LOS Score for Intersection	1.935	3.576	2.238	2.182
Bicycle LOS	A	D	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Edgewater Blvd and Mariners Island Blvd

Control Type:	Signalized	Delay (sec / veh):	32.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	2	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	40.00	400.00	100.00	400.00	190.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	10	30	10	230	10	110	580	880	20	20	890	420
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	30	10	230	10	110	580	880	20	20	890	420
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	8	3	60	3	29	151	229	5	5	232	109
Total Analysis Volume [veh/h]	10	31	10	240	10	115	604	917	21	21	927	438
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			1		
v_di, Inbound Pedestrian Volume crossing m	1			0			0			0		
v_co, Outbound Pedestrian Volume crossing	3			3			2			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			2			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	49.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups							4,5					
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	6	0	4	6	0	4	6	0
Maximum Green [s]	0	40	0	0	60	0	30	65	0	20	50	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	0.0	3.1	4.0	0.0	3.1	4.0	0.0
All red [s]	0.0	0.5	0.0	0.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	32	0	0	29	0	22	41	0	18	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	18	0	0	25	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	3.0	0.0	1.6	3.0	0.0	1.6	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			Yes		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.70	3.70	5.00	5.00	5.00	4.30	5.00	5.00	3.60	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	3.00	3.00	3.00	0.00	3.00	3.00	1.60	3.00	3.00
g_i, Effective Green Time [s]	4	4	31	31	31	66	65	65	2	37	37
g / C, Green / Cycle	0.04	0.04	0.26	0.26	0.26	0.55	0.54	0.54	0.02	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.02	0.01	0.08	0.09	0.04	0.37	0.25	0.25	0.01	0.26	0.28
s, saturation flow rate [veh/h]	1865	1591	1431	1479	2840	1619	1888	1870	1798	3595	1592
c, Capacity [veh/h]	68	58	408	443	740	796	1024	1014	31	1114	493
d1, Uniform Delay [s]	57.06	56.16	35.71	35.97	34.25	20.68	16.76	16.79	58.72	38.56	39.36
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.21
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.49	1.41	1.65	1.84	0.45	6.70	0.32	0.33	23.09	1.69	9.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.17	0.27	0.31	0.16	0.76	0.46	0.46	0.68	0.83	0.89
d, Delay for Lane Group [s/veh]	65.56	57.57	37.36	37.81	34.70	27.37	17.08	17.11	81.81	40.25	49.28
Lane Group LOS	E	E	D	D	C	C	B	B	F	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.39	0.32	2.83	3.54	1.35	12.24	7.70	7.68	0.83	12.71	13.36
50th-Percentile Queue Length [ft/ln]	34.66	7.93	70.64	88.38	33.77	305.91	192.62	191.91	20.71	317.65	334.04
95th-Percentile Queue Length [veh/ln]	2.50	0.57	5.09	6.36	2.43	17.97	12.26	12.22	1.49	18.55	19.36
95th-Percentile Queue Length [ft/ln]	62.39	14.27	127.14	159.08	60.78	449.33	306.43	305.51	37.29	463.79	483.90

Movement, Approach, & Intersection Results

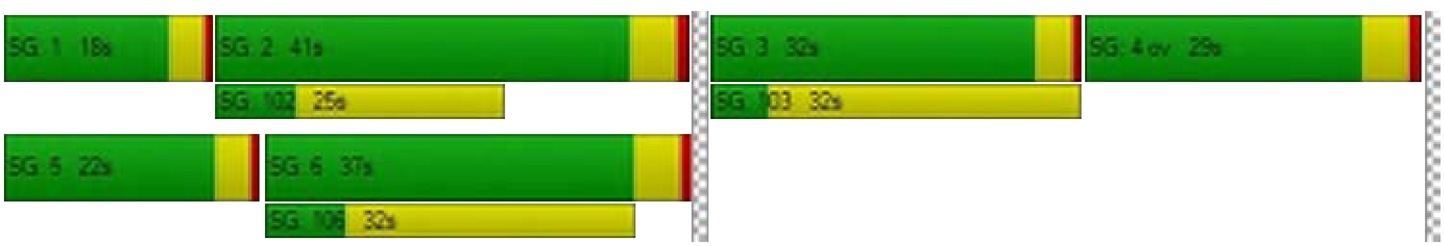
d_M, Delay for Movement [s/veh]	65.56	65.56	57.57	37.60	37.81	34.70	27.37	17.10	17.11	81.81	40.25	49.28
Movement LOS	E	E	E	D	D	C	C	B	B	F	D	D
d_A, Approach Delay [s/veh]	63.99			36.69			21.12			43.73		
Approach LOS	E			D			C			D		
d_I, Intersection Delay [s/veh]	32.85											
Intersection LOS	C											
Intersection V/C	0.535											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	1.987	2.982	0.000	3.313
Crosswalk LOS	A	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	472	400	600	533
d_b, Bicycle Delay [s]	35.04	38.40	29.44	32.27
I_b,int, Bicycle LOS Score for Intersection	1.644	2.162	2.832	2.703
Bicycle LOS	A	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Metro Center Blvd and Edgewater Blvd

Control Type:	Signalized	Delay (sec / veh):	53.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	2	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	50.00	270.00	100.00	100.00	370.00	100.00	100.00	180.00	100.00	50.00
Speed [mph]	25.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	30	50	80	360	60	240	260	750	20	190	700	330
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	50	80	360	60	240	260	750	20	190	700	330
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	13	21	95	16	63	68	197	5	50	184	87
Total Analysis Volume [veh/h]	32	53	84	379	63	253	274	789	21	200	737	347
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			4			2			3		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			4		
v_co, Outbound Pedestrian Volume crossing	5			3			3			6		
v_ci, Inbound Pedestrian Volume crossing mi	6			3			3			5		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	3.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	8	0	4	8	0
Maximum Green [s]	0	40	0	0	35	0	40	60	0	20	45	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.1	3.9	0.0	3.1	3.9	0.0
All red [s]	0.0	0.5	0.0	0.0	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	39	0	0	40	0	20	47	0	14	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	28	0	0	28	0	0	14	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	1.7	0.0	1.6	2.9	0.0	1.6	2.9	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	3.70	3.70	3.70	3.70	3.70	3.60	4.90	4.90	3.60	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	1.70	1.70	1.70	1.60	2.90	2.90	1.60	2.90	2.90
g_i, Effective Green Time [s]	14	14	26	26	26	13	73	73	10	71	71
g / C, Green / Cycle	0.10	0.10	0.19	0.19	0.19	0.09	0.52	0.52	0.07	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.12	0.12	0.16	0.08	0.22	0.22	0.11	0.14	0.22
s, saturation flow rate [veh/h]	1853	1553	1798	1823	1568	3492	1888	1868	1798	5143	1585
c, Capacity [veh/h]	189	158	334	339	291	329	990	979	134	2595	800
d1, Uniform Delay [s]	59.17	59.58	52.86	52.85	55.09	62.33	20.18	20.19	64.80	20.06	21.93
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.28	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.67	2.74	2.21	2.16	7.77	5.51	1.26	1.28	244.67	0.27	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.45	0.53	0.66	0.66	0.87	0.83	0.41	0.41	1.50	0.28	0.43
d, Delay for Lane Group [s/veh]	60.85	62.32	55.07	55.01	62.85	67.84	21.44	21.47	309.47	20.33	23.64
Lane Group LOS	E	E	E	E	E	E	C	C	F	C	C
Critical Lane Group	No	Yes	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.96	2.98	7.35	7.43	9.21	5.03	8.31	8.25	13.82	4.69	7.52
50th-Percentile Queue Length [ft/ln]	74.10	74.56	183.85	185.76	230.13	125.66	207.86	206.19	345.59	117.32	188.10
95th-Percentile Queue Length [veh/ln]	5.34	5.37	11.80	11.90	14.18	8.70	13.04	12.96	22.42	8.25	12.02
95th-Percentile Queue Length [ft/ln]	133.38	134.20	295.03	297.52	354.53	217.58	326.08	323.94	560.42	206.14	300.57

Movement, Approach, & Intersection Results

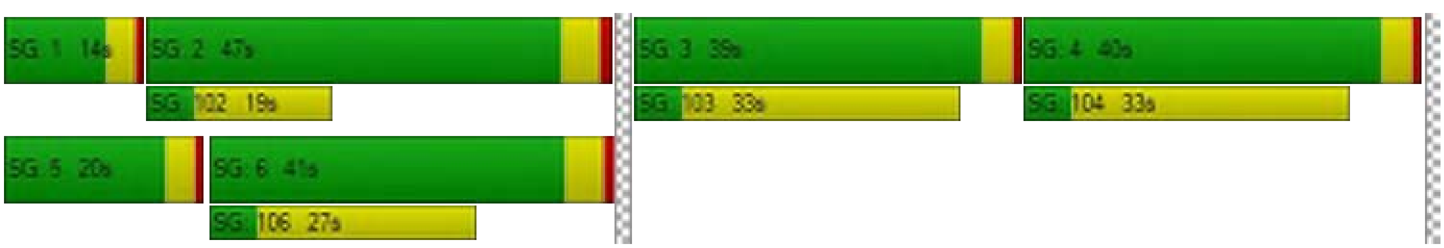
d_M, Delay for Movement [s/veh]	60.85	60.85	62.32	55.04	55.01	62.85	67.84	21.46	21.47	309.47	20.33	23.64
Movement LOS	E	E	E	E	E	E	E	C	C	F	C	C
d_A, Approach Delay [s/veh]	61.58			57.88			33.18			66.26		
Approach LOS	E			E			C			E		
d_I, Intersection Delay [s/veh]	53.12											
Intersection LOS	D											
Intersection V/C	0.593											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	61.29	61.29	61.29	61.29
I_p,int, Pedestrian LOS Score for Intersection	2.085	2.634	2.958	3.108
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	504	519	601	516
d_b, Bicycle Delay [s]	39.15	38.43	34.28	38.57
I_b,int, Bicycle LOS Score for Intersection	1.838	2.706	2.454	2.266
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Edgewater Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	51.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.903

Intersection Setup

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	1	0	1
Pocket Length [ft]	190.00	100.00	190.00	310.00	100.00	110.00	100.00	100.00	75.00	310.00	100.00	230.00
Speed [mph]	40.00			35.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	310	560	120	260	600	380	0	1430	520	250	850	230
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	310	560	120	260	600	380	0	1430	520	250	850	230
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	144	31	67	155	98	0	369	134	64	219	59
Total Analysis Volume [veh/h]	320	577	124	268	619	392	0	1474	536	258	876	237
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			3			3			11		
v_di, Inbound Pedestrian Volume crossing m	11			3			3			10		
v_co, Outbound Pedestrian Volume crossing	6			10			6			10		
v_ci, Inbound Pedestrian Volume crossing mi	6			10			6			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	75.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	4	6	0
Maximum Green [s]	30	60	0	20	50	0	0	45	0	30	50	0
Amber [s]	3.5	4.0	0.0	3.5	3.9	0.0	0.0	4.0	0.0	3.5	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.5	1.0	0.0
Split [s]	27	52	0	18	43	0	0	42	0	28	70	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	30	0	0	34	0	0	31	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	2.0	2.9	0.0	0.0	3.0	0.0	2.0	2.6	0.0
Minimum Recall	No	No		No	No			No		No	No	
Maximum Recall	No	No		No	No			Yes		No	Yes	
Pedestrian Recall	No	No		No	No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	R	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.50	5.00	5.00	4.00	4.90	4.90	5.00	5.00	4.00	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	3.00	3.00	2.00	2.90	2.90	3.00	3.00	2.00	2.60	2.60
g_i, Effective Green Time [s]	15	41	41	13	38	38	46	46	22	73	73
g / C, Green / Cycle	0.11	0.29	0.29	0.09	0.27	0.27	0.33	0.33	0.16	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.09	0.19	0.19	0.08	0.17	0.25	0.29	0.34	0.14	0.17	0.15
s, saturation flow rate [veh/h]	3497	1891	1751	3497	3600	1572	5151	1568	1801	5151	1568
c, Capacity [veh/h]	385	550	510	330	981	428	1694	515	283	2666	812
d1, Uniform Delay [s]	61.06	43.53	43.69	62.24	44.79	49.06	44.22	46.46	58.08	19.65	19.13
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.23	0.50	0.50	0.21	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.66	1.34	1.51	4.82	0.68	15.17	6.42	50.37	18.46	0.33	0.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.66	0.67	0.81	0.63	0.92	0.87	1.04	0.91	0.33	0.29
d, Delay for Lane Group [s/veh]	65.72	44.87	45.20	67.06	45.47	64.23	50.64	96.83	76.54	19.98	20.04
Lane Group LOS	E	D	D	E	D	E	D	F	E	B	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.76	11.04	10.43	4.88	9.51	14.87	16.67	24.48	10.39	5.59	4.56
50th-Percentile Queue Length [ft/ln]	144.01	276.01	260.77	122.11	237.79	371.77	416.69	611.93	259.81	139.67	113.89
95th-Percentile Queue Length [veh/ln]	9.70	16.49	15.73	8.51	14.57	21.19	23.36	33.47	15.68	9.46	8.06
95th-Percentile Queue Length [ft/ln]	242.42	412.24	393.19	212.72	364.24	529.87	584.08	836.72	391.99	236.59	201.40

Movement, Approach, & Intersection Results

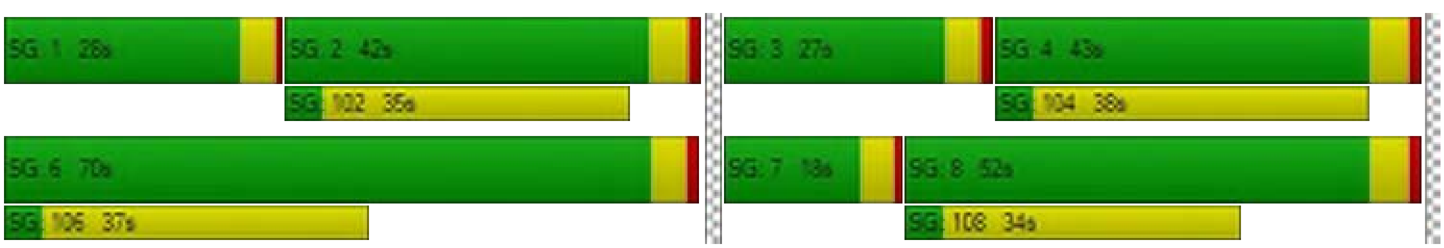
d_M, Delay for Movement [s/veh]	65.72	44.99	45.20	67.06	45.47	64.23	0.00	50.64	96.83	76.54	19.98	20.04
Movement LOS	E	D	D	E	D	E		D	F	E	B	C
d_A, Approach Delay [s/veh]		51.51			55.74			62.95			30.64	
Approach LOS		D			E			E			C	
d_I, Intersection Delay [s/veh]	51.48											
Intersection LOS	D											
Intersection V/C	0.903											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	150.46	288.33	206.33
d_p, Pedestrian Delay [s]	62.23	62.23	62.23	62.23
I_p,int, Pedestrian LOS Score for Intersection	3.003	3.046	3.285	3.209
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	671	544	529	934
d_b, Bicycle Delay [s]	30.94	37.16	37.95	19.90
I_b,int, Bicycle LOS Score for Intersection	2.402	2.615	2.665	2.314
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Center Park Ln and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	22.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	390.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Base Volume Input [veh/h]	200	130	400	1500	970	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.50	0.50	0.50	0.50	0.50	0.50
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	130	400	1500	970	60
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	34	104	391	253	16
Total Analysis Volume [veh/h]	208	135	417	1563	1010	63
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		15	
v_di, Inbound Pedestrian Volume crossing m	0		0		14	
v_co, Outbound Pedestrian Volume crossing	5		14		5	
v_ci, Inbound Pedestrian Volume crossing mi	5		15		5	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	19.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	4	0	6	5	5	0
Maximum Green [s]	35	0	30	40	40	0
Amber [s]	3.5	0.0	3.1	3.5	3.5	0.0
All red [s]	0.5	0.0	0.5	1.0	1.0	0.0
Split [s]	36	0	37	84	47	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0
Pedestrian Clearance [s]	20	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	1.6	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	0.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	17	17	29	94	61	61
g / C, Green / Cycle	0.15	0.15	0.24	0.78	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.12	0.08	0.23	0.30	0.20	0.20
s, saturation flow rate [veh/h]	1695	1609	1802	5155	3603	1824
c, Capacity [veh/h]	247	234	440	4039	1835	929
d1, Uniform Delay [s]	49.87	47.76	44.52	4.03	18.02	17.96
k, delay calibration	0.11	0.11	0.40	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.65	2.24	27.41	0.28	0.63	1.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.58	0.95	0.39	0.39	0.39
d, Delay for Lane Group [s/veh]	57.52	50.00	71.93	4.31	18.64	19.17
Lane Group LOS	E	D	E	A	B	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.64	3.95	15.32	3.17	6.08	6.21
50th-Percentile Queue Length [ft/ln]	166.04	98.69	382.92	79.36	151.88	155.25
95th-Percentile Queue Length [veh/ln]	10.87	7.11	21.74	5.71	10.12	10.30
95th-Percentile Queue Length [ft/ln]	271.70	177.64	543.38	142.85	252.94	257.42

Movement, Approach, & Intersection Results

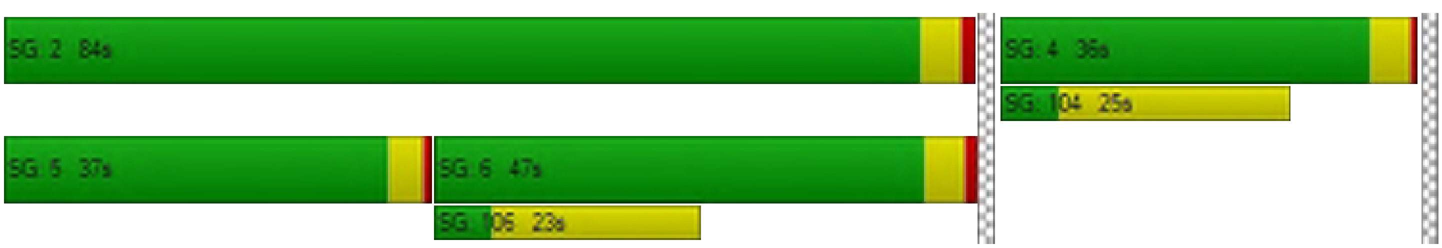
d_M, Delay for Movement [s/veh]	57.52	50.00	71.93	4.31	18.80	19.17
Movement LOS	E	D	E	A	B	B
d_A, Approach Delay [s/veh]	54.56		18.55		18.82	
Approach LOS	D		B		B	
d_I, Intersection Delay [s/veh]	22.27					
Intersection LOS	C					
Intersection V/C	0.614					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	470.53	0.00	251.53
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.178	0.000	3.007
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.221	4.723
Bicycle LOS	D	F	E

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foster City Metro Center Hotel EIR

Vistro File: \...\FC Metro Center Hotel 9.26.19.vistro | Scenario 6 Cumulative PM

Report File: \...\Cumulative PM Report.pdf | 12/10/2019

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Vintage Park Dr and Chess Dr	200	130	500	380	730	310	30	290	300	110	240	30	3250

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Chess Dr and Route 92 West Ramp	100	10	250	20	30	10	10	310	880	1170	230	10	3030

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Foster City Blvd and Chess Dr	760	260	90	10	1180	290	50	40	490	250	360	50	3830

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Metro Center Blvd and Shell Blvd	240	70	250	70	50	90	20	780	270	50	160	70	2120

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Metro Center Blvd and Route 92 East Ramp	10	50	30	280	10	70	610	410	10	10	230	1140	2860

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foster City Blvd and Metro Center Blvd	320	620	100	210	830	880	190	310	220	70	180	300	4230

ID	Intersection Name	Northbound			Southbound			Eastbound		Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Thru	Right	Left	Thru	Right	
7	Shell Blvd and E Hillsdale Blvd	310	220	130	120	300	100	1090	530	200	620	80	3700

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	Foster City Blvd and E Hillsdale Blvd	160	410	40	300	610	280	420	480	450	90	290	120	3650

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	Metro Center Blvd and Vintage Park Dr	30	260	120	570	160	370	200	490	50	40	250	390	2930

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	Edgewater Blvd and Mariners Island Blvd	10	30	10	230	10	110	580	880	20	20	890	420	3210

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11	Metro Center Blvd and Edgewater Blvd	30	50	80	360	60	240	260	750	20	190	700	330	3070

ID	Intersection Name	Northbound			Southbound			Eastbound		Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Thru	Right	Left	Thru	Right	
12	Edgewater Blvd and E Hillsdale Blvd	310	560	120	260	600	380	1430	520	250	850	230	5510

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
13	Center Park Ln and E Hillsdale Blvd	200	130	400	1500	970	60	3260

Study Intersections

Foster City Metro Center Hotel EIR

Vistro File: \...\FC Metro Center Hotel 9.26.19.vistro — Scenario 7 CPP AM

Report File: \...\CPP AM Report.pdf — 12/10/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Vintage Park Dr and Chess Dr	Signalized	HCM 6th Edition	SB Left	0.696	22.4	C
2	Chess Dr and Route 92 West Ramp	Signalized	HCM 6th Edition	NB Right	1.235	333.1	F
3	Foster City Blvd and Chess Dr	Signalized	HCM 6th Edition	EB Right	0.912	96.0	F
4	Metro Center Blvd and Shell Blvd	Signalized	HCM 6th Edition	EB Left	0.467	15.9	B
5	Metro Center Blvd and Route 92 East Ramp	Signalized	HCM 6th Edition	WB Left	0.608	28.6	C
6	Foster City Blvd and Metro Center Blvd	Signalized	HCM 6th Edition	WB Right	0.959	83.3	F
7	Shell Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	SB Left	0.605	31.5	C
8	Foster City Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Left	0.812	44.3	D
9	Metro Center Blvd and Vintage Park Dr	Signalized	HCM 6th Edition	EB Left	1.001	150.4	F
10	Edgewater Blvd and Mariners Island Blvd	Signalized	HCM 6th Edition	WB Left	0.678	36.1	D
11	Metro Center Blvd and Edgewater Blvd	Signalized	HCM 6th Edition	SB Left	0.727	73.2	E
12	Edgewater Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	WB Left	0.730	36.9	D
13	Center Park Ln and E Hillsdale Blvd	Signalized	HCM 6th Edition	SB Left	0.482	11.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Vintage Park Dr and Chess Dr

Control Type:	Signalized		Delay (sec / veh):	22.4
Analysis Method:	HCM 6th Edition		Level Of Service:	C
Analysis Period:	15 minutes		Volume to Capacity (v/c):	0.696

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	280.00	100.00	100.00	265.00	100.00	100.00	140.00	100.00	100.00	215.00	100.00	100.00
Speed [mph]		30.00			30.00			25.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No			No	
Crosswalk		Yes			Yes			Yes			Yes	

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	150	900	160	30	131	60	80	170	135	194	363	250
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	900	160	30	131	60	80	170	135	194	363	250
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	242	43	8	35	16	22	46	36	52	98	67
Total Analysis Volume [veh/h]	161	968	172	32	141	65	86	183	145	209	390	269
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		11			4			10			3	
v_di, Inbound Pedestrian Volume crossing m		10			3			11			4	
v_co, Outbound Pedestrian Volume crossing		3			9			10			3	
v_ci, Inbound Pedestrian Volume crossing mi		3			10			9			3	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			2			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	4	0	4	4	0	4	4	0	4	4	0
Maximum Green [s]	40	50	0	30	40	0	20	40	0	20	40	0
Amber [s]	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0
All red [s]	0.5	0.5	0.0	1.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	23	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	1.7	0.0	2.1	2.2	0.0	1.6	2.2	0.0	1.6	2.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	64	64	64	64	64	64	64	64	64	64	64	64	64
L, Total Lost Time per Cycle [s]	3.60	3.70	3.70	3.70	4.10	4.20	4.20	3.60	4.20	4.20	3.60	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.70	1.70	1.70	2.10	2.20	2.20	1.60	2.20	2.20	1.60	2.20	2.20
g_i, Effective Green Time [s]	8	25	25	25	2	19	19	4	12	12	10	18	18
g / C, Green / Cycle	0.12	0.39	0.39	0.39	0.03	0.29	0.29	0.06	0.19	0.19	0.15	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.09	0.21	0.31	0.11	0.02	0.06	0.06	0.05	0.09	0.10	0.12	0.19	0.19
s, saturation flow rate [veh/h]	1765	1853	1853	1568	1765	1853	1626	1765	1853	1543	1765	1853	1594
c, Capacity [veh/h]	215	718	718	607	48	542	476	115	359	299	266	517	445
d1, Uniform Delay [s]	27.43	15.46	17.53	13.63	31.15	17.15	17.24	29.70	23.17	23.37	26.46	20.75	20.79
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.16	0.67	2.05	0.25	14.60	0.17	0.22	9.35	1.00	1.40	5.12	1.60	1.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.55	0.79	0.28	0.66	0.19	0.21	0.75	0.48	0.52	0.79	0.68	0.69
d, Delay for Lane Group [s/veh]	32.59	16.13	19.58	13.88	45.74	17.32	17.46	39.05	24.17	24.77	31.57	22.34	22.69
Lane Group LOS	C	B	B	B	D	B	B	D	C	C	C	C	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.58	4.24	7.07	1.61	0.67	1.12	1.08	1.57	2.34	2.15	3.30	4.60	4.03
50th-Percentile Queue Length [ft/ln]	64.60	105.9	176.8	40.14	16.72	28.00	26.94	39.29	58.56	53.84	82.54	115.04	100.84
95th-Percentile Queue Length [veh/ln]	4.65	7.61	11.43	2.89	1.20	2.02	1.94	2.83	4.22	3.88	5.94	8.12	7.26
95th-Percentile Queue Length [ft/ln]	116.2	190.2	285.8	72.25	30.10	50.41	48.48	70.73	105.40	96.91	148.57	203.00	181.51

Movement, Approach, & Intersection Results

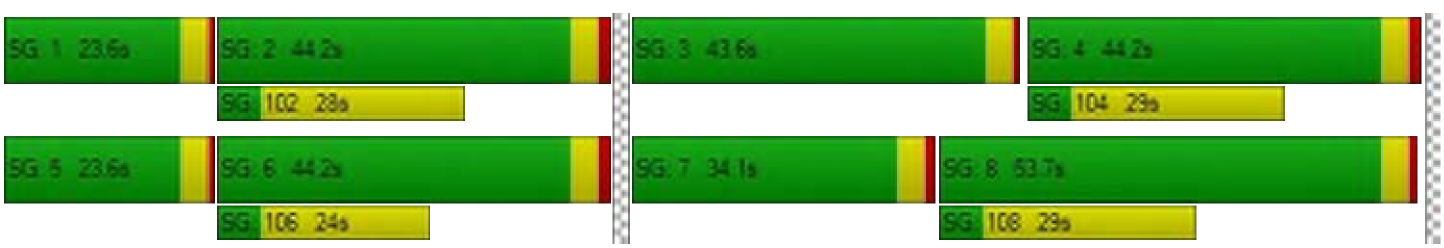
d_M, Delay for Movement [s/veh]	32.59	18.16	13.88	45.74	17.35	17.46	39.05	24.21	24.77	31.57	22.37	22.69
Movement LOS	C	B	B	D	B	B	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	19.38			21.20			27.49			24.69		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	22.36											
Intersection LOS	C											
Intersection V/C	0.696											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	360.46	679.88	438.17	1196.46
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.746	2.606	2.469	2.658
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1111	889	889	889
d_b, Bicycle Delay [s]	8.89	13.90	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.633	1.756	1.901	2.276
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Chess Dr and Route 92 West Ramp

Control Type:	Signalized	Delay (sec / veh):	333.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.235

Intersection Setup

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	480.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	614	40	1060	10	20	10	10	220	140	755	223	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	614	40	1060	10	20	10	10	220	140	755	223	20
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	165	11	285	3	5	3	3	59	38	203	60	5
Total Analysis Volume [veh/h]	660	43	1140	11	22	11	11	237	151	812	240	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	35.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	4	0	0	1	6	1	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	4	0	0	6	5	6	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	30	55	0
Amber [s]	0.0	3.5	0.0	0.0	3.2	0.0	0.0	3.2	3.1	3.2	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	0.5	0.0	0.0	1.0	1.0	1.0	2.0	0.0
Split [s]	0	30	0	0	26	0	0	20	50	20	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	17	0	0	0	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.5	0.0	0.0	1.7	0.0	0.0	2.2	2.1	2.2	3.5	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		Yes	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	C	R	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	3.70	4.20	4.10	5.50	5.50	5.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	1.70	2.20	2.10	3.50	3.50	3.50
g_i, Effective Green Time [s]	30	30	30	4	18	53	50	50	50
g / C, Green / Cycle	0.25	0.25	0.25	0.03	0.15	0.44	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.20	0.20	0.72	0.03	0.13	0.05	0.23	0.23	0.16
s, saturation flow rate [veh/h]	1767	1777	1577	1756	1851	2791	1767	1767	1663
c, Capacity [veh/h]	441	444	394	58	285	1233	732	732	689
d1, Uniform Delay [s]	42.23	42.17	45.08	57.59	49.66	19.78	26.78	26.78	24.48
k, delay calibration	0.29	0.29	0.50	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.58	8.24	860.26	17.50	8.04	0.04	3.02	3.02	1.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.79	2.90	0.75	0.87	0.12	0.55	0.55	0.38
d, Delay for Lane Group [s/veh]	50.81	50.41	905.34	75.09	57.70	19.83	29.80	29.80	26.07
Lane Group LOS	D	D	F	E	E	B	C	C	C
Critical Lane Group	No	No	Yes	Yes	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.77	10.72	105.67	1.61	7.90	1.26	9.39	9.39	5.48
50th-Percentile Queue Length [ft/ln]	269.15	267.90	2641.75	40.25	197.40	31.59	234.63	234.63	136.99
95th-Percentile Queue Length [veh/ln]	16.15	16.08	166.68	2.90	12.50	2.27	14.41	14.41	9.32
95th-Percentile Queue Length [ft/ln]	403.67	402.11	4167.09	72.45	312.61	56.87	360.23	360.23	232.96

Movement, Approach, & Intersection Results

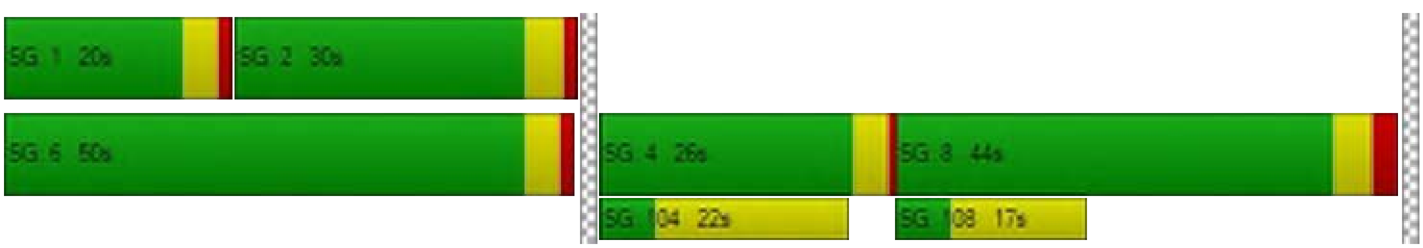
d_M, Delay for Movement [s/veh]	50.62	50.41	905.34	75.09	75.09	75.09	57.70	57.70	19.83	29.80	26.07	26.07
Movement LOS	D	D	F	E	E	E	E	E	B	C	C	C
d_A, Approach Delay [s/veh]		579.31			75.09			43.37			28.89	
Approach LOS		F			E			D			C	
d_I, Intersection Delay [s/veh]						333.13						
Intersection LOS						F						
Intersection V/C						1.235						

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	51.34	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	1.789	2.571	0.000
Crosswalk LOS	F	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	425	372	263	642
d_b, Bicycle Delay [s]	37.21	39.79	45.24	27.68
I_b,int, Bicycle LOS Score for Intersection	4.601	1.632	2.218	2.446
Bicycle LOS	E	A	B	B

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Foster City Blvd and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	96.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.912

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	850.00	100.00	150.00	80.00	100.00	180.00	100.00	100.00	100.00	250.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	858	1157	400	60	320	80	500	200	590	60	60	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	858	1157	400	60	320	80	500	200	590	60	60	10
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	219	295	102	15	82	20	128	51	151	15	15	3
Total Analysis Volume [veh/h]	876	1181	408	61	327	82	510	204	602	61	61	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	30.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	3	3	3	0	1	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	4	4	4	0	4	4	0
Maximum Green [s]	55	65	0	20	35	30	30	30	0	55	35	0
Amber [s]	3.5	3.6	0.0	3.1	3.9	3.2	3.2	3.2	0.0	3.5	3.1	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0	1.0	0.5	0.0
Split [s]	40	45	0	16	21	27	27	27	0	40	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	0	4	0
Pedestrian Clearance [s]	0	23	0	0	0	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.6	0.0	1.6	2.9	1.7	1.7	1.7	0.0	2.5	1.6	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	Yes	Yes		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.60	4.60	3.60	4.90	3.70	3.70	3.70	3.70	3.60	3.60	3.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.60	2.60	1.60	2.90	0.00	1.70	1.70	1.70	1.60	1.60	1.60
g_i, Effective Green Time [s]	58	67	67	5	13	44	26	26	26	6	6	6
g / C, Green / Cycle	0.48	0.56	0.56	0.04	0.11	0.37	0.22	0.22	0.22	0.05	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.25	0.33	0.26	0.03	0.09	0.05	0.20	0.20	0.42	0.03	0.02	0.02
s, saturation flow rate [veh/h]	3439	3540	1581	1771	3540	1581	1771	1820	1438	1771	1859	1771
c, Capacity [veh/h]	1657	1976	882	80	394	581	382	392	310	92	97	92
d1, Uniform Delay [s]	21.61	17.57	15.79	56.69	52.22	25.31	46.11	46.08	47.08	55.85	54.98	55.02
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.31	0.31	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.21	1.34	1.74	14.09	4.54	0.11	21.59	20.65	435.41	7.83	2.33	2.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.60	0.46	0.77	0.83	0.14	0.92	0.92	1.94	0.66	0.37	0.38
d, Delay for Lane Group [s/veh]	22.82	18.92	17.53	70.78	56.76	25.42	67.70	66.73	482.48	63.68	57.31	57.61
Lane Group LOS	C	B	B	E	E	C	E	E	F	E	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.75	10.88	6.95	2.13	5.03	1.57	12.53	12.73	46.68	2.03	1.12	1.11
50th-Percentile Queue Length [ft/ln]	218.64	272.00	173.78	53.17	125.64	39.25	313.16	318.18	1167.12	50.73	27.92	27.70
95th-Percentile Queue Length [veh/ln]	13.60	16.29	11.28	3.83	8.70	2.83	18.33	18.58	74.03	3.65	2.01	1.99
95th-Percentile Queue Length [ft/ln]	339.89	407.23	281.88	95.70	217.55	70.64	458.27	464.45	1850.66	91.32	50.26	49.87

Movement, Approach, & Intersection Results

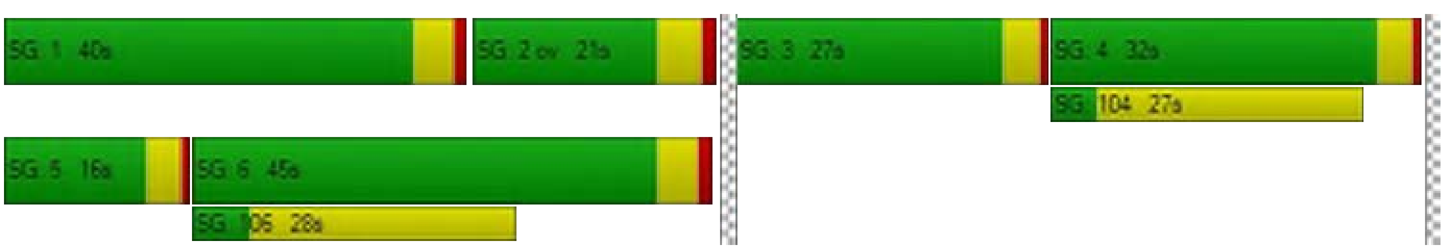
d_M, Delay for Movement [s/veh]	22.82	18.92	17.53	70.78	56.76	25.42	67.41	66.73	482.48	63.68	57.43	57.61
Movement LOS	C	B	B	E	E	C	E	E	F	E	E	E
d_A, Approach Delay [s/veh]	20.08			53.11			257.18			60.33		
Approach LOS	C			D			F			E		
d_I, Intersection Delay [s/veh]	96.02											
Intersection LOS	F											
Intersection V/C	0.912											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	52.27	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.880	0.000	2.446
Crosswalk LOS	F	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	673	268	388	473
d_b, Bicycle Delay [s]	26.40	44.98	38.96	34.96
I_b,int, Bicycle LOS Score for Intersection	3.593	1.947	2.645	1.669
Bicycle LOS	D	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Metro Center Blvd and Shell Blvd

Control Type:	Signalized	Delay (sec / veh):	15.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.467

Intersection Setup

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	2	0	1
Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	85.00	100.00	100.00	210.00	100.00	200.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	300	30	100	10	10	10	10	198	90	241	520	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	300	30	100	10	10	10	10	198	90	241	520	50
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	77	8	26	3	3	3	3	51	23	61	133	13
Total Analysis Volume [veh/h]	306	31	102	10	10	10	10	202	92	246	531	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	16			7			16			6		
v_di, Inbound Pedestrian Volume crossing m	16			6			16			7		
v_co, Outbound Pedestrian Volume crossing	16			4			4			16		
v_ci, Inbound Pedestrian Volume crossing mi	16			4			4			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	6	6	0
Maximum Green [s]	40	60	0	20	35	0	20	40	0	20	40	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	28	0	0	20	0	0	21	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.5	0.0	1.5	2.5	0.0	1.5	2.5	0.0	2.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	46	46	46	46	46	46	46	46	46	46	46
L, Total Lost Time per Cycle [s]	3.50	4.50	4.50	3.50	4.50	3.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.50	2.50	1.50	2.50	1.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	11	13	13	0	3	0	10	10	6	17	17
g / C, Green / Cycle	0.23	0.27	0.27	0.01	0.06	0.01	0.22	0.22	0.12	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.17	0.02	0.07	0.01	0.01	0.01	0.08	0.09	0.07	0.15	0.03
s, saturation flow rate [veh/h]	1761	1849	1517	1761	1660	1761	1849	1611	3420	3520	1543
c, Capacity [veh/h]	402	509	418	19	96	19	416	362	426	1269	556
d1, Uniform Delay [s]	16.81	12.46	13.10	22.96	20.96	22.96	15.26	15.37	19.26	11.24	9.86
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.00	0.05	0.30	21.45	1.07	21.45	0.53	0.70	1.24	0.22	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.06	0.24	0.53	0.21	0.53	0.36	0.39	0.58	0.42	0.09
d, Delay for Lane Group [s/veh]	19.81	12.51	13.40	44.42	22.03	44.42	15.79	16.07	20.49	11.46	9.93
Lane Group LOS	B	B	B	D	C	D	B	B	C	B	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.87	0.20	0.72	0.21	0.21	0.21	1.20	1.15	1.16	1.65	0.28
50th-Percentile Queue Length [ft/ln]	71.84	5.10	17.92	5.22	5.29	5.22	29.95	28.75	28.95	41.21	7.06
95th-Percentile Queue Length [veh/ln]	5.17	0.37	1.29	0.38	0.38	0.38	2.16	2.07	2.08	2.97	0.51
95th-Percentile Queue Length [ft/ln]	129.32	9.18	32.25	9.40	9.53	9.40	53.90	51.74	52.11	74.18	12.70

Movement, Approach, & Intersection Results

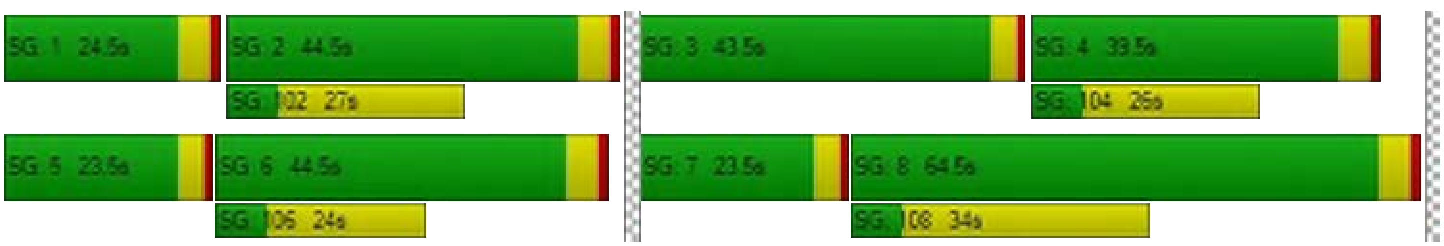
d_M, Delay for Movement [s/veh]	19.81	12.51	13.40	44.42	22.03	22.03	44.42	15.86	16.07	20.49	11.46	9.93
Movement LOS	B	B	B	D	C	C	D	B	B	C	B	A
d_A, Approach Delay [s/veh]	17.81			29.49			16.87			14.05		
Approach LOS	B			C			B			B		
d_I, Intersection Delay [s/veh]	15.90											
Intersection LOS	B											
Intersection V/C	0.467											

Other Modes

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	277.66	621.46	1295.00	303.75
d_p, Pedestrian Delay [s]	35.56	35.56	35.56	35.56
I_p,int, Pedestrian LOS Score for Intersection	2.479	1.987	2.562	2.780
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	778	889	889
d_b, Bicycle Delay [s]	5.00	16.81	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.284	1.609	1.810	2.243
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Metro Center Blvd and Route 92 East Ramp

Control Type:	Signalized	Delay (sec / veh):	28.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.608

Intersection Setup

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	2	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	600.00	100.00	640.00	290.00	100.00	100.00	90.00	100.00	100.00
Speed [mph]	15.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	10	10	30	1290	50	460	103	235	10	40	281	240
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	10	30	1290	50	460	103	235	10	40	281	240
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	8	332	13	119	27	61	3	10	72	62
Total Analysis Volume [veh/h]	10	10	31	1330	52	474	106	242	10	41	290	247
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	50.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	10	4	4	4	0	4	4	0
Maximum Green [s]	0	40	0	0	60	30	30	40	0	25	35	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	3.1	3.1	3.5	0.0	3.1	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.5	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	18	0	0	56	18	18	30	0	16	28	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	6	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	17	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	3.0	1.6	1.6	2.5	0.0	1.6	2.5	0.0
Minimum Recall		No			No	No	No	No		No	No	
Maximum Recall		No			Yes	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.20	4.20	5.00	5.00	3.60	3.60	4.50	4.50	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	3.00	3.00	0.00	1.60	2.50	2.50	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	4	4	72	72	88	11	23	23	4	16	16	16
g / C, Green / Cycle	0.03	0.03	0.60	0.60	0.73	0.09	0.20	0.20	0.03	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.01	0.02	0.39	0.39	0.17	0.03	0.07	0.07	0.02	0.10	0.10	0.11
s, saturation flow rate [veh/h]	1811	1578	1768	1774	2793	3434	1856	1831	1768	1856	1720	1578
c, Capacity [veh/h]	56	48	1060	1063	2042	310	364	359	53	252	233	214
d1, Uniform Delay [s]	57.03	57.53	15.82	15.79	5.22	51.26	41.65	41.67	57.82	50.00	50.07	50.14
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.89	13.23	3.12	3.08	0.27	0.65	0.57	0.58	20.56	4.66	5.26	6.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.64	0.65	0.65	0.23	0.34	0.35	0.35	0.77	0.76	0.77	0.78
d, Delay for Lane Group [s/veh]	60.92	70.76	18.95	18.87	5.49	51.91	42.22	42.25	78.37	54.66	55.33	56.16
Lane Group LOS	E	E	B	B	A	D	D	D	E	D	E	E
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.67	1.13	12.52	12.48	1.74	1.52	3.28	3.25	1.54	5.85	5.53	5.19
50th-Percentile Queue Length [ft/ln]	16.72	28.25	312.91	312.02	43.57	37.94	81.95	81.32	38.50	146.3	138.3	129.7
95th-Percentile Queue Length [veh/ln]	1.20	2.03	18.32	18.27	3.14	2.73	5.90	5.86	2.77	9.82	9.39	8.92
95th-Percentile Queue Length [ft/ln]	30.10	50.86	457.96	456.86	78.42	68.29	147.51	146.38	69.30	245.5	234.7	223.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.92	60.92	70.76	18.91	18.87	5.49	51.91	42.24	42.25	78.37	54.89	55.92
Movement LOS	E	E	E	B	B	A	D	D	D	E	D	E
d_A, Approach Delay [s/veh]	66.90			15.48			45.10			56.98		
Approach LOS	E			B			D			E		
d_I, Intersection Delay [s/veh]	28.57											
Intersection LOS	C											
Intersection V/C	0.608											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	51.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	19.84	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.755	0.000
Crosswalk LOS	F	F	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	230	850	425	392
d_b, Bicycle Delay [s]	46.99	19.84	37.21	38.80
I_b,int, Bicycle LOS Score for Intersection	1.644	4.622	1.855	2.036
Bicycle LOS	A	E	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Foster City Blvd and Metro Center Blvd

Control Type:	Signalized	Delay (sec / veh):	83.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.959

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	230.00	100.00	100.00	210.00	100.00	100.00	150.00	100.00	240.00	50.00	100.00	170.00
Speed [mph]	35.00			35.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	201	1130	80	160	600	210	775	290	490	60	150	510
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	201	1130	80	160	600	210	775	290	490	60	150	510
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	283	20	40	150	53	194	73	123	15	38	128
Total Analysis Volume [veh/h]	201	1130	80	160	600	210	775	290	490	60	150	510
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	7			0			0			8		
v_di, Inbound Pedestrian Volume crossing m	8			0			0			7		
v_co, Outbound Pedestrian Volume crossing	4			0			4			0		
v_ci, Inbound Pedestrian Volume crossing mi	4			0			4			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	103.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	5	4	1	1	3	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	4	4	6	0
Maximum Green [s]	30	40	0	25	40	0	25	40	30	30	30	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.2	3.1	3.1	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0
Split [s]	17	38	0	19	40	0	19	38	17	17	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.2	1.6	1.6	1.7	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	Yes		No	Yes			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	4.20	4.20	3.60	3.70	3.70	3.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	2.20	2.20	0.00	1.70	1.70	1.70
g_i, Effective Green Time [s]	13	39	39	13	38	38	31	31	49	21	21	21
g / C, Green / Cycle	0.11	0.32	0.32	0.11	0.32	0.32	0.26	0.26	0.41	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.11	0.23	0.23	0.09	0.12	0.07	0.22	0.08	0.17	0.03	0.08	0.32
s, saturation flow rate [veh/h]	1777	3552	1797	1777	5082	2807	3450	3552	2807	1777	1865	1586
c, Capacity [veh/h]	198	1141	577	188	1603	885	901	928	1145	315	331	281
d1, Uniform Delay [s]	53.30	35.71	35.74	52.72	31.88	30.39	42.24	35.66	25.49	42.01	44.14	49.35
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	33.00	3.64	7.09	10.22	0.67	0.63	2.55	0.19	0.25	0.29	0.97	379.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.70	0.71	0.85	0.37	0.24	0.86	0.31	0.43	0.19	0.45	1.81
d, Delay for Lane Group [s/veh]	86.30	39.35	42.83	62.93	32.55	31.02	44.79	35.85	25.74	42.30	45.11	428.51
Lane Group LOS	F	D	D	E	C	C	D	D	C	D	D	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	7.74	10.69	11.41	5.23	4.57	2.31	11.08	3.42	4.98	1.56	4.13	38.12
50th-Percentile Queue Length [ft/ln]	193.42	267.14	285.25	130.73	114.18	57.84	276.88	85.57	124.44	39.07	103.19	952.89
95th-Percentile Queue Length [veh/ln]	12.36	16.05	16.95	8.98	8.07	4.16	16.53	6.16	8.64	2.81	7.43	59.93
95th-Percentile Queue Length [ft/ln]	309.11	401.17	423.75	224.48	201.80	104.10	413.32	154.02	215.91	70.33	185.74	1498.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	86.30	40.36	42.83	62.93	32.55	31.02	44.79	35.85	25.74	42.30	45.11	428.51
Movement LOS	F	D	D	E	C	C	D	D	C	D	D	F
d_A, Approach Delay [s/veh]	47.04			37.23			37.12			316.45		
Approach LOS	D			D			D			F		
d_I, Intersection Delay [s/veh]	83.35											
Intersection LOS	F											
Intersection V/C	0.959											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	113.10	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.025	0.000	0.000	2.518
Crosswalk LOS	C	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	557	590	563	355
d_b, Bicycle Delay [s]	31.25	29.82	30.96	40.59
I_b,int, Bicycle LOS Score for Intersection	2.336	2.093	2.842	2.748
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Shell Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	31.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	210.00	100.00	100.00	160.00	100.00	160.00	245.00	100.00	100.00	135.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	401	280	200	51	121	63	120	720	190	60	1030	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	401	280	200	51	121	63	120	720	190	60	1030	90
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	102	71	51	13	31	16	31	184	48	15	263	23
Total Analysis Volume [veh/h]	409	286	204	52	123	64	122	735	194	61	1051	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	17			27			27			17		
v_di, Inbound Pedestrian Volume crossing m	17			27			27			17		
v_co, Outbound Pedestrian Volume crossing	29			12			28			11		
v_ci, Inbound Pedestrian Volume crossing mi	28			11			29			12		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	73.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	4	6	0
Maximum Green [s]	25	50	0	30	40	0	30	55	0	25	45	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.0	3.6	0.0	3.1	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0	0.5	1.0	0.0
Split [s]	20	42	0	14	36	0	23	50	0	14	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.1	2.6	0.0	1.6	2.6	0.0	2.0	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.10	4.60	4.60	3.60	4.60	4.60	4.00	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.10	2.60	2.60	1.60	2.60	2.60	2.00	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	16	24	24	5	12	12	10	70	70	5	65	65
g / C, Green / Cycle	0.13	0.20	0.20	0.04	0.10	0.10	0.08	0.58	0.58	0.04	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.12	0.15	0.14	0.03	0.03	0.05	0.07	0.21	0.13	0.03	0.29	0.06
s, saturation flow rate [veh/h]	3464	1873	1491	1784	3566	1319	1784	3566	1526	1784	3566	1572
c, Capacity [veh/h]	459	370	295	70	358	132	152	2073	887	81	1918	845
d1, Uniform Delay [s]	51.29	45.66	44.37	57.13	50.38	50.68	53.98	13.28	12.00	56.74	18.21	13.63
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.14	3.44	2.90	14.03	0.57	2.71	9.35	0.48	0.57	13.42	1.13	0.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.77	0.69	0.74	0.34	0.48	0.80	0.35	0.22	0.76	0.55	0.11
d, Delay for Lane Group [s/veh]	57.42	49.10	47.28	71.16	50.94	53.39	63.34	13.75	12.57	70.17	19.34	13.89
Lane Group LOS	E	D	D	E	D	D	E	B	B	E	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.43	8.42	5.83	1.84	1.76	1.91	4.02	5.25	2.58	2.13	9.61	1.28
50th-Percentile Queue Length [ft/ln]	160.84	210.46	145.69	45.93	43.94	47.76	100.41	131.31	64.52	53.28	240.37	32.04
95th-Percentile Queue Length [veh/ln]	10.59	13.18	9.79	3.31	3.16	3.44	7.23	9.01	4.65	3.84	14.70	2.31
95th-Percentile Queue Length [ft/ln]	264.84	329.41	244.67	82.67	79.10	85.97	180.73	225.27	116.14	95.90	367.51	57.67

Movement, Approach, & Intersection Results

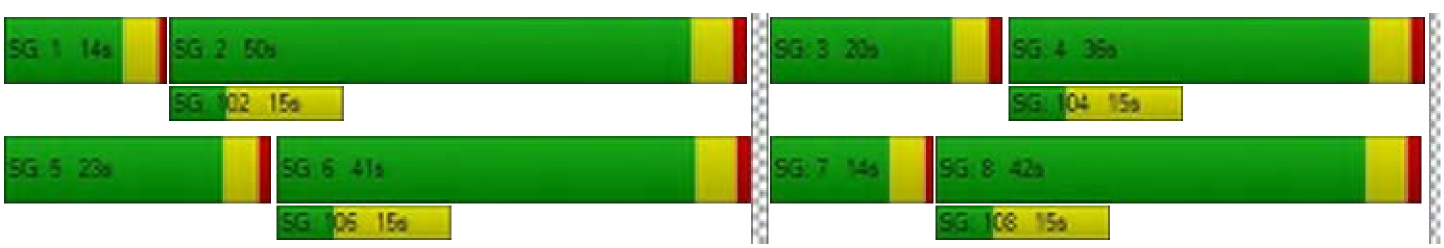
d_M, Delay for Movement [s/veh]	57.42	49.10	47.28	71.16	50.94	53.39	63.34	13.75	12.57	70.17	19.34	13.89
Movement LOS	E	D	D	E	D	D	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	52.47			56.00			19.29			21.50		
Approach LOS	D			E			B			C		
d_I, Intersection Delay [s/veh]	31.45											
Intersection LOS	C											
Intersection V/C	0.605											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	76.47	257.41	122.04	140.36
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.676	2.588	2.968	2.915
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	623	523	757	607
d_b, Bicycle Delay [s]	28.44	32.72	23.20	29.12
I_b,int, Bicycle LOS Score for Intersection	3.043	1.757	2.427	2.553
Bicycle LOS	C	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Foster City Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	44.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.812

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	0	1	0	0	1	0	1
Pocket Length [ft]	260.00	100.00	410.00	210.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	380	820	60	260	490	390	370	400	220	80	500	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	380	820	60	260	490	390	370	400	220	80	500	190
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	99	214	16	68	128	102	96	104	57	21	130	49
Total Analysis Volume [veh/h]	396	854	63	271	510	406	385	417	229	83	521	198
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			18			12			18		
v_di, Inbound Pedestrian Volume crossing m	12			18			12			18		
v_co, Outbound Pedestrian Volume crossing	8			4			4			8		
v_ci, Inbound Pedestrian Volume crossing mi	8			4			4			8		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			2			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	35	50	0	30	40	0	30	40	0	30	40	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	27	44	0	18	35	0	30	42	0	16	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	25	0	0	25	0	0	27	0	0	27	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	17	42	42	12	37	37	26	43	43	7	23	23
g / C, Green / Cycle	0.14	0.35	0.35	0.10	0.31	0.31	0.22	0.35	0.35	0.06	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.11	0.17	0.17	0.08	0.14	0.26	0.22	0.12	0.15	0.05	0.15	0.13
s, saturation flow rate [veh/h]	3475	3578	1808	3475	3578	1585	1790	3578	1544	1790	3578	1489
c, Capacity [veh/h]	489	1256	635	340	1103	489	393	1266	546	109	696	290
d1, Uniform Delay [s]	50.05	30.47	30.49	53.00	33.50	38.52	46.56	28.38	29.27	55.56	45.59	44.46
k, delay calibration	0.11	0.50	0.50	0.11	0.11	0.28	0.36	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.27	1.34	2.65	4.28	0.30	9.12	33.38	0.15	0.51	10.60	1.64	2.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.48	0.49	0.80	0.46	0.83	0.98	0.33	0.42	0.76	0.75	0.68
d, Delay for Lane Group [s/veh]	53.32	31.81	33.14	57.28	33.80	47.64	79.94	28.53	29.78	66.16	47.23	47.30
Lane Group LOS	D	C	C	E	C	D	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.88	6.94	7.28	4.17	5.98	12.10	14.88	4.37	5.00	2.78	7.40	5.59
50th-Percentile Queue Length [ft/ln]	147.05	173.61	181.98	104.16	149.52	302.54	372.05	109.35	125.05	69.39	184.92	139.86
95th-Percentile Queue Length [veh/ln]	9.86	11.27	11.70	7.50	9.99	17.81	21.21	7.80	8.67	5.00	11.86	9.47
95th-Percentile Queue Length [ft/ln]	246.49	281.65	292.59	187.49	249.79	445.17	530.22	195.09	216.75	124.91	296.43	236.83

Movement, Approach, & Intersection Results

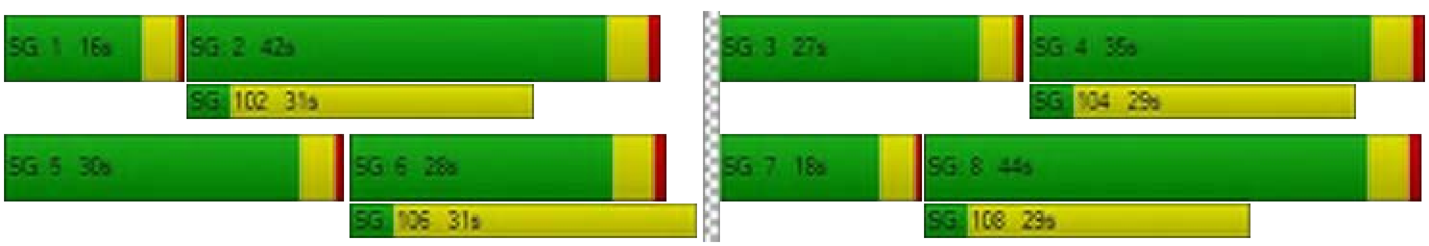
d_M, Delay for Movement [s/veh]	53.32	32.19	33.14	57.28	33.80	47.64	79.94	28.53	29.78	66.16	47.23	47.30
Movement LOS	D	C	C	E	C	D	E	C	C	E	D	D
d_A, Approach Delay [s/veh]		38.61			43.90			48.00			49.21	
Approach LOS		D			D			D			D	
d_I, Intersection Delay [s/veh]	44.25											
Intersection LOS	D											
Intersection V/C	0.812											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	150.89	122.85	161.76	347.01
d_p, Pedestrian Delay [s]	52.27	52.27	52.27	52.27
I_p,int, Pedestrian LOS Score for Intersection	3.006	3.115	2.992	2.763
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	657	507	623	390
d_b, Bicycle Delay [s]	27.07	33.45	28.46	38.90
I_b,int, Bicycle LOS Score for Intersection	2.282	2.539	2.410	2.221
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Metro Center Blvd and Vintage Park Dr

Control Type:	Signalized	Delay (sec / veh):	150.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.001

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	150.00	100.00	100.00	250.00	100.00	390.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	20	60	30	159	120	160	650	303	90	100	190	510
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	60	30	159	120	160	650	303	90	100	190	510
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	17	8	44	33	44	181	84	25	28	53	142
Total Analysis Volume [veh/h]	22	67	33	177	133	178	722	337	100	111	211	567
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	70			33			70			33		
v_di, Inbound Pedestrian Volume crossing m	70			33			70			33		
v_co, Outbound Pedestrian Volume crossing	67			57			57			68		
v_ci, Inbound Pedestrian Volume crossing mi	68			57			57			67		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	5	6	0
Maximum Green [s]	25	40	0	30	45	0	30	40	0	25	40	0
Amber [s]	3.0	3.2	0.0	3.0	3.2	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	22	0	0	22	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.2	0.0	1.5	1.7	0.0	1.5	2.5	0.0	1.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	127	127	127	127	127	127	127	127	127	127	127	127
L, Total Lost Time per Cycle [s]	3.50	4.20	4.20	3.50	3.70	3.70	3.50	4.50	4.50	3.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.20	2.20	1.50	1.70	1.70	1.50	2.50	2.50	1.50	2.50	2.50
g_i, Effective Green Time [s]	2	26	26	15	39	39	30	60	60	10	40	40
g / C, Green / Cycle	0.02	0.21	0.21	0.12	0.31	0.31	0.24	0.48	0.48	0.08	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.03	0.10	0.07	0.13	0.41	0.12	0.13	0.06	0.06	0.36
s, saturation flow rate [veh/h]	1769	1858	1418	1769	1858	1405	1769	1858	1573	1769	3538	1579
c, Capacity [veh/h]	32	383	292	207	575	435	419	882	746	138	1117	499
d1, Uniform Delay [s]	61.86	41.02	41.34	54.85	32.52	34.03	48.33	19.92	20.18	57.42	31.53	43.33
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	24.21	0.15	0.27	9.58	0.20	0.62	335.14	0.15	0.20	10.24	0.08	83.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.13	0.17	0.85	0.23	0.41	1.72	0.26	0.28	0.80	0.19	1.14
d, Delay for Lane Group [s/veh]	86.08	41.17	41.61	64.42	32.72	34.65	383.47	20.08	20.39	67.66	31.61	126.99
Lane Group LOS	F	D	D	E	C	C	F	C	C	E	C	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.92	1.32	1.30	6.09	3.10	4.37	52.04	4.00	3.76	3.86	2.36	26.85
50th-Percentile Queue Length [ft/ln]	22.93	33.01	32.51	152.27	77.44	109.17	1300.98	100.07	93.96	96.62	59.03	671.22
95th-Percentile Queue Length [veh/ln]	1.65	2.38	2.34	10.14	5.58	7.79	80.58	7.20	6.77	6.96	4.25	38.32
95th-Percentile Queue Length [ft/ln]	41.28	59.42	58.53	253.45	139.38	194.85	2014.55	180.12	169.13	173.91	106.25	957.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	86.08	41.28	41.61	64.42	32.72	34.65	383.47	20.18	20.39	67.66	31.61	126.99
Movement LOS	F	D	D	E	C	C	F	C	C	E	C	F
d_A, Approach Delay [s/veh]	49.45			44.92			246.51			96.94		
Approach LOS	D			D			F			F		
d_I, Intersection Delay [s/veh]	150.43											
Intersection LOS	F											
Intersection V/C	1.001											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	48.57	0.00	54.79	67.46
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.246	2.661	2.659	2.727
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	1000	889	889
d_b, Bicycle Delay [s]	13.89	11.25	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	1.660	2.365	2.516	2.293
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 10: Edgewater Blvd and Mariners Island Blvd

Control Type:	Signalized	Delay (sec / veh):	36.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.678

Intersection Setup

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	2	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	40.00	400.00	100.00	400.00	190.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	10	10	10	931	10	500	100	386	10	10	814	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	10	10	931	10	500	100	386	10	10	814	100
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	3	242	3	130	26	101	3	3	212	26
Total Analysis Volume [veh/h]	10	10	10	970	10	521	104	402	10	10	848	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			1		
v_di, Inbound Pedestrian Volume crossing m	1			0			0			0		
v_co, Outbound Pedestrian Volume crossing	3			3			2			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			2			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	84.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups							4,5					
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	6	0	4	6	0	4	6	0
Maximum Green [s]	0	40	0	0	60	0	30	65	0	20	50	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	0.0	3.1	4.0	0.0	3.1	4.0	0.0
All red [s]	0.0	0.5	0.0	0.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	38	0	0	30	0	17	47	0	15	45	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	18	0	0	25	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	3.0	0.0	1.6	3.0	0.0	1.6	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			Yes		No	No		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.70	3.70	5.00	5.00	5.00	4.30	5.00	5.00	3.60	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	3.00	3.00	3.00	0.00	3.00	3.00	1.60	3.00	3.00
g_i, Effective Green Time [s]	3	3	52	52	52	65	56	56	1	50	50
g / C, Green / Cycle	0.03	0.03	0.40	0.40	0.40	0.50	0.43	0.43	0.01	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.01	0.01	0.33	0.36	0.18	0.07	0.11	0.11	0.01	0.24	0.07
s, saturation flow rate [veh/h]	1830	1576	1422	1443	2822	1447	1876	1857	1787	3572	1584
c, Capacity [veh/h]	48	41	597	628	1121	264	814	806	18	1371	608
d1, Uniform Delay [s]	62.48	62.19	35.16	36.61	29.02	17.96	23.46	23.47	64.21	32.42	26.45
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.79	3.03	9.52	11.67	1.39	4.38	0.16	0.16	24.72	2.10	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.42	0.24	0.78	0.82	0.46	0.39	0.25	0.25	0.56	0.62	0.17
d, Delay for Lane Group [s/veh]	68.27	65.22	44.68	48.28	30.40	22.34	23.62	23.63	88.92	34.52	27.06
Lane Group LOS	E	E	D	D	C	C	C	C	F	C	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.73	0.36	14.54	17.23	6.25	1.99	4.07	4.04	0.45	11.05	2.23
50th-Percentile Queue Length [ft/ln]	18.27	9.00	363.49	430.72	156.15	49.75	101.69	101.06	11.28	276.16	55.83
95th-Percentile Queue Length [veh/ln]	1.32	0.65	20.79	24.04	10.34	3.58	7.32	7.28	0.81	16.50	4.02
95th-Percentile Queue Length [ft/ln]	32.88	16.20	519.82	600.90	258.62	89.54	183.04	181.92	20.31	412.43	100.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.27	68.27	65.22	46.56	48.28	30.40	22.34	23.63	23.63	88.92	34.52	27.06
Movement LOS	E	E	E	D	D	C	C	C	C	F	C	C
d_A, Approach Delay [s/veh]	67.25			40.97			23.37			34.28		
Approach LOS	E			D			C			C		
d_I, Intersection Delay [s/veh]	36.07											
Intersection LOS	D											
Intersection V/C	0.678											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	930.69	0.00	0.00
d_p, Pedestrian Delay [s]	54.47	54.47	0.00	54.47
I_p,int, Pedestrian LOS Score for Intersection	1.977	2.778	0.000	4.334
Crosswalk LOS	A	C	F	E
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	528	385	646	615
d_b, Bicycle Delay [s]	35.22	42.40	29.83	31.15
I_b,int, Bicycle LOS Score for Intersection	1.609	4.036	1.985	2.353
Bicycle LOS	A	D	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report

Intersection 11: Metro Center Blvd and Edgewater Blvd

Control Type:	Signalized	Delay (sec / veh):	73.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.727

Intersection Setup

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	2	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	50.00	270.00	100.00	100.00	370.00	100.00	100.00	180.00	100.00	50.00
Speed [mph]	25.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	30	50	160	410	30	90	587	430	10	70	764	406
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	50	160	410	30	90	587	430	10	70	764	406
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	13	42	108	8	24	154	113	3	18	201	107
Total Analysis Volume [veh/h]	32	53	168	432	32	95	618	453	11	74	804	427
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			4			2			3		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			4		
v_co, Outbound Pedestrian Volume crossing	5			3			3			6		
v_ci, Inbound Pedestrian Volume crossing mi	6			3			3			5		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	102.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	8	0	4	8	0
Maximum Green [s]	0	40	0	0	35	0	40	60	0	20	45	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.1	3.9	0.0	3.1	3.9	0.0
All red [s]	0.0	0.5	0.0	0.0	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	27	0	0	37	0	26	52	0	14	40	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	22	0	0	28	0	0	14	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	1.7	0.0	1.6	2.9	0.0	1.6	2.9	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		Yes	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	225	225	225	225	225	225	225	225	225	225	225
L, Total Lost Time per Cycle [s]	3.70	3.70	3.70	3.70	3.70	3.60	4.90	4.90	3.60	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	1.70	1.70	1.70	1.60	2.90	2.90	1.60	2.90	2.90
g_i, Effective Green Time [s]	26	26	32	32	32	76	140	140	11	75	75
g / C, Green / Cycle	0.12	0.12	0.14	0.14	0.14	0.34	0.62	0.62	0.05	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.13	0.13	0.06	0.18	0.12	0.12	0.04	0.16	0.27
s, saturation flow rate [veh/h]	1840	1548	1785	1797	1552	3467	1874	1856	1785	5106	1573
c, Capacity [veh/h]	216	181	252	254	219	1173	1165	1153	89	1698	523
d1, Uniform Delay [s]	91.74	97.81	95.14	95.14	88.07	59.81	18.38	18.39	105.78	59.35	68.31
k, delay calibration	0.11	0.17	0.34	0.34	0.11	0.50	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.17	24.80	29.84	29.68	1.35	1.70	0.39	0.39	17.94	0.95	13.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.93	0.92	0.92	0.43	0.53	0.20	0.20	0.84	0.47	0.82
d, Delay for Lane Group [s/veh]	92.91	122.61	124.97	124.81	89.42	61.51	18.77	18.78	123.72	60.30	81.48
Lane Group LOS	F	F	F	F	F	E	B	B	F	E	F
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.75	11.10	15.51	15.60	5.19	14.65	5.59	5.55	4.78	12.42	24.42
50th-Percentile Queue Length [ft/ln]	118.65	277.57	387.70	389.92	129.64	366.19	139.86	138.77	119.57	310.51	610.45
95th-Percentile Queue Length [veh/ln]	8.32	16.57	21.97	22.07	8.92	20.92	9.47	9.41	8.37	18.20	32.52
95th-Percentile Queue Length [ft/ln]	207.96	414.19	549.16	551.84	223.00	523.10	236.84	235.37	209.23	455.00	813.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	92.91	92.91	122.61	124.90	124.81	89.42	61.51	18.77	18.78	123.72	60.30	81.48
Movement LOS	F	F	F	F	F	F	E	B	B	F	E	F
d_A, Approach Delay [s/veh]	112.63			118.86			43.18			70.83		
Approach LOS	F			F			D			E		
d_I, Intersection Delay [s/veh]	73.18											
Intersection LOS	E											
Intersection V/C	0.727											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
I_p,int, Pedestrian LOS Score for Intersection	2.059	2.696	2.940	3.080
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	358	512	725	540
d_b, Bicycle Delay [s]	43.79	35.98	26.47	34.66
I_b,int, Bicycle LOS Score for Intersection	1.977	2.482	2.452	2.277
Bicycle LOS	A	B	B	B

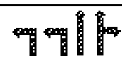
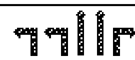
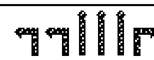
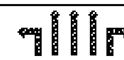
Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 12: Edgewater Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	36.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.730

Intersection Setup

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	2	0	1	1	0	1
Pocket Length [ft]	190.00	100.00	190.00	310.00	100.00	110.00	406.00	100.00	75.00	310.00	100.00	230.00
Speed [mph]	40.00			35.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	490	621	130	150	270	230	525	770	150	121	958	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	490	621	130	150	270	230	525	770	150	121	958	165
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	160	34	39	70	59	135	198	39	31	247	43
Total Analysis Volume [veh/h]	505	640	134	155	278	237	541	794	155	125	988	170
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			3			3			11		
v_di, Inbound Pedestrian Volume crossing m	11			3			3			10		
v_co, Outbound Pedestrian Volume crossing	6			10			6			10		
v_ci, Inbound Pedestrian Volume crossing mi	6			10			6			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	4	6	0	4	6	0
Maximum Green [s]	30	60	0	20	50	0	30	45	0	30	50	0
Amber [s]	3.5	4.0	0.0	3.5	3.9	0.0	3.0	4.0	0.0	3.5	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	30	0	0	34	0	0	31	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	2.0	2.9	0.0	2.0	3.0	0.0	2.0	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	107	107	107	107	107	107	107	107	107	107	107	107
L, Total Lost Time per Cycle [s]	4.50	5.00	5.00	4.00	4.90	4.90	4.00	5.00	5.00	4.00	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	3.00	3.00	2.00	2.90	2.90	2.00	3.00	3.00	2.00	2.60	2.60
g_i, Effective Green Time [s]	19	33	33	7	21	21	20	39	39	9	30	30
g / C, Green / Cycle	0.18	0.31	0.31	0.07	0.19	0.19	0.18	0.37	0.37	0.09	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.15	0.21	0.22	0.04	0.08	0.15	0.16	0.16	0.10	0.07	0.19	0.11
s, saturation flow rate [veh/h]	3467	1874	1739	3467	3569	1553	3467	5106	1556	1785	5106	1538
c, Capacity [veh/h]	613	578	537	229	694	302	635	1878	572	159	1416	426
d1, Uniform Delay [s]	42.38	32.41	32.59	48.77	37.61	40.74	42.23	25.28	23.65	47.68	34.59	31.23
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.88	1.46	1.68	3.45	0.37	4.51	3.35	0.15	0.25	8.34	0.63	0.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.69	0.70	0.68	0.40	0.79	0.85	0.42	0.27	0.79	0.70	0.40
d, Delay for Lane Group [s/veh]	45.26	33.88	34.27	52.22	37.98	45.25	45.58	25.43	23.90	56.02	35.23	31.84
Lane Group LOS	D	C	C	D	D	D	D	C	C	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.47	8.89	8.48	2.10	3.16	6.16	6.98	4.85	2.68	3.58	7.55	3.55
50th-Percentile Queue Length [ft/ln]	161.65	222.22	212.11	52.54	79.12	153.91	174.52	121.21	67.05	89.43	188.82	88.82
95th-Percentile Queue Length [veh/ln]	10.64	13.78	13.26	3.78	5.70	10.23	11.31	8.46	4.83	6.44	12.06	6.39
95th-Percentile Queue Length [ft/ln]	265.91	344.46	331.54	94.57	142.41	255.64	282.85	211.49	120.69	160.97	301.49	159.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.26	34.03	34.27	52.22	37.98	45.25	45.58	25.43	23.90	56.02	35.23	31.84
Movement LOS	D	C	C	D	D	D	D	C	C	E	D	C
d_A, Approach Delay [s/veh]	38.49			43.84			32.59			36.80		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	36.93											
Intersection LOS	D											
Intersection V/C	0.730											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	528.64	350.97	1106.61	354.34
d_p, Pedestrian Delay [s]	37.36	37.36	37.36	37.36
I_p,int, Pedestrian LOS Score for Intersection	2.853	3.015	3.317	3.064
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	1111	1000	1111
d_b, Bicycle Delay [s]	5.01	8.91	11.27	8.90
I_b,int, Bicycle LOS Score for Intersection	2.615	2.112	2.379	2.265
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 13: Center Park Ln and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.482

Intersection Setup

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	390.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Base Volume Input [veh/h]	70	30	180	890	1383	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.80	1.80	1.80	1.80	1.80	1.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	30	180	890	1383	60
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	8	47	232	360	16
Total Analysis Volume [veh/h]	73	31	188	927	1441	63
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		15	
v_di, Inbound Pedestrian Volume crossing m	0		0		14	
v_co, Outbound Pedestrian Volume crossing	5		14		5	
v_ci, Inbound Pedestrian Volume crossing mi	5		15		5	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	19.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	4	0	6	5	5	0
Maximum Green [s]	35	0	30	40	40	0
Amber [s]	3.5	0.0	3.1	3.5	3.5	0.0
All red [s]	0.5	0.0	0.5	1.0	1.0	0.0
Split [s]	31	0	36	89	53	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0
Pedestrian Clearance [s]	20	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	1.6	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	0.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	8	8	15	104	85	85
g / C, Green / Cycle	0.06	0.06	0.12	0.87	0.71	0.71
(v / s)_i Volume / Saturation Flow Rate	0.05	0.02	0.11	0.18	0.28	0.27
s, saturation flow rate [veh/h]	1540	1592	1784	5102	3566	1825
c, Capacity [veh/h]	98	101	221	4415	2538	1299
d1, Uniform Delay [s]	55.15	53.58	51.45	1.33	6.93	6.87
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.54	1.68	8.98	0.11	0.46	0.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.31	0.85	0.21	0.40	0.39
d, Delay for Lane Group [s/veh]	65.69	55.26	60.43	1.44	7.39	7.74
Lane Group LOS	E	E	E	A	A	A
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.47	0.95	6.03	0.56	4.69	4.80
50th-Percentile Queue Length [ft/ln]	61.85	23.74	150.77	14.05	117.30	120.06
95th-Percentile Queue Length [veh/ln]	4.45	1.71	10.06	1.01	8.24	8.40
95th-Percentile Queue Length [ft/ln]	111.33	42.72	251.46	25.29	206.11	209.90

Movement, Approach, & Intersection Results

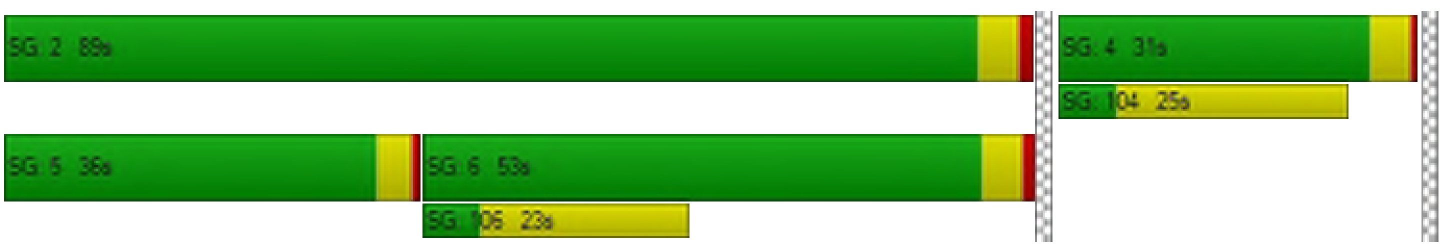
d_M, Delay for Movement [s/veh]	65.69	55.26	60.43	1.44	7.50	7.74
Movement LOS	E	E	E	A	A	A
d_A, Approach Delay [s/veh]	62.58		11.38		7.51	
Approach LOS	E		B		A	
d_I, Intersection Delay [s/veh]	11.20					
Intersection LOS	B					
Intersection V/C	0.482					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	470.53	0.00	251.53
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.052	0.000	2.943
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.746	4.960
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foster City Metro Center Hotel EIR

Vistro File: \...\FC Metro Center Hotel 9.26.19.vistro | Scenario 7 CPP AM

Report File: \...\CPP AM Report.pdf | 12/10/2019

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Vintage Park Dr and Chess Dr	150	900	160	30	131	60	80	170	135	194	363	250	2623

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Chess Dr and Route 92 West Ramp	614	40	1060	10	20	10	10	220	140	755	223	20	3122

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Foster City Blvd and Chess Dr	858	1157	400	60	320	80	500	200	590	60	60	10	4295

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Metro Center Blvd and Shell Blvd	300	30	100	10	10	10	10	198	90	241	520	50	1569

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Metro Center Blvd and Route 92 East Ramp	10	10	30	1290	50	460	103	235	10	40	281	240	2759

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foster City Blvd and Metro Center Blvd	201	1130	80	160	600	210	775	290	490	60	150	510	4656

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Shell Blvd and E Hillsdale Blvd	401	280	200	51	121	63	120	720	190	60	1030	90	3326

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	Foster City Blvd and E Hillsdale Blvd	380	820	60	260	490	390	370	400	220	80	500	190	4160

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	Metro Center Blvd and Vintage Park Dr	20	60	30	159	120	160	650	303	90	100	190	510	2392

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	Edgewater Blvd and Mariners Island Blvd	10	10	10	931	10	500	100	386	10	10	814	100	2891

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11	Metro Center Blvd and Edgewater Blvd	30	50	160	410	30	90	587	430	10	70	764	406	3037

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12	Edgewater Blvd and E Hillsdale Blvd	490	621	130	150	270	230	525	770	150	121	958	165	4580

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
13	Center Park Ln and E Hillsdale Blvd	70	30	180	890	1383	60	2613

Study Intersections

Foster City Metro Center Hotel EIR

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Report File: \...\CPP PM Report.pdf — 12/10/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Vintage Park Dr and Chess Dr	Signalized	HCM 6th Edition	EB Left	0.823	40.7	D
2	Chess Dr and Route 92 West Ramp	Signalized	HCM 6th Edition	SB Thru	0.832	41.5	D
3	Foster City Blvd and Chess Dr	Signalized	HCM 6th Edition	EB Right	1.169	147.3	F
4	Metro Center Blvd and Shell Blvd	Signalized	HCM 6th Edition	EB Left	0.606	34.3	C
5	Metro Center Blvd and Route 92 East Ramp	Signalized	HCM 6th Edition	WB Right	0.744	93.0	F
6	Foster City Blvd and Metro Center Blvd	Signalized	HCM 6th Edition	WB Right	0.852	46.8	D
7	Shell Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	SB Left	0.725	33.6	C
8	Foster City Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Left	0.642	52.0	D
9	Metro Center Blvd and Vintage Park Dr	Signalized	HCM 6th Edition	EB Left	0.998	79.0	E
10	Edgewater Blvd and Mariners Island Blvd	Signalized	HCM 6th Edition	WB Left	0.539	33.0	C
11	Metro Center Blvd and Edgewater Blvd	Signalized	HCM 6th Edition	WB Left	0.593	53.2	D
12	Edgewater Blvd and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Right	0.904	51.5	D
13	Center Park Ln and E Hillsdale Blvd	Signalized	HCM 6th Edition	EB Left	0.618	22.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: Vintage Park Dr and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	40.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.823

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	280.00	100.00	100.00	265.00	100.00	100.00	140.00	100.00	100.00	215.00	100.00	100.00
Speed [mph]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	200	130	500	380	740	310	30	290	304	114	245	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	130	500	380	740	310	30	290	304	114	245	30
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	35	134	102	199	83	8	78	82	31	66	8
Total Analysis Volume [veh/h]	215	140	538	409	796	333	32	312	327	123	263	32
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	11			4			10			3		
v_di, Inbound Pedestrian Volume crossing m	10			3			11			4		
v_co, Outbound Pedestrian Volume crossing	3			9			10			3		
v_ci, Inbound Pedestrian Volume crossing mi	3			10			9			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	4	0	4	4	0	4	4	0	4	4	0
Maximum Green [s]	40	50	0	30	40	0	20	40	0	20	40	0
Amber [s]	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0	3.1	3.2	0.0
All red [s]	0.5	0.5	0.0	1.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	23	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	1.7	0.0	2.1	2.2	0.0	1.6	2.2	0.0	1.6	2.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	101	101	101	101	101	101	101	101	101	101	101	101	101
L, Total Lost Time per Cycle [s]	3.60	3.70	3.70	3.70	4.10	4.20	4.20	3.60	4.20	4.20	3.60	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.70	1.70	1.70	2.10	2.20	2.20	1.60	2.20	2.20	1.60	2.20	2.20
g_i, Effective Green Time [s]	15	26	26	26	25	36	36	2	26	26	9	32	32
g / C, Green / Cycle	0.14	0.25	0.25	0.25	0.25	0.36	0.36	0.02	0.25	0.25	0.09	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.12	0.07	0.17	0.17	0.23	0.31	0.33	0.02	0.17	0.21	0.07	0.08	0.08
s, saturation flow rate [veh/h]	1792	1882	1588	1588	1792	1882	1667	1792	1882	1560	1792	1882	1809
c, Capacity [veh/h]	259	478	403	403	450	678	601	42	477	395	157	597	573
d1, Uniform Delay [s]	42.00	30.36	33.83	33.78	36.71	29.95	30.69	49.02	33.75	35.63	45.16	25.59	25.62
k, delay calibration	0.11	0.11	0.11	0.11	0.28	0.30	0.33	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.75	0.34	1.90	1.90	16.08	8.61	14.35	23.51	1.53	4.52	8.38	0.22	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.29	0.67	0.67	0.91	0.86	0.91	0.76	0.65	0.83	0.79	0.25	0.25
d, Delay for Lane Group [s/veh]	48.75	30.70	35.73	35.68	52.79	38.55	45.04	72.53	35.28	40.15	53.55	25.80	25.85
Lane Group LOS	D	C	D	D	D	D	D	E	D	D	D	C	C
Critical Lane Group	Yes	No	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.63	2.77	6.04	6.03	11.59	14.34	14.56	1.08	7.03	8.04	3.36	2.67	2.61
50th-Percentile Queue Length [ft/ln]	140.8	69.17	151.0	150.8	289.84	358.44	363.93	27.00	175.65	201.11	83.94	66.78	65.19
95th-Percentile Queue Length [veh/ln]	9.52	4.98	10.07	10.06	17.18	20.55	20.81	1.94	11.37	12.70	6.04	4.81	4.69
95th-Percentile Queue Length [ft/ln]	238.1	124.5	251.8	251.5	429.44	513.69	520.36	48.61	284.33	317.40	151.10	120.20	117.35

Movement, Approach, & Intersection Results

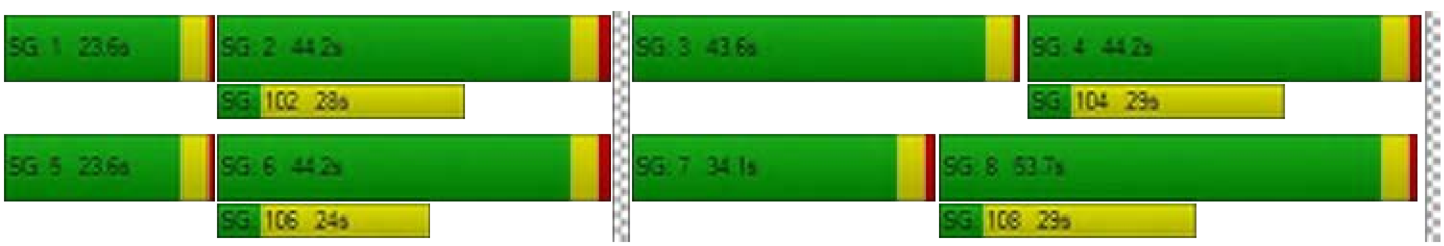
d_M, Delay for Movement [s/veh]	48.75	30.70	35.71	52.79	40.28	45.04	72.53	35.28	40.15	53.55	25.82	25.85
Movement LOS	D	C	D	D	D	D	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	38.06			44.64			39.43			33.98		
Approach LOS	D			D			D			C		
d_I, Intersection Delay [s/veh]	40.71											
Intersection LOS	D											
Intersection V/C	0.823											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	230.03	1274.46	190.95	276.49
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.802	2.641	2.542	2.727
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1111	889	889	889
d_b, Bicycle Delay [s]	8.89	13.90	13.89	13.89
I_b,int, Bicycle LOS Score for Intersection	2.296	2.828	2.113	1.904
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Chess Dr and Route 92 West Ramp

Control Type:	Signalized	Delay (sec / veh):	41.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.832

Intersection Setup

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	480.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Route 92 West Ramp			office driveway			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	104	10	250	20	30	10	10	310	880	1177	235	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	104	10	250	20	30	10	10	310	880	1177	235	10
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	3	67	5	8	3	3	83	237	316	63	3
Total Analysis Volume [veh/h]	112	11	269	22	32	11	11	333	946	1266	253	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	4	0	0	1	6	1	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	4	0	0	6	5	6	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	30	55	0
Amber [s]	0.0	3.5	0.0	0.0	3.2	0.0	0.0	3.2	3.1	3.2	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	0.5	0.0	0.0	1.0	1.0	1.0	2.0	0.0
Split [s]	0	27	0	0	20	0	0	20	47	20	43	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	17	0	0	0	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.5	0.0	0.0	1.7	0.0	0.0	2.2	2.1	2.2	3.5	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		Yes	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	3.70	4.20	4.10	5.50	5.50	5.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.50	2.50	1.70	2.20	2.10	3.50	3.50	3.50
g_i, Effective Green Time [s]	21	21	21	5	22	48	43	43	43
g / C, Green / Cycle	0.19	0.19	0.19	0.05	0.20	0.44	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.03	0.03	0.17	0.04	0.18	0.33	0.35	0.35	0.16
s, saturation flow rate [veh/h]	1791	1806	1598	1796	1877	2829	1791	1791	1699
c, Capacity [veh/h]	345	348	308	85	384	1242	703	703	667
d1, Uniform Delay [s]	37.16	37.16	43.15	51.82	42.63	26.02	31.42	31.42	24.05
k, delay calibration	0.11	0.11	0.16	0.11	0.21	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.24	11.04	12.94	12.98	0.99	16.83	16.83	1.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.18	0.87	0.76	0.90	0.76	0.90	0.90	0.40
d, Delay for Lane Group [s/veh]	37.40	37.40	54.19	64.75	55.61	27.01	48.25	48.25	25.81
Lane Group LOS	D	D	D	E	E	C	D	D	C
Critical Lane Group	No	No	Yes	Yes	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.41	1.42	8.00	2.08	10.41	10.32	18.62	18.62	5.22
50th-Percentile Queue Length [ft/ln]	35.15	35.44	199.92	51.92	260.36	257.95	465.48	465.48	130.52
95th-Percentile Queue Length [veh/ln]	2.53	2.55	12.63	3.74	15.71	15.59	25.70	25.70	8.97
95th-Percentile Queue Length [ft/ln]	63.28	63.79	315.87	93.45	392.68	389.65	642.40	642.40	224.21

Movement, Approach, & Intersection Results

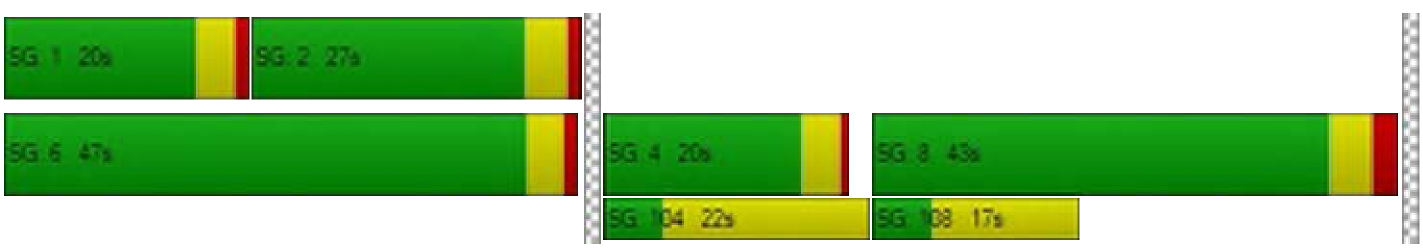
d_M, Delay for Movement [s/veh]	37.40	37.40	54.19	64.75	64.75	64.75	55.61	55.61	27.01	48.25	25.81	25.81
Movement LOS	D	D	D	E	E	E	E	E	C	D	C	C
d_A, Approach Delay [s/veh]	48.92			64.75			34.64			44.37		
Approach LOS	D			E			C			D		
d_I, Intersection Delay [s/veh]	41.49											
Intersection LOS	D											
Intersection V/C	0.832											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	1.774	2.636	0.000
Crosswalk LOS	F	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	409	296	287	682
d_b, Bicycle Delay [s]	34.80	39.93	40.33	23.89
I_b,int, Bicycle LOS Score for Intersection	2.206	1.667	3.688	2.822
Bicycle LOS	B	A	D	C

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Foster City Blvd and Chess Dr

Control Type:	Signalized	Delay (sec / veh):	147.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.169

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	850.00	100.00	150.00	80.00	100.00	180.00	100.00	100.00	100.00	250.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Chess Dr			Chess Dr		
Base Volume Input [veh/h]	771	270	90	10	1180	290	50	40	490	250	360	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	771	270	90	10	1180	290	50	40	490	250	360	50
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	197	69	23	3	301	74	13	10	125	64	92	13
Total Analysis Volume [veh/h]	787	276	92	10	1204	296	51	41	500	255	367	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	3	3	3	0	1	4	0
Auxiliary Signal Groups						2,3						
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	4	4	4	0	4	4	0
Maximum Green [s]	55	65	0	20	35	30	30	30	0	55	35	0
Amber [s]	3.5	3.6	0.0	3.1	3.9	3.2	3.2	3.2	0.0	3.5	3.1	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0	1.0	0.5	0.0
Split [s]	27	55	0	14	42	20	20	20	0	27	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	0	4	0
Pedestrian Clearance [s]	0	23	0	0	0	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	2.6	0.0	1.6	2.9	1.7	1.7	1.7	0.0	2.5	1.6	0.0
Minimum Recall	No	No		No	No	No		No			No	
Maximum Recall	Yes	Yes		No	No	No		No			No	
Pedestrian Recall	No	No		No	No	No		No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.50	4.60	4.60	3.60	4.90	3.70	3.70	3.70	3.70	3.60	3.60	3.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	2.60	2.60	1.60	2.90	0.00	1.70	1.70	1.70	1.60	1.60	1.60
g_i, Effective Green Time [s]	30	67	67	1	37	58	16	16	16	20	20	20
g / C, Green / Cycle	0.25	0.56	0.56	0.01	0.31	0.49	0.14	0.14	0.14	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.23	0.08	0.06	0.01	0.34	0.19	0.03	0.02	0.34	0.14	0.11	0.11
s, saturation flow rate [veh/h]	3467	3569	1593	1785	3569	1593	1785	1874	1450	1785	1874	1796
c, Capacity [veh/h]	864	1991	889	18	1101	774	244	256	198	297	312	299
d1, Uniform Delay [s]	43.81	12.74	12.47	59.22	41.56	19.51	46.12	45.81	51.89	48.70	47.10	47.13
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.15	0.11	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.33	0.15	0.23	23.73	45.93	0.44	0.42	0.29	700.81	7.09	2.63	2.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.14	0.10	0.55	1.09	0.38	0.21	0.16	2.52	0.86	0.68	0.69
d, Delay for Lane Group [s/veh]	59.14	12.88	12.71	82.95	87.48	19.95	46.54	46.09	752.70	55.80	49.73	49.90
Lane Group LOS	E	B	B	F	F	B	D	D	F	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	13.12	1.81	1.21	0.42	22.91	5.20	1.39	1.11	44.50	8.07	6.28	6.05
50th-Percentile Queue Length [ft/ln]	327.91	45.27	30.34	10.51	572.76	129.97	34.75	27.69	1112.56	201.75	156.90	151.26
95th-Percentile Queue Length [veh/ln]	19.06	3.26	2.18	0.76	32.55	8.94	2.50	1.99	70.28	12.73	10.38	10.08
95th-Percentile Queue Length [ft/ln]	476.40	81.49	54.61	18.91	813.68	223.46	62.55	49.84	1757.00	318.23	259.61	252.11

Movement, Approach, & Intersection Results

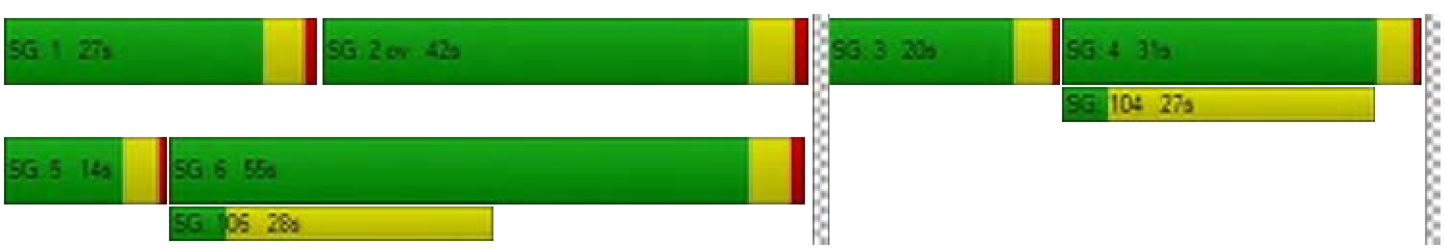
d_M, Delay for Movement [s/veh]	59.14	12.88	12.71	82.95	87.48	19.95	46.54	46.09	752.70	55.80	49.80	49.90
Movement LOS	E	B	B	F	F	B	D	D	F	E	D	D
d_A, Approach Delay [s/veh]	44.39			74.21			642.93			52.08		
Approach LOS	D			E			F			D		
d_I, Intersection Delay [s/veh]	147.33											
Intersection LOS	F											
Intersection V/C	1.169											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	52.27	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.827	0.000	2.448
Crosswalk LOS	F	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	840	618	272	457
d_b, Bicycle Delay [s]	20.18	28.64	44.81	35.73
I_b,int, Bicycle LOS Score for Intersection	2.512	2.805	2.048	2.115
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Metro Center Blvd and Shell Blvd

Control Type:	Signalized	Delay (sec / veh):	34.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	2	0	1
Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	85.00	100.00	100.00	210.00	100.00	200.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			shopping center driveway			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	240	70	250	70	50	90	20	805	270	51	160	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	240	70	250	70	50	90	20	805	270	51	160	70
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	18	64	18	13	23	5	205	69	13	41	18
Total Analysis Volume [veh/h]	245	71	255	71	51	92	20	821	276	52	163	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	16			7			16			6		
v_di, Inbound Pedestrian Volume crossing m	16			6			16			7		
v_co, Outbound Pedestrian Volume crossing	16			4			4			16		
v_ci, Inbound Pedestrian Volume crossing mi	16			4			4			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	65.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	6	6	0
Maximum Green [s]	20	60	0	20	35	0	20	40	0	20	40	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	1.0	1.0	0.0
Split [s]	36	53	0	16	33	0	14	35	0	16	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	28	0	0	20	0	0	21	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.5	0.0	1.5	2.5	0.0	1.5	2.5	0.0	2.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.50	4.50	4.50	3.50	4.50	3.50	4.50	4.50	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.50	2.50	1.50	2.50	1.50	2.50	2.50	2.50	2.50	2.50
g_i, Effective Green Time [s]	18	27	27	6	14	2	65	65	5	69	69
g / C, Green / Cycle	0.15	0.22	0.22	0.05	0.12	0.02	0.54	0.54	0.04	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.14	0.04	0.17	0.04	0.09	0.01	0.30	0.31	0.01	0.05	0.04
s, saturation flow rate [veh/h]	1791	1880	1529	1791	1666	1791	1880	1703	3478	3580	1580
c, Capacity [veh/h]	274	417	340	93	201	30	1021	925	145	2063	911
d1, Uniform Delay [s]	49.94	37.79	43.26	56.24	50.79	58.72	18.03	18.13	56.00	11.30	11.29
k, delay calibration	0.32	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.55	0.19	3.36	12.31	4.58	21.98	2.22	2.52	1.49	0.07	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.17	0.75	0.77	0.71	0.66	0.56	0.57	0.36	0.08	0.08
d, Delay for Lane Group [s/veh]	73.49	37.98	46.62	68.56	55.36	80.69	20.25	20.65	57.49	11.38	11.46
Lane Group LOS	E	D	D	E	E	F	C	C	E	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.93	1.71	7.25	2.43	4.36	0.79	10.58	9.82	0.79	0.96	0.86
50th-Percentile Queue Length [ft/ln]	223.25	42.71	181.27	60.65	108.97	19.63	264.57	245.49	19.79	23.99	21.47
95th-Percentile Queue Length [veh/ln]	13.83	3.08	11.67	4.37	7.78	1.41	15.92	14.96	1.43	1.73	1.55
95th-Percentile Queue Length [ft/ln]	345.77	76.88	291.67	109.17	194.57	35.33	397.95	373.96	35.63	43.19	38.64

Movement, Approach, & Intersection Results

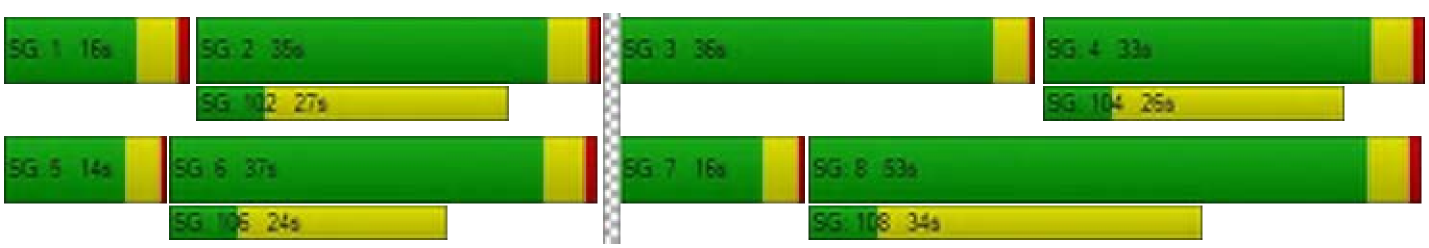
d_M, Delay for Movement [s/veh]	73.49	37.98	46.62	68.56	55.36	55.36	80.69	20.37	20.65	57.49	11.38	11.46
Movement LOS	E	D	D	E	E	E	F	C	C	E	B	B
d_A, Approach Delay [s/veh]	57.07			59.74			21.52			19.78		
Approach LOS	E			E			C			B		
d_I, Intersection Delay [s/veh]	34.31											
Intersection LOS	C											
Intersection V/C	0.606											

Other Modes

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	94.92	399.75	785.39	154.12
d_p, Pedestrian Delay [s]	50.42	50.42	50.42	50.42
I_p,int, Pedestrian LOS Score for Intersection	2.530	2.097	2.682	2.841
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	808	475	508	542
d_b, Bicycle Delay [s]	21.30	34.88	33.38	31.90
I_b,int, Bicycle LOS Score for Intersection	2.502	1.913	2.481	1.796
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Metro Center Blvd and Route 92 East Ramp

Control Type:	Signalized	Delay (sec / veh):	93.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.744

Intersection Setup

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	2	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	600.00	100.00	640.00	290.00	100.00	100.00	90.00	100.00	100.00
Speed [mph]	15.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			No		

Volumes

Name	shopping center driveway			Route 92 East Ramp			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	10	50	30	280	10	70	614	431	10	10	231	1140
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	50	30	280	10	70	614	431	10	10	231	1140
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	13	8	72	3	18	158	111	3	3	60	294
Total Analysis Volume [veh/h]	10	52	31	289	10	72	633	444	10	10	238	1175
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	30.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	10	4	4	4	0	4	4	0
Maximum Green [s]	0	40	0	0	60	30	30	40	0	25	35	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	3.1	3.1	3.5	0.0	3.1	3.5	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.5	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	18	0	0	36	36	36	48	0	18	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	6	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	17	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	3.0	1.6	1.6	2.5	0.0	1.6	2.5	0.0
Minimum Recall		No			No	No	No	No		No	No	
Maximum Recall		No			Yes	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	40.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.20	4.20	5.00	5.00	3.60	3.60	4.50	4.50	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	3.00	3.00	0.00	1.60	2.50	2.50	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	6	6	37	37	67	25	59	59	1	35	35	35
g / C, Green / Cycle	0.05	0.05	0.31	0.31	0.56	0.21	0.49	0.49	0.01	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.08	0.08	0.03	0.18	0.12	0.12	0.01	0.13	0.37	0.37
s, saturation flow rate [veh/h]	1857	1591	1782	1788	2816	3461	1871	1857	1782	1871	1591	1591
c, Capacity [veh/h]	92	79	545	546	1569	727	918	911	18	545	463	463
d1, Uniform Delay [s]	56.20	55.41	31.64	31.64	12.09	45.91	17.75	17.75	59.22	34.63	42.63	42.63
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.36	3.18	1.24	1.24	0.06	3.39	0.14	0.14	22.70	0.55	137.3	137.3
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.39	0.27	0.27	0.05	0.87	0.25	0.25	0.54	0.44	1.27	1.27
d, Delay for Lane Group [s/veh]	64.56	58.59	32.88	32.87	12.15	49.30	17.89	17.89	81.92	35.18	179.9	179.9
Lane Group LOS	E	E	C	C	B	D	B	B	F	D	F	F
Critical Lane Group	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.11	1.00	3.45	3.46	0.44	9.35	3.63	3.61	0.42	5.75	31.21	31.21
50th-Percentile Queue Length [ft/ln]	52.68	25.08	86.32	86.56	11.07	233.83	90.87	90.19	10.48	143.6	780.3	780.3
95th-Percentile Queue Length [veh/ln]	3.79	1.81	6.21	6.23	0.80	14.37	6.54	6.49	0.75	9.68	46.22	46.22
95th-Percentile Queue Length [ft/ln]	94.82	45.14	155.37	155.81	19.92	359.22	163.57	162.34	18.86	241.9	1155.	1155.

Movement, Approach, & Intersection Results

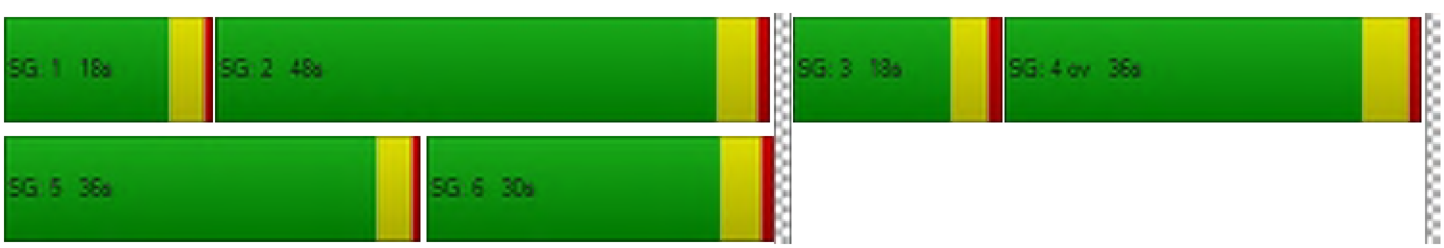
d_M, Delay for Movement [s/veh]	64.56	64.56	58.59	32.88	32.87	12.15	49.30	17.89	17.89	81.92	35.18	179.99
Movement LOS	E	E	E	C	C	B	D	B	B	F	D	F
d_A, Approach Delay [s/veh]	62.57			28.85			36.18			155.08		
Approach LOS	E			C			D			F		
d_I, Intersection Delay [s/veh]	92.98											
Intersection LOS	F											
Intersection V/C	0.744											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	31.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	33.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.820	0.000
Crosswalk LOS	F	F	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	230	517	725	425
d_b, Bicycle Delay [s]	46.99	33.00	24.38	37.21
I_b,int, Bicycle LOS Score for Intersection	1.713	2.172	2.456	2.734
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 6: Foster City Blvd and Metro Center Blvd

Control Type:	Signalized	Delay (sec / veh):	46.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.852

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	230.00	100.00	100.00	210.00	100.00	100.00	150.00	100.00	240.00	50.00	100.00	170.00
Speed [mph]	35.00			35.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	321	620	100	210	830	880	211	310	220	70	180	300
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	321	620	100	210	830	880	211	310	220	70	180	300
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	155	25	53	208	220	53	78	55	18	45	75
Total Analysis Volume [veh/h]	321	620	100	210	830	880	211	310	220	70	180	300
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	7			0			0			8		
v_di, Inbound Pedestrian Volume crossing m	8			0			0			7		
v_co, Outbound Pedestrian Volume crossing	4			0			4			0		
v_ci, Inbound Pedestrian Volume crossing mi	4			0			4			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	43.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	1	6	0	5	2	0	5	4	1	1	3	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	4	4	6	0
Maximum Green [s]	30	40	0	25	40	0	25	40	30	30	30	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.2	3.1	3.1	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0
Split [s]	24	36	0	20	32	0	20	39	24	24	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.2	1.6	1.6	1.7	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	Yes		No	Yes			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	4.20	4.20	3.60	3.70	3.70	3.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	2.20	2.20	0.00	1.70	1.70	1.70
g_i, Effective Green Time [s]	20	50	50	16	45	45	17	17	41	21	21	21
g / C, Green / Cycle	0.17	0.42	0.42	0.13	0.38	0.38	0.14	0.14	0.35	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.18	0.14	0.14	0.12	0.16	0.31	0.06	0.09	0.08	0.04	0.10	0.19
s, saturation flow rate [veh/h]	1785	3569	1736	1785	5106	2820	3467	3569	2820	1785	1874	1593
c, Capacity [veh/h]	303	1479	719	237	1924	1063	491	505	977	317	333	283
d1, Uniform Delay [s]	49.80	23.80	23.84	51.18	27.83	33.88	47.08	48.42	27.79	42.25	44.90	49.35
k, delay calibration	0.25	0.50	0.50	0.13	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.27
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	52.83	0.59	1.23	12.72	0.71	7.45	0.60	1.21	0.12	0.35	1.37	56.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.06	0.33	0.33	0.89	0.43	0.83	0.43	0.61	0.23	0.22	0.54	1.06
d, Delay for Lane Group [s/veh]	102.63	24.39	25.07	63.89	28.54	41.33	47.67	49.63	27.90	42.59	46.27	106.12
Lane Group LOS	F	C	C	E	C	D	D	D	C	D	D	F
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	13.43	4.69	4.75	6.98	5.95	12.38	2.91	4.42	2.25	1.83	5.06	12.97
50th-Percentile Queue Length [ft/ln]	335.81	117.36	118.75	174.44	148.83	309.51	72.71	110.46	56.15	45.86	126.41	324.31
95th-Percentile Queue Length [veh/ln]	19.99	8.25	8.32	11.31	9.95	18.15	5.24	7.87	4.04	3.30	8.74	19.45
95th-Percentile Queue Length [ft/ln]	499.86	206.19	208.11	282.75	248.87	453.78	130.88	196.65	101.08	82.55	218.60	486.16

Movement, Approach, & Intersection Results

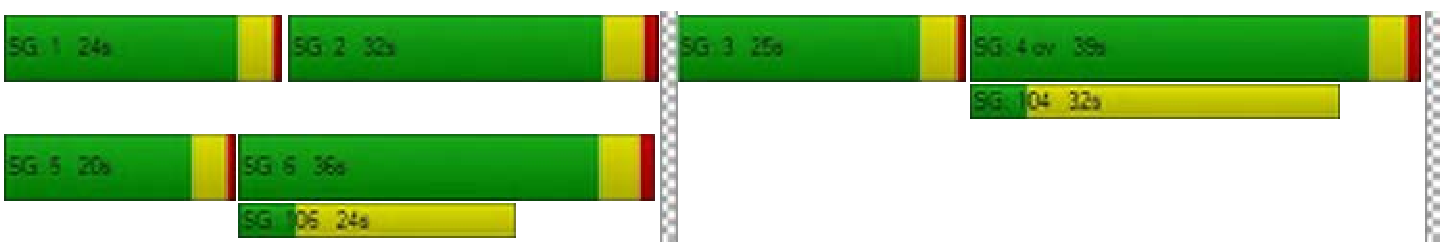
d_M, Delay for Movement [s/veh]	102.63	24.54	25.07	63.89	28.54	41.33	47.67	49.63	27.90	42.59	46.27	106.12
Movement LOS	F	C	C	E	C	D	D	D	C	D	D	F
d_A, Approach Delay [s/veh]	48.67			38.27			42.62			78.45		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	46.77											
Intersection LOS	D											
Intersection V/C	0.852											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	509.67	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.960	0.000	0.000	2.505
Crosswalk LOS	C	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	523	457	580	355
d_b, Bicycle Delay [s]	32.71	35.73	30.25	40.59
I_b,int, Bicycle LOS Score for Intersection	2.132	2.616	2.171	2.467
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Shell Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.725

Intersection Setup

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	210.00	100.00	100.00	160.00	100.00	160.00	100.00	100.00	100.00	135.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Shell Blvd			Shell Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	311	220	130	121	301	117	0	1090	530	200	620	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	311	220	130	121	301	117	0	1090	530	200	620	80
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	56	33	31	77	30	0	278	135	51	158	20
Total Analysis Volume [veh/h]	317	224	133	123	307	119	0	1112	541	204	633	82
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	17			27			27			17		
v_di, Inbound Pedestrian Volume crossing m	17			27			27			17		
v_co, Outbound Pedestrian Volume crossing	29			12			28			11		
v_ci, Inbound Pedestrian Volume crossing mi	28			11			29			12		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	40.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	0	6	0	4	6	0
Maximum Green [s]	25	50	0	30	40	0	0	55	0	25	45	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	0.0	3.6	0.0	3.1	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.5	1.0	0.0
Split [s]	24	37	0	24	37	0	0	39	0	20	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.1	2.6	0.0	1.6	2.6	0.0	0.0	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No			No		No	No	
Maximum Recall	No	No		No	No			Yes		No	Yes	
Pedestrian Recall	No	No		No	No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.10	4.60	4.60	3.60	4.60	4.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.10	2.60	2.60	1.60	2.60	2.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	13	18	18	10	14	14	60	60	15	79	79
g / C, Green / Cycle	0.11	0.15	0.15	0.09	0.12	0.12	0.50	0.50	0.13	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.09	0.12	0.09	0.07	0.09	0.09	0.31	0.35	0.11	0.18	0.05
s, saturation flow rate [veh/h]	3497	1891	1480	1801	3600	1375	3600	1533	1801	3600	1590
c, Capacity [veh/h]	394	287	224	155	436	167	1787	761	233	2361	1043
d1, Uniform Delay [s]	52.06	49.08	47.17	53.87	50.76	50.15	22.06	22.98	51.38	8.64	7.51
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.12	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.91	4.63	2.49	8.74	2.09	5.60	1.64	5.58	10.71	0.28	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.78	0.59	0.79	0.70	0.71	0.62	0.71	0.88	0.27	0.08
d, Delay for Lane Group [s/veh]	55.97	53.71	49.66	62.61	52.85	55.75	23.70	28.55	62.09	8.92	7.65
Lane Group LOS	E	D	D	E	D	E	C	C	E	A	A
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.87	6.83	3.84	4.02	4.57	3.66	11.57	12.49	6.72	3.38	0.78
50th-Percentile Queue Length [ft/ln]	121.86	170.82	96.09	100.58	114.17	91.49	289.24	312.33	167.89	84.58	19.58
95th-Percentile Queue Length [veh/ln]	8.50	11.12	6.92	7.24	8.07	6.59	17.15	18.29	10.97	6.09	1.41
95th-Percentile Queue Length [ft/ln]	212.38	277.99	172.97	181.04	201.78	164.68	428.69	457.25	274.14	152.25	35.25

Movement, Approach, & Intersection Results

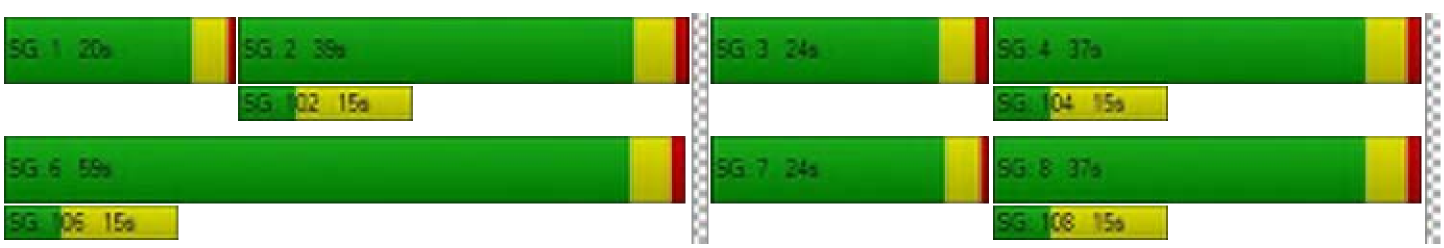
d_M, Delay for Movement [s/veh]	55.97	53.71	49.66	62.61	52.85	55.75	0.00	23.70	28.55	62.09	8.92	7.65
Movement LOS	E	D	D	E	D	E		C	C	E	A	A
d_A, Approach Delay [s/veh]	53.98			55.67			25.29			20.61		
Approach LOS	D			E			C			C		
d_I, Intersection Delay [s/veh]	33.65											
Intersection LOS	C											
Intersection V/C	0.725											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	263.94	108.69	167.81
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.749	2.607	2.910	2.928
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	540	540	573	907
d_b, Bicycle Delay [s]	31.99	31.99	30.55	17.93
I_b,int, Bicycle LOS Score for Intersection	2.672	2.013	2.923	2.318
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Foster City Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	52.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.642

Intersection Setup

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	0	1	0	0	1	0	1
Pocket Length [ft]	260.00	100.00	410.00	210.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Foster City Blvd			Foster City Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	160	410	40	300	610	280	420	480	450	90	290	120
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	410	40	300	610	280	420	480	450	90	290	120
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	107	10	78	159	73	109	125	117	23	76	31
Total Analysis Volume [veh/h]	167	427	42	313	635	292	438	500	469	94	302	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			18			12			18		
v_di, Inbound Pedestrian Volume crossing m	12			18			12			18		
v_co, Outbound Pedestrian Volume crossing	8			4			4			8		
v_ci, Inbound Pedestrian Volume crossing mi	8			4			4			8		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			2			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	40.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	35	50	0	30	40	0	30	40	0	30	40	0
Amber [s]	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0	3.1	3.6	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	20	34	0	23	37	0	27	43	0	20	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	25	0	0	25	0	0	27	0	0	27	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0	1.6	2.6	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	133	133	133	133	133	133	133	133	133	133	133	133
L, Total Lost Time per Cycle [s]	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60	3.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60	1.60	2.60	2.60
g_i, Effective Green Time [s]	9	50	50	14	56	56	30	43	43	9	22	22
g / C, Green / Cycle	0.06	0.38	0.38	0.11	0.42	0.42	0.23	0.33	0.33	0.07	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.09	0.09	0.18	0.18	0.24	0.14	0.30	0.05	0.08	0.08
s, saturation flow rate [veh/h]	3503	3606	1802	3503	3606	1601	1804	3606	1554	1804	3606	1486
c, Capacity [veh/h]	226	1357	678	382	1517	673	407	1174	506	119	598	246
d1, Uniform Delay [s]	61.05	28.30	28.35	57.92	27.07	27.25	51.46	35.09	42.65	61.19	50.48	50.14
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.11	0.36	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.65	0.39	0.81	4.38	0.85	2.03	66.54	0.25	20.32	11.22	0.66	1.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.23	0.23	0.82	0.42	0.43	1.08	0.43	0.93	0.79	0.51	0.51
d, Delay for Lane Group [s/veh]	65.70	28.69	29.15	62.30	27.92	29.28	118.00	35.33	62.97	72.41	51.14	51.76
Lane Group LOS	E	C	C	E	C	C	F	D	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.88	3.42	3.56	5.35	7.21	6.89	20.90	6.36	17.26	3.48	4.62	3.86
50th-Percentile Queue Length [ft/ln]	72.00	85.46	89.05	133.70	180.32	172.26	522.38	158.89	431.41	87.00	115.41	96.54
95th-Percentile Queue Length [veh/ln]	5.18	6.15	6.41	9.14	11.62	11.20	29.61	10.49	24.07	6.26	8.14	6.95
95th-Percentile Queue Length [ft/ln]	129.61	153.83	160.29	228.52	290.44	279.88	740.37	262.25	601.72	156.60	203.50	173.77

Movement, Approach, & Intersection Results

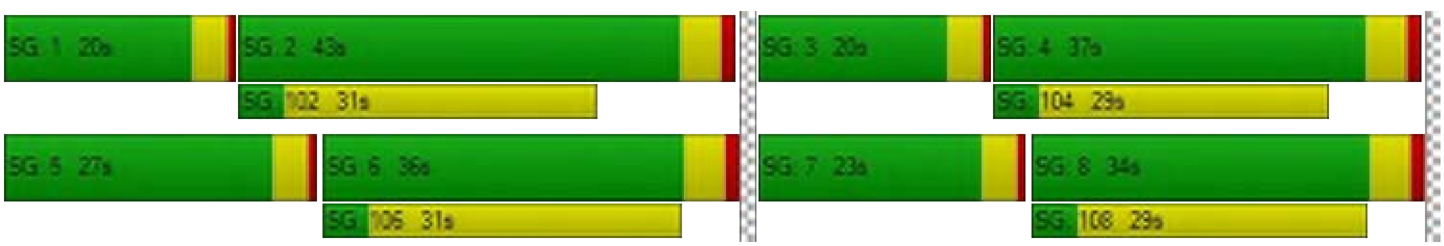
d_M, Delay for Movement [s/veh]	65.70	28.82	29.15	62.30	27.92	29.28	118.00	35.33	62.97	72.41	51.14	51.76
Movement LOS	E	C	C	E	C	C	F	D	E	E	D	D
d_A, Approach Delay [s/veh]	38.52			36.92			70.28			55.13		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	52.02											
Intersection LOS	D											
Intersection V/C	0.642											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	19.20	146.57	349.93	366.76
d_p, Pedestrian Delay [s]	52.27	52.27	52.27	52.27
I_p,int, Pedestrian LOS Score for Intersection	2.950	3.058	2.962	2.730
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	490	540	640	523
d_b, Bicycle Delay [s]	34.20	31.97	27.77	32.72
I_b,int, Bicycle LOS Score for Intersection	1.909	2.583	2.720	1.989
Bicycle LOS	A	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Metro Center Blvd and Vintage Park Dr

Control Type:	Signalized	Delay (sec / veh):	79.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.998

Intersection Setup

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	260.00	100.00	100.00	150.00	100.00	100.00	250.00	100.00	390.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Vintage Park Dr			Vintage Park Dr			Metro Center Blvd			Metro Center Blvd		
Base Volume Input [veh/h]	30	260	120	588	160	370	200	512	50	40	250	390
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	260	120	588	160	370	200	512	50	40	250	390
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	72	33	163	44	103	56	142	14	11	69	108
Total Analysis Volume [veh/h]	33	289	133	653	178	411	222	569	56	44	278	433
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	70			33			70			33		
v_di, Inbound Pedestrian Volume crossing m	70			33			70			33		
v_co, Outbound Pedestrian Volume crossing	67			57			57			68		
v_ci, Inbound Pedestrian Volume crossing mi	68			57			57			67		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	54.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	5	6	0	5	6	0
Maximum Green [s]	25	40	0	30	45	0	30	40	0	25	40	0
Amber [s]	3.0	3.2	0.0	3.0	3.2	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	1.0	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	26	33	0	40	47	0	16	33	0	14	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	22	0	0	22	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.5	2.2	0.0	1.5	1.7	0.0	1.5	2.5	0.0	1.5	2.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.50	4.20	4.20	3.50	3.70	3.70	3.50	4.50	4.50	3.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.50	2.20	2.20	1.50	1.70	1.70	1.50	2.50	2.50	1.50	2.50	2.50
g_i, Effective Green Time [s]	3	27	27	37	61	61	13	37	37	4	28	28
g / C, Green / Cycle	0.02	0.22	0.22	0.30	0.51	0.51	0.10	0.31	0.31	0.03	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.02	0.12	0.14	0.36	0.09	0.28	0.12	0.17	0.18	0.02	0.08	0.27
s, saturation flow rate [veh/h]	1791	1880	1463	1791	1880	1491	1791	1880	1717	1791	3580	1598
c, Capacity [veh/h]	44	423	329	545	956	758	187	578	528	58	845	377
d1, Uniform Delay [s]	58.14	40.81	41.84	41.75	16.01	19.51	53.75	34.61	35.05	57.57	37.98	45.84
k, delay calibration	0.11	0.11	0.11	0.50	0.11	0.12	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.65	0.99	1.87	106.21	0.09	0.67	97.00	3.72	4.64	17.72	1.04	93.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.52	0.62	1.20	0.19	0.54	1.19	0.55	0.58	0.75	0.33	1.15
d, Delay for Lane Group [s/veh]	79.80	41.79	43.71	147.96	16.10	20.17	150.75	38.33	39.69	75.29	39.02	139.01
Lane Group LOS	E	D	D	F	B	C	F	D	D	E	D	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.26	5.82	5.57	31.97	2.67	7.60	10.60	8.22	8.16	1.60	3.49	20.79
50th-Percentile Queue Length [ft/ln]	31.57	145.44	139.22	799.29	66.87	189.95	264.94	205.45	204.06	40.04	87.29	519.84
95th-Percentile Queue Length [veh/ln]	2.27	9.77	9.44	46.03	4.81	12.12	17.01	12.92	12.85	2.88	6.28	30.51
95th-Percentile Queue Length [ft/ln]	56.83	244.33	235.98	1150.71	120.37	302.97	425.24	322.99	321.20	72.07	157.11	762.75

Movement, Approach, & Intersection Results

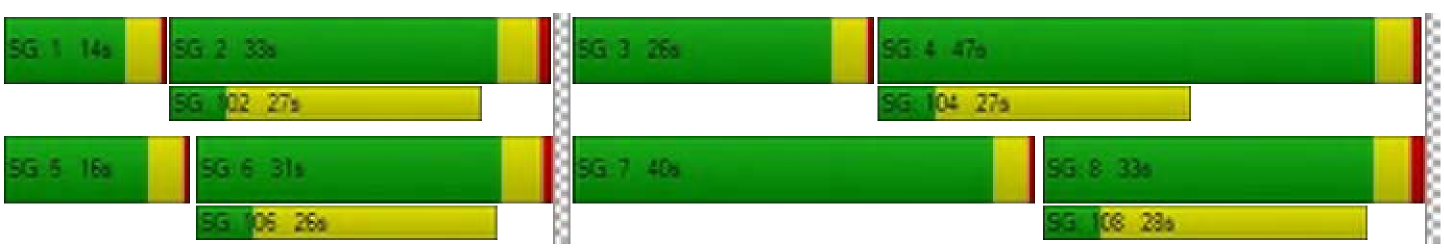
d_M, Delay for Movement [s/veh]	79.80	42.26	43.71	147.96	16.10	20.17	150.75	38.93	39.69	75.29	39.02	139.01
Movement LOS	E	D	D	F	B	C	F	D	D	E	D	F
d_A, Approach Delay [s/veh]	45.41			86.78			68.29			98.48		
Approach LOS	D			F			E			F		
d_I, Intersection Delay [s/veh]	79.00											
Intersection LOS	E											
Intersection V/C	0.998											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	38.81	0.00	0.00	38.45
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.325	2.741	2.672	2.868
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	480	722	475	442
d_b, Bicycle Delay [s]	34.66	24.51	34.88	36.43
I_b,int, Bicycle LOS Score for Intersection	1.935	3.609	2.258	2.182
Bicycle LOS	A	D	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Edgewater Blvd and Mariners Island Blvd

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.539

Intersection Setup

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	2	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	40.00	400.00	100.00	400.00	190.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Emerald Bay Ln			Route 92 East Ramp			Mariners Island Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	10	30	10	241	10	110	580	886	20	20	896	420
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	30	10	241	10	110	580	886	20	20	896	420
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	8	3	63	3	29	151	231	5	5	233	109
Total Analysis Volume [veh/h]	10	31	10	251	10	115	604	923	21	21	933	438
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			1		
v_di, Inbound Pedestrian Volume crossing m	1			0			0			0		
v_co, Outbound Pedestrian Volume crossing	3			3			2			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			2			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	49.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups							4,5					
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	0	0	6	0	4	6	0	4	6	0
Maximum Green [s]	0	40	0	0	60	0	30	65	0	20	50	0
Amber [s]	0.0	3.2	0.0	0.0	4.0	0.0	3.1	4.0	0.0	3.1	4.0	0.0
All red [s]	0.0	0.5	0.0	0.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	32	0	0	29	0	22	41	0	18	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	18	0	0	25	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	3.0	0.0	1.6	3.0	0.0	1.6	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			Yes		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	3.70	3.70	5.00	5.00	5.00	4.30	5.00	5.00	3.60	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	3.00	3.00	3.00	0.00	3.00	3.00	1.60	3.00	3.00
g_i, Effective Green Time [s]	4	4	31	31	31	66	65	65	2	37	37
g / C, Green / Cycle	0.04	0.04	0.26	0.26	0.26	0.55	0.54	0.54	0.02	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.02	0.01	0.08	0.10	0.04	0.37	0.25	0.25	0.01	0.26	0.28
s, saturation flow rate [veh/h]	1865	1591	1431	1478	2840	1619	1888	1871	1798	3595	1592
c, Capacity [veh/h]	68	58	408	442	739	790	1024	1015	31	1115	494
d1, Uniform Delay [s]	57.06	56.16	35.86	36.16	34.27	20.70	16.78	16.81	58.72	38.63	39.34
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.21
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.49	1.41	1.75	1.96	0.45	6.94	0.33	0.33	23.09	1.75	9.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.17	0.29	0.33	0.16	0.76	0.46	0.46	0.68	0.84	0.89
d, Delay for Lane Group [s/veh]	65.56	57.57	37.61	38.12	34.72	27.64	17.11	17.14	81.81	40.38	49.21
Lane Group LOS	E	E	D	D	C	C	B	B	F	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.39	0.32	2.96	3.71	1.35	12.28	7.77	7.74	0.83	12.82	13.35
50th-Percentile Queue Length [ft/ln]	34.66	7.93	74.06	92.87	33.78	307.09	194.17	193.47	20.71	320.50	333.81
95th-Percentile Queue Length [veh/ln]	2.50	0.57	5.33	6.69	2.43	18.03	12.34	12.30	1.49	18.69	19.35
95th-Percentile Queue Length [ft/ln]	62.39	14.27	133.30	167.17	60.80	450.78	308.43	307.53	37.29	467.30	483.63

Movement, Approach, & Intersection Results

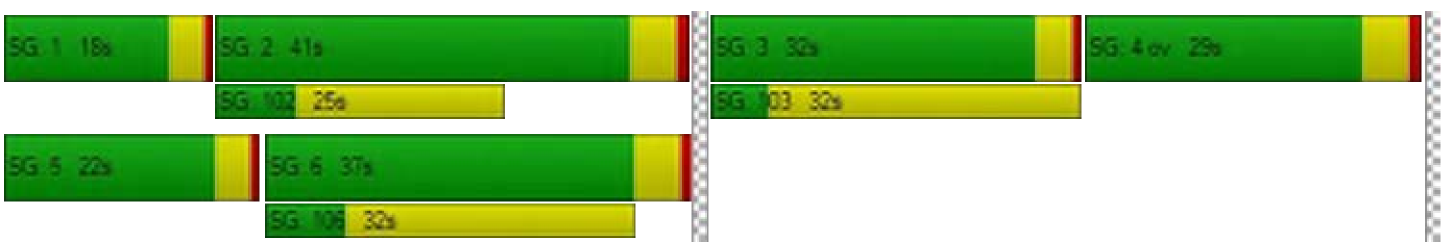
d_M, Delay for Movement [s/veh]	65.56	65.56	57.57	37.88	38.12	34.72	27.64	17.12	17.14	81.81	40.38	49.21
Movement LOS	E	E	E	D	D	C	C	B	B	F	D	D
d_A, Approach Delay [s/veh]		63.99			36.92			21.23			43.78	
Approach LOS		E			D			C			D	
d_I, Intersection Delay [s/veh]	32.95											
Intersection LOS	C											
Intersection V/C	0.539											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	1.987	2.975	0.000	3.334
Crosswalk LOS	A	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	472	400	600	533
d_b, Bicycle Delay [s]	35.04	38.40	29.44	32.27
I_b,int, Bicycle LOS Score for Intersection	1.644	2.180	2.837	2.708
Bicycle LOS	A	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 11: Metro Center Blvd and Edgewater Blvd

Control Type:	Signalized	Delay (sec / veh):	53.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	2	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	50.00	270.00	100.00	100.00	370.00	100.00	100.00	180.00	100.00	50.00
Speed [mph]	25.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sea Spray Ln			Metro Center Blvd			Edgewater Blvd			Edgewater Blvd		
Base Volume Input [veh/h]	30	50	80	360	60	240	276	750	20	190	706	336
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	50	80	360	60	240	276	750	20	190	706	336
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	13	21	95	16	63	73	197	5	50	186	88
Total Analysis Volume [veh/h]	32	53	84	379	63	253	291	789	21	200	743	354
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			4			2			3		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			4		
v_co, Outbound Pedestrian Volume crossing	5			3			3			6		
v_ci, Inbound Pedestrian Volume crossing mi	6			3			3			5		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	3.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	8	0	4	8	0
Maximum Green [s]	0	40	0	0	35	0	40	60	0	20	45	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.1	3.9	0.0	3.1	3.9	0.0
All red [s]	0.0	0.5	0.0	0.0	0.5	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	39	0	0	40	0	20	47	0	14	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	28	0	0	28	0	0	14	0	0	22	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.7	0.0	0.0	1.7	0.0	1.6	2.9	0.0	1.6	2.9	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	3.70	3.70	3.70	3.70	3.70	3.60	4.90	4.90	3.60	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.70	1.70	1.70	1.70	1.70	1.60	2.90	2.90	1.60	2.90	2.90
g_i, Effective Green Time [s]	14	14	26	26	26	14	73	73	10	70	70
g / C, Green / Cycle	0.10	0.10	0.19	0.19	0.19	0.10	0.52	0.52	0.07	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.12	0.12	0.16	0.08	0.22	0.22	0.11	0.14	0.22
s, saturation flow rate [veh/h]	1853	1553	1798	1823	1568	3492	1888	1868	1798	5143	1585
c, Capacity [veh/h]	189	158	334	339	291	345	990	979	134	2571	792
d1, Uniform Delay [s]	59.17	59.58	52.86	52.85	55.09	62.03	20.18	20.19	64.80	20.46	22.46
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.28	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.67	2.74	2.21	2.16	7.77	5.66	1.26	1.28	244.67	0.28	1.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.45	0.53	0.66	0.66	0.87	0.84	0.41	0.41	1.50	0.29	0.45
d, Delay for Lane Group [s/veh]	60.85	62.32	55.07	55.01	62.85	67.69	21.44	21.47	309.47	20.74	24.28
Lane Group LOS	E	E	E	E	E	E	C	C	F	C	C
Critical Lane Group	No	Yes	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.96	2.98	7.35	7.43	9.21	5.34	8.31	8.25	13.82	4.79	7.81
50th-Percentile Queue Length [ft/ln]	74.10	74.56	183.85	185.76	230.13	133.52	207.85	206.20	345.59	119.75	195.24
95th-Percentile Queue Length [veh/ln]	5.34	5.37	11.80	11.90	14.18	9.13	13.04	12.96	22.42	8.38	12.39
95th-Percentile Queue Length [ft/ln]	133.38	134.20	295.03	297.52	354.53	228.27	326.07	323.94	560.42	209.48	309.82

Movement, Approach, & Intersection Results

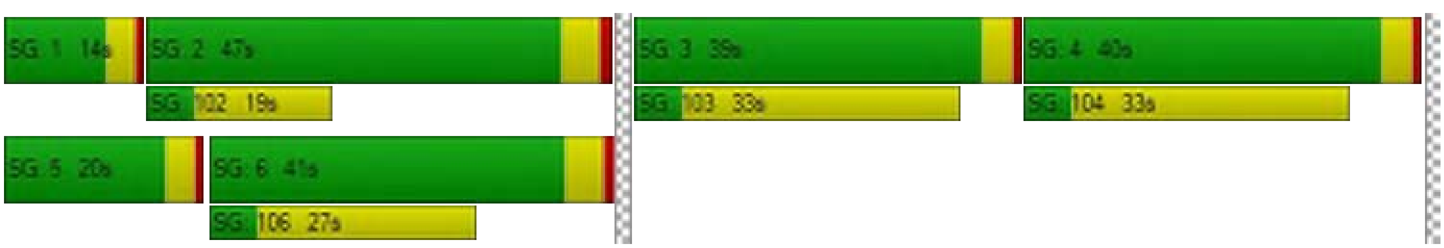
d_M, Delay for Movement [s/veh]	60.85	60.85	62.32	55.04	55.01	62.85	67.69	21.46	21.47	309.47	20.74	24.28
Movement LOS	E	E	E	E	E	E	E	C	C	F	C	C
d_A, Approach Delay [s/veh]	61.58			57.88			33.68			66.23		
Approach LOS	E			E			C			E		
d_I, Intersection Delay [s/veh]	53.22											
Intersection LOS	D											
Intersection V/C	0.593											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	61.29	61.29	61.29	61.29
I_p,int, Pedestrian LOS Score for Intersection	2.085	2.639	2.962	3.110
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	504	519	601	516
d_b, Bicycle Delay [s]	39.15	38.43	34.28	38.57
I_b,int, Bicycle LOS Score for Intersection	1.838	2.706	2.468	2.273
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Edgewater Blvd and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	51.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.904

Intersection Setup

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	1	1	0	1
Pocket Length [ft]	190.00	100.00	190.00	310.00	100.00	110.00	100.00	100.00	75.00	310.00	100.00	230.00
Speed [mph]	40.00			35.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Edgewater Blvd			Edgewater Blvd			E Hillsdale Blvd			E Hillsdale Blvd		
Base Volume Input [veh/h]	310	565	120	260	600	380	0	1430	520	251	861	237
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	310	565	120	260	600	380	0	1430	520	251	861	237
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	146	31	67	155	98	0	369	134	65	222	61
Total Analysis Volume [veh/h]	320	582	124	268	619	392	0	1474	536	259	888	244
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			3			3			11		
v_di, Inbound Pedestrian Volume crossing m	11			3			3			10		
v_co, Outbound Pedestrian Volume crossing	6			10			6			10		
v_ci, Inbound Pedestrian Volume crossing mi	6			10			6			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	75.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	4	6	0
Maximum Green [s]	30	60	0	20	50	0	0	45	0	30	50	0
Amber [s]	3.5	4.0	0.0	3.5	3.9	0.0	0.0	4.0	0.0	3.5	3.6	0.0
All red [s]	1.0	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.5	1.0	0.0
Split [s]	27	52	0	18	43	0	0	42	0	28	70	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	30	0	0	34	0	0	31	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	2.0	2.9	0.0	0.0	3.0	0.0	2.0	2.6	0.0
Minimum Recall	No	No		No	No			No		No	No	
Maximum Recall	No	No		No	No			Yes		No	Yes	
Pedestrian Recall	No	No		No	No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	C	R	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.50	5.00	5.00	4.00	4.90	4.90	5.00	5.00	4.00	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.50	3.00	3.00	2.00	2.90	2.90	3.00	3.00	2.00	2.60	2.60
g_i, Effective Green Time [s]	15	41	41	13	38	38	46	46	22	73	73
g / C, Green / Cycle	0.11	0.29	0.29	0.09	0.27	0.27	0.33	0.33	0.16	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.09	0.19	0.20	0.08	0.17	0.25	0.29	0.34	0.14	0.17	0.16
s, saturation flow rate [veh/h]	3497	1891	1752	3497	3600	1572	5151	1568	1801	5151	1568
c, Capacity [veh/h]	385	550	510	330	981	428	1691	515	284	2666	812
d1, Uniform Delay [s]	61.06	43.60	43.76	62.24	44.79	49.06	44.28	46.50	58.04	19.71	19.23
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.23	0.50	0.50	0.21	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.66	1.37	1.54	4.82	0.68	15.17	6.50	50.88	18.61	0.34	0.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.66	0.67	0.81	0.63	0.92	0.87	1.04	0.91	0.33	0.30
d, Delay for Lane Group [s/veh]	65.72	44.97	45.30	67.06	45.47	64.23	50.78	97.38	76.65	20.04	20.18
Lane Group LOS	E	D	D	E	D	E	D	F	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.76	11.14	10.53	4.88	9.51	14.87	16.69	24.51	10.44	5.68	4.72
50th-Percentile Queue Length [ft/ln]	144.01	278.43	263.19	122.11	237.79	371.77	417.29	612.86	261.09	141.99	117.89
95th-Percentile Queue Length [veh/ln]	9.70	16.61	15.85	8.51	14.57	21.19	23.39	33.55	15.74	9.59	8.28
95th-Percentile Queue Length [ft/ln]	242.42	415.25	396.22	212.72	364.24	529.87	584.80	838.71	393.58	239.71	206.93

Movement, Approach, & Intersection Results

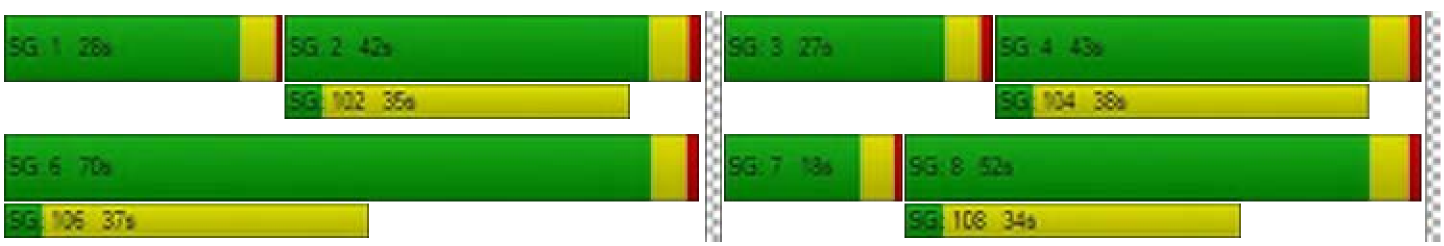
d_M, Delay for Movement [s/veh]	65.72	45.09	45.30	67.06	45.47	64.23	0.00	50.78	97.38	76.65	20.04	20.18
Movement LOS	E	D	D	E	D	E		D	F	E	C	C
d_A, Approach Delay [s/veh]	51.55			55.74			63.21			30.61		
Approach LOS	D			E			E			C		
d_I, Intersection Delay [s/veh]	51.49											
Intersection LOS	D											
Intersection V/C	0.904											

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.0	8.0	8.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	146.36	288.33	206.33
d_p, Pedestrian Delay [s]	62.23	62.23	62.23	62.23
I_p,int, Pedestrian LOS Score for Intersection	3.004	3.048	3.287	3.212
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	671	544	529	934
d_b, Bicycle Delay [s]	30.94	37.16	37.95	19.90
I_b,int, Bicycle LOS Score for Intersection	2.406	2.615	2.665	2.325
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Center Park Ln and E Hillsdale Blvd

Control Type:	Signalized	Delay (sec / veh):	22.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.618

Intersection Setup

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	390.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Center Park Ln		E Hillsdale Blvd		E Hillsdale Blvd	
Base Volume Input [veh/h]	200	130	400	1500	988	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.50	0.50	0.50	0.50	0.50	0.50
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	130	400	1500	988	60
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	34	104	391	257	16
Total Analysis Volume [veh/h]	208	135	417	1563	1029	63
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		15	
v_di, Inbound Pedestrian Volume crossing m	0		0		14	
v_co, Outbound Pedestrian Volume crossing	5		14		5	
v_ci, Inbound Pedestrian Volume crossing mi	5		15		5	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	19.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	4	0	6	5	5	0
Maximum Green [s]	35	0	30	40	40	0
Amber [s]	3.5	0.0	3.1	3.5	3.5	0.0
All red [s]	0.5	0.0	0.5	1.0	1.0	0.0
Split [s]	36	0	37	84	47	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0
Pedestrian Clearance [s]	20	0	0	0	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	1.6	2.5	2.5	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	0.0	40.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	3.60	4.50	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	1.60	2.50	2.50	2.50
g_i, Effective Green Time [s]	17	17	29	94	61	61
g / C, Green / Cycle	0.15	0.15	0.24	0.78	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.12	0.08	0.23	0.30	0.20	0.20
s, saturation flow rate [veh/h]	1695	1609	1802	5155	3603	1825
c, Capacity [veh/h]	247	234	440	4039	1835	929
d1, Uniform Delay [s]	49.87	47.76	44.52	4.03	18.10	18.04
k, delay calibration	0.11	0.11	0.40	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.65	2.24	27.41	0.28	0.64	1.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.58	0.95	0.39	0.40	0.39
d, Delay for Lane Group [s/veh]	57.52	50.00	71.93	4.31	18.74	19.28
Lane Group LOS	E	D	E	A	B	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.64	3.95	15.32	3.17	6.21	6.35
50th-Percentile Queue Length [ft/ln]	166.04	98.69	382.92	79.36	155.28	158.71
95th-Percentile Queue Length [veh/ln]	10.87	7.11	21.74	5.71	10.30	10.48
95th-Percentile Queue Length [ft/ln]	271.70	177.64	543.38	142.85	257.46	262.01

Movement, Approach, & Intersection Results

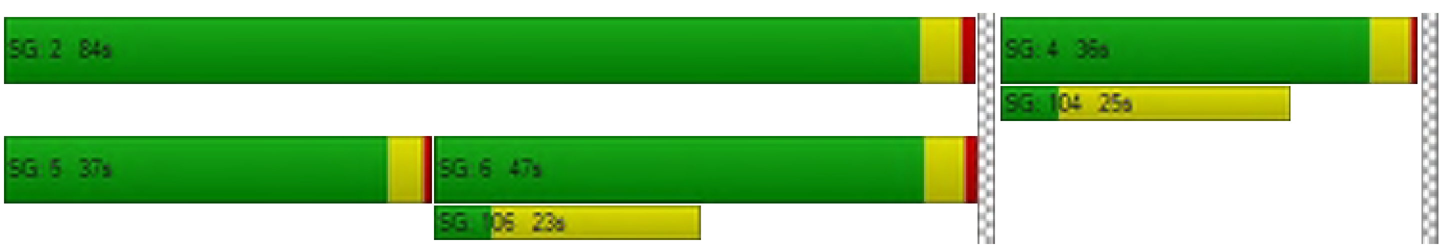
d_M, Delay for Movement [s/veh]	57.52	50.00	71.93	4.31	18.90	19.28
Movement LOS	E	D	E	A	B	B
d_A, Approach Delay [s/veh]	54.56		18.55		18.92	
Approach LOS	D		B		B	
d_I, Intersection Delay [s/veh]	22.29					
Intersection LOS	C					
Intersection V/C	0.618					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	470.53	0.00	251.53
d_p, Pedestrian Delay [s]	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.178	0.000	3.011
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.221	4.733
Bicycle LOS	D	F	E

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foster City Metro Center Hotel EIR

Vistro File: \...\FC Metro Center Hotel 9.26.19.vistro | Scenario 8 CPP PM

Report File: \...\CPP PM Report.pdf | 12/10/2019

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Vintage Park Dr and Chess Dr	200	130	500	380	740	310	30	290	304	114	245	30	3273

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Chess Dr and Route 92 West Ramp	104	10	250	20	30	10	10	310	880	1177	235	10	3046

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Foster City Blvd and Chess Dr	771	270	90	10	1180	290	50	40	490	250	360	50	3851

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Metro Center Blvd and Shell Blvd	240	70	250	70	50	90	20	805	270	51	160	70	2146

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Metro Center Blvd and Route 92 East Ramp	10	50	30	280	10	70	614	431	10	10	231	1140	2886

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foster City Blvd and Metro Center Blvd	321	620	100	210	830	880	211	310	220	70	180	300	4252

ID	Intersection Name	Northbound			Southbound			Eastbound		Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Thru	Right	Left	Thru	Right	
7	Shell Blvd and E Hillsdale Blvd	311	220	130	121	301	117	1090	530	200	620	80	3720

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	Foster City Blvd and E Hillsdale Blvd	160	410	40	300	610	280	420	480	450	90	290	120	3650

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	Metro Center Blvd and Vintage Park Dr	30	260	120	588	160	370	200	512	50	40	250	390	2970

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	Edgewater Blvd and Mariners Island Blvd	10	30	10	241	10	110	580	886	20	20	896	420	3233

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11	Metro Center Blvd and Edgewater Blvd	30	50	80	360	60	240	276	750	20	190	706	336	3098

ID	Intersection Name	Northbound			Southbound			Eastbound		Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Thru	Right	Left	Thru	Right	
12	Edgewater Blvd and E Hillsdale Blvd	310	565	120	260	600	380	1430	520	251	861	237	5534

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
13	Center Park Ln and E Hillsdale Blvd	200	130	400	1500	988	60	3278

Study Intersections

VISSIM INTERSECTION LOS CALCULATIONS

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Foster City Metro Center Hotel EIR
Existing AM
Peak Hour

Intersection 2 **Driveway/SR92WB Ramp/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	389	392	100.8%	47.8	4.0	D
	Through	35	33	93.4%	53.3	10.7	D
	Right Turn	731	736	100.6%	2.7	0.7	A
	Subtotal	1,155	1,160	100.5%	20.1	2.4	C
SB	Left Turn	2	2	85.0%	24.6	42.7	C
	Through	16	17	107.5%	65.5	18.9	E
	Right Turn	5	4	84.0%	5.3	6.1	A
	Subtotal	23	23	100.4%	57.6	19.4	E
EB	Left Turn	1	1	110.0%	23.0	31.9	C
	Through	130	136	104.7%	62.1	8.8	E
	Right Turn	122	126	103.5%	25.5	3.4	C
	Subtotal	253	264	104.2%	45.0	4.9	D
WB	Left Turn	708	727	102.6%	6.4	1.4	A
	Through	192	194	101.1%	4.2	1.2	A
	Right Turn	11	11	100.9%	1.5	1.6	A
	Subtotal	911	932	102.3%	5.9	1.2	A
Total		2,342	2,379	101.6%	17.8	1.7	B

Intersection 3 **Foster City Blvd/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	819	844	103.0%	25.1	3.5	C
	Through	893	908	101.6%	10.9	2.1	B
	Right Turn	194	200	102.9%	11.4	3.3	B
	Subtotal	1,906	1,951	102.4%	17.1	2.5	B
SB	Left Turn	3	4	116.7%	21.4	30.6	C
	Through	299	300	100.2%	51.7	4.8	D
	Right Turn	67	66	99.0%	29.9	7.1	C
	Subtotal	369	370	100.1%	47.4	3.9	D
EB	Left Turn	322	328	101.7%	42.0	4.8	D
	Through	61	61	100.3%	41.6	7.7	D
	Right Turn	480	486	101.2%	2.3	0.8	A
	Subtotal	863	875	101.3%	20.4	2.0	C
WB	Left Turn	19	18	92.6%	62.9	25.3	E
	Through	25	23	90.8%	51.3	14.8	D
	Right Turn	4	4	95.0%	4.9	4.9	A
	Subtotal	48	44	91.9%	51.8	14.9	D
Total		3,186	3,239	101.7%	22.2	1.5	C

Vissim Post-Processor | **Foster City Metro Center Hotel EIR**
Average Results from 10 Runs | **Existing AM**
Volume and Delay by Movement | **Peak Hour**

Intersection 5 **Metro Center Blvd/SR92 EB Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	2	2	95.0%	12.3	26.0	B
	Through	2	2	115.0%	28.9	38.2	C
	Right Turn	21	25	119.0%	10.5	1.2	B
	Subtotal	25	29	116.8%	15.7	8.5	B
SB	Left Turn	942	961	102.0%	11.5	1.0	B
	Through	48	47	98.8%	11.2	4.6	B
	Right Turn	441	445	101.0%	4.7	0.9	A
	Subtotal	1,431	1,453	101.5%	9.5	0.8	A
EB	Left Turn	61	64	104.9%	56.1	6.5	E
	Through	123	126	102.6%	48.0	4.3	D
	Right Turn	4	5	120.0%	17.0	29.9	B
	Subtotal	188	195	103.7%	50.3	4.8	D
WB	Left Turn	37	39	104.3%	58.3	7.9	E
	Through	177	181	102.1%	41.0	5.2	D
	Right Turn	196	194	99.1%	3.8	0.7	A
	Subtotal	410	414	100.9%	26.6	3.3	C
Total		2,054	2,091	101.8%	16.8	0.7	B

Intersection 6 **Foster City Blvd/Metro Center Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	131	134	102.6%	63.8	12.1	E
	Through	955	980	102.6%	37.0	2.5	D
	Right Turn	66	66	100.2%	29.5	5.9	C
	Subtotal	1,152	1,180	102.5%	39.5	3.2	D
SB	Left Turn	137	135	98.8%	75.2	7.0	E
	Through	467	473	101.3%	18.1	3.5	B
	Right Turn	194	193	99.3%	4.3	1.6	A
	Subtotal	798	801	100.4%	24.4	2.0	C
EB	Left Turn	457	474	103.7%	35.3	4.3	D
	Through	183	185	101.0%	27.6	3.3	C
	Right Turn	446	453	101.5%	21.9	3.4	C
	Subtotal	1,086	1,111	102.3%	28.6	2.9	C
WB	Left Turn	52	48	93.1%	55.0	14.8	E
	Through	85	88	102.9%	58.8	19.5	E
	Right Turn	494	499	101.0%	29.0	9.9	C
	Subtotal	631	635	100.6%	35.0	11.0	C
Total		3,667	3,728	101.7%	32.4	2.3	C

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Foster City Metro Center Hotel EIR
Existing PM
Peak Hour

Intersection 2 **Driveway/SR92WB Ramp/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	77	76	99.1%	44.9	7.4	D
	Through	2	2	85.0%	7.2	18.0	A
	Right Turn	197	195	98.8%	30.4	35.0	C
	Subtotal	276	273	98.8%	35.6	24.7	D
SB	Left Turn	10	9	93.0%	55.8	33.8	E
	Through	20	22	111.0%	59.0	15.4	E
	Right Turn	4	5	120.0%	9.3	13.2	A
	Subtotal	34	36	106.8%	58.1	18.5	E
EB	Left Turn						
	Through	262	252	96.0%	143.6	92.0	F
	Right Turn	780	768	98.5%	51.8	19.8	D
	Subtotal	1,042	1,020	97.8%	73.9	34.7	E
WB	Left Turn	912	927	101.6%	11.6	2.1	B
	Through	175	174	99.5%	10.5	3.5	B
	Right Turn	1	2	160.0%	0.2	0.5	A
	Subtotal	1,088	1,103	101.4%	11.4	2.1	B
Total		2,440	2,431	99.6%	41.0	15.0	D

Intersection 3 **Foster City Blvd/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	692	731	105.6%	45.7	6.9	D
	Through	207	213	102.8%	13.6	4.2	B
	Right Turn	19	20	107.4%	14.4	10.5	B
	Subtotal	918	964	105.0%	37.9	5.8	D
SB	Left Turn	2	2	85.0%	54.6	115.4	D
	Through	1,026	910	88.7%	372.2	67.3	F
	Right Turn	235	211	89.7%	228.0	30.3	F
	Subtotal	1,263	1,122	88.9%	343.0	60.7	F
EB	Left Turn	38	36	95.5%	50.9	14.1	D
	Through	13	14	104.6%	75.3	39.0	E
	Right Turn	418	383	91.7%	250.2	77.4	F
	Subtotal	469	433	92.4%	224.2	68.6	F
WB	Left Turn	107	97	90.7%	196.0	36.3	F
	Through	161	154	95.9%	44.9	9.5	D
	Right Turn	4	3	77.5%	12.0	18.4	B
	Subtotal	272	255	93.6%	103.5	20.5	F
Total		2,922	2,774	94.9%	197.8	33.1	F

Vissim Post-Processor | **Foster City Metro Center Hotel EIR**
Average Results from 10 Runs | **Existing PM**
Volume and Delay by Movement | **Peak Hour**

Intersection 5 **Metro Center Blvd/SR92 EB Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	2	2	100.0%	9.1	19.6	A
	Through	49	51	104.3%	87.7	11.1	F
	Right Turn	21	25	119.5%	9.8	1.8	A
	Subtotal	72	78	108.6%	59.1	12.4	E
SB	Left Turn	108	110	101.8%	30.2	4.2	C
	Through	4	4	87.5%	11.8	21.0	B
	Right Turn	44	51	116.8%	10.3	2.9	B
	Subtotal	156	165	105.6%	23.6	3.7	C
EB	Left Turn	504	479	95.1%	301.7	68.9	F
	Through	257	255	99.3%	62.8	46.0	E
	Right Turn	6	7	108.3%	43.1	77.9	D
	Subtotal	767	741	96.6%	221.3	57.7	F
WB	Left Turn	8	7	90.0%	50.9	38.5	D
	Through	101	94	93.0%	56.4	19.8	E
	Right Turn	972	923	94.9%	94.5	4.6	F
	Subtotal	1,081	1,024	94.7%	90.9	5.8	F
Total		2,076	2,007	96.7%	133.1	22.1	F

Intersection 6 **Foster City Blvd/Metro Center Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	228	238	104.3%	73.2	8.8	E
	Through	547	576	105.4%	20.3	2.5	C
	Right Turn	64	63	98.8%	17.0	5.2	B
	Subtotal	839	878	104.6%	34.4	3.0	C
SB	Left Turn	198	174	87.8%	82.7	8.1	F
	Through	615	542	88.1%	51.6	11.0	D
	Right Turn	738	663	89.8%	150.3	18.6	F
	Subtotal	1,551	1,379	88.9%	103.8	10.0	F
EB	Left Turn	103	109	106.1%	46.2	7.8	D
	Through	130	129	99.2%	44.6	9.6	D
	Right Turn	153	151	98.6%	28.0	6.5	C
	Subtotal	386	389	100.8%	38.5	6.2	D
WB	Left Turn	62	62	99.4%	50.0	9.4	D
	Through	115	123	106.6%	77.5	6.2	E
	Right Turn	268	278	103.6%	15.7	2.6	B
	Subtotal	445	462	103.8%	36.8	4.3	D
Total		3,221	3,107	96.5%	66.2	4.1	E

Intersection 2 **Driveway/SR92WB Ramp/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	393	394	100.3%	48.2	2.8	D
	Through	35	34	97.7%	49.3	9.3	D
	Right Turn	731	735	100.5%	2.5	0.5	A
	Subtotal	1,159	1,163	100.4%	20.1	2.0	C
SB	Left Turn	2	2	85.0%	24.1	42.4	C
	Through	16	17	108.1%	64.0	20.1	E
	Right Turn	5	4	84.0%	5.1	5.8	A
	Subtotal	23	23	100.9%	56.3	20.8	E
EB	Left Turn	1	1	100.0%	15.0	25.4	B
	Through	130	136	104.6%	60.9	8.4	E
	Right Turn	122	127	103.7%	26.1	4.2	C
	Subtotal	253	264	104.2%	44.6	4.9	D
WB	Left Turn	713	731	102.6%	6.4	1.4	A
	Through	195	198	101.3%	4.3	1.7	A
	Right Turn	11	12	104.5%	1.9	1.7	A
	Subtotal	919	940	102.3%	5.9	1.0	A
Total		2,354	2,390	101.5%	17.8	1.5	B

Intersection 3 **Foster City Blvd/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	827	852	103.0%	24.1	4.0	C
	Through	900	917	101.9%	10.7	1.8	B
	Right Turn	194	201	103.5%	11.6	3.6	B
	Subtotal	1,921	1,969	102.5%	16.7	2.8	B
SB	Left Turn	3	4	116.7%	20.8	29.4	C
	Through	299	300	100.2%	51.7	4.8	D
	Right Turn	67	66	99.0%	29.3	6.8	C
	Subtotal	369	370	100.1%	47.3	3.8	D
EB	Left Turn	322	328	101.8%	44.0	3.8	D
	Through	61	60	99.0%	45.4	8.0	D
	Right Turn	480	485	101.1%	2.0	0.5	A
	Subtotal	863	874	101.2%	21.4	1.9	C
WB	Left Turn	19	18	92.6%	58.3	28.1	E
	Through	25	23	90.4%	51.9	15.3	D
	Right Turn	4	4	95.0%	4.7	5.5	A
	Subtotal	48	44	91.7%	49.8	17.3	D
Total		3,201	3,256	101.7%	22.2	1.9	C

Intersection 5 **Metro Center Blvd/SR92 EB Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	2	2	95.0%	13.1	28.3	B
	Through	2	2	115.0%	29.1	38.1	C
	Right Turn	21	25	119.0%	10.4	1.0	B
	Subtotal	25	29	116.8%	16.5	10.1	B
SB	Left Turn	942	960	101.9%	11.3	1.3	B
	Through	48	47	98.3%	11.0	3.6	B
	Right Turn	441	445	100.9%	4.5	1.0	A
	Subtotal	1,431	1,452	101.5%	9.3	1.1	A
EB	Left Turn	64	67	104.4%	54.4	10.0	D
	Through	138	143	103.7%	46.1	4.6	D
	Right Turn	4	4	107.5%	23.1	28.4	C
	Subtotal	206	214	104.0%	48.5	4.6	D
WB	Left Turn	37	39	105.1%	54.3	12.9	D
	Through	178	183	102.9%	40.6	4.2	D
	Right Turn	196	193	98.7%	4.3	0.7	A
	Subtotal	411	415	101.1%	26.3	2.6	C
Total		2,073	2,111	101.8%	16.8	1.0	B

Intersection 6 **Foster City Blvd/Metro Center Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	132	136	102.7%	62.5	11.6	E
	Through	955	980	102.6%	36.3	2.7	D
	Right Turn	66	66	100.3%	28.4	6.4	C
	Subtotal	1,153	1,182	102.5%	38.8	3.2	D
SB	Left Turn	137	136	99.3%	74.8	7.1	E
	Through	467	473	101.3%	17.9	2.9	B
	Right Turn	194	193	99.4%	3.6	1.7	A
	Subtotal	798	802	100.5%	24.0	1.7	C
EB	Left Turn	472	491	103.9%	37.1	4.5	D
	Through	183	185	101.3%	29.7	3.5	C
	Right Turn	446	450	100.9%	22.7	3.4	C
	Subtotal	1,101	1,126	102.3%	30.1	3.1	C
WB	Left Turn	52	48	93.1%	49.7	11.4	D
	Through	85	87	102.8%	52.0	13.6	D
	Right Turn	494	499	101.0%	26.7	7.3	C
	Subtotal	631	635	100.6%	31.9	7.6	C
Total		3,683	3,745	101.7%	32.0	1.8	C

Intersection 2 **Driveway/SR92WB Ramp/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	81	79	97.8%	43.9	11.0	D
	Through	2	2	80.0%	24.3	31.1	C
	Right Turn	197	194	98.6%	20.1	27.3	C
	Subtotal	280	275	98.3%	26.8	21.4	C
SB	Left Turn	10	10	96.0%	64.2	26.2	E
	Through	20	22	110.5%	58.4	15.0	E
	Right Turn	4	5	130.0%	12.0	14.9	B
	Subtotal	34	37	108.5%	57.1	16.2	E
EB	Left Turn						
	Through	262	252	96.0%	151.7	130.7	F
	Right Turn	780	767	98.3%	47.8	23.2	D
	Subtotal	1,042	1,018	97.7%	70.4	41.5	E
WB	Left Turn	919	931	101.3%	13.8	2.5	B
	Through	180	181	100.7%	13.3	3.9	B
	Right Turn	1	2	180.0%	1.2	3.3	A
	Subtotal	1,100	1,114	101.2%	13.8	2.6	B
Total		2,456	2,444	99.5%	39.5	19.4	D

Intersection 3 **Foster City Blvd/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	703	739	105.1%	47.3	8.7	D
	Through	217	222	102.3%	12.5	3.3	B
	Right Turn	19	20	106.8%	11.6	6.7	B
	Subtotal	939	981	104.5%	38.6	7.1	D
SB	Left Turn	2	2	85.0%	61.0	141.0	E
	Through	996	922	92.5%	367.1	77.3	F
	Right Turn	235	215	91.6%	220.3	33.7	F
	Subtotal	1,233	1,139	92.3%	336.0	66.8	F
EB	Left Turn	38	37	96.6%	63.0	18.9	E
	Through	13	12	92.3%	64.8	36.0	E
	Right Turn	418	391	93.4%	231.7	88.6	F
	Subtotal	469	439	93.6%	211.9	79.8	F
WB	Left Turn	108	96	88.9%	200.6	42.1	F
	Through	161	154	95.7%	44.7	9.4	D
	Right Turn	4	3	85.0%	15.8	21.1	B
	Subtotal	273	253	92.8%	106.1	28.4	F
Total		2,914	2,812	96.5%	191.9	35.3	F

Intersection 5 **Metro Center Blvd/SR92 EB Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	2	2	110.0%	20.7	39.0	C
	Through	49	52	105.5%	84.9	13.5	F
	Right Turn	21	25	118.6%	9.9	1.9	A
	Subtotal	72	79	109.4%	59.3	13.9	E
SB	Left Turn	108	111	102.3%	29.4	4.2	C
	Through	4	4	97.5%	11.5	21.1	B
	Right Turn	44	51	116.1%	10.5	2.4	B
	Subtotal	156	166	106.1%	23.2	3.7	C
EB	Left Turn	508	480	94.5%	295.9	69.1	F
	Through	278	279	100.3%	72.3	56.6	E
	Right Turn	6	7	115.0%	38.7	45.6	D
	Subtotal	792	766	96.7%	220.1	60.0	F
WB	Left Turn	8	8	96.3%	60.9	40.1	E
	Through	102	97	95.3%	61.1	17.6	E
	Right Turn	972	920	94.7%	93.3	4.6	F
	Subtotal	1,082	1,025	94.7%	90.0	5.5	F
Total		2,102	2,035	96.8%	131.5	21.9	F

Intersection 6 **Foster City Blvd/Metro Center Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	235	240	102.0%	78.5	8.0	E
	Through	547	574	104.8%	20.9	3.7	C
	Right Turn	64	64	100.2%	13.0	2.4	B
	Subtotal	846	877	103.7%	36.9	5.2	D
SB	Left Turn	198	179	90.4%	84.7	15.0	F
	Through	615	554	90.1%	52.8	7.7	D
	Right Turn	729	664	91.1%	162.5	11.4	F
	Subtotal	1,542	1,397	90.6%	110.3	7.7	F
EB	Left Turn	124	131	106.0%	43.1	5.7	D
	Through	130	132	101.4%	41.6	8.8	D
	Right Turn	153	151	98.6%	24.7	3.1	C
	Subtotal	407	414	101.7%	36.0	4.0	D
WB	Left Turn	62	62	100.5%	49.8	13.1	D
	Through	118	124	104.9%	77.3	7.4	E
	Right Turn	268	275	102.5%	15.9	2.6	B
	Subtotal	448	461	102.8%	37.3	5.1	D
Total		3,243	3,149	97.1%	68.0	3.1	E

Vissim Post-Processor **Foster City Metro Center Hotel EIR**
Average Results from 10 Runs **Cumulative AM**
Volume and Delay by Movement **Peak Hour**

Intersection 2 **Driveway/SR92WB Ramp/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	610	581	95.3%	100.2	23.3	F
	Through	40	41	102.8%	132.6	42.6	F
	Right Turn	1,060	1,001	94.5%	52.6	21.6	D
	Subtotal	1,710	1,624	95.0%	71.2	21.6	E
SB	Left Turn	10	9	88.0%	58.1	26.8	E
	Through	20	21	104.0%	55.3	15.0	E
	Right Turn	10	14	135.0%	20.9	17.2	C
	Subtotal	40	43	107.8%	49.3	14.3	D
EB	Left Turn	10	8	79.0%	215.8	163.7	F
	Through	220	194	88.2%	339.2	79.2	F
	Right Turn	140	140	100.0%	27.9	5.6	C
	Subtotal	370	342	92.4%	213.4	45.9	F
WB	Left Turn	750	738	98.4%	8.0	1.6	A
	Through	220	214	97.1%	6.7	3.2	A
	Right Turn	20	20	102.0%	2.4	3.5	A
	Subtotal	990	972	98.2%	7.6	1.1	A
Total		3,110	2,981	95.8%	64.9	14.3	E

Intersection 3 **Foster City Blvd/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	850	842	99.0%	28.3	4.3	C
	Through	1,150	1,118	97.3%	24.7	2.6	C
	Right Turn	400	393	98.4%	18.7	3.6	B
	Subtotal	2,400	2,354	98.1%	25.0	2.8	C
SB	Left Turn	60	60	100.3%	54.5	10.6	D
	Through	320	322	100.5%	51.7	3.9	D
	Right Turn	80	72	89.9%	28.5	7.3	C
	Subtotal	460	454	98.6%	48.4	2.5	D
EB	Left Turn	500	467	93.3%	59.1	4.6	E
	Through	200	186	93.1%	76.6	5.8	E
	Right Turn	590	547	92.8%	10.9	2.7	B
	Subtotal	1,290	1,200	93.0%	41.8	4.8	D
WB	Left Turn	60	54	90.5%	50.6	7.5	D
	Through	60	57	94.2%	52.1	11.1	D
	Right Turn	10	8	80.0%	8.6	7.3	A
	Subtotal	130	119	91.4%	48.7	7.7	D
Total		4,280	4,126	96.4%	33.2	2.0	C

Vissim Post-Processor | **Foster City Metro Center Hotel EIR**
Average Results from 10 Runs | **Cumulative AM**
Volume and Delay by Movement | **Peak Hour**

Intersection 5 **Metro Center Blvd/SR92 EB Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	10	104.0%	59.0	25.9	E
	Through	10	12	116.0%	68.3	28.7	E
	Right Turn	30	32	106.0%	10.3	0.9	B
	Subtotal	50	54	107.6%	32.3	10.1	C
SB	Left Turn	1,290	1,259	97.6%	59.4	49.3	E
	Through	50	51	101.0%	63.1	51.9	E
	Right Turn	460	446	97.0%	40.4	53.3	D
	Subtotal	1,800	1,756	97.6%	54.6	50.3	D
EB	Left Turn	100	102	101.6%	61.6	5.6	E
	Through	220	234	106.5%	47.5	3.0	D
	Right Turn	10	9	89.0%	24.9	17.8	C
	Subtotal	330	345	104.5%	50.5	2.7	D
WB	Left Turn	40	36	90.3%	44.9	10.3	D
	Through	280	264	94.3%	41.3	5.2	D
	Right Turn	240	227	94.5%	5.1	0.8	A
	Subtotal	560	527	94.1%	26.8	2.8	C
Total		2,740	2,681	97.9%	47.0	30.7	D

Intersection 6 **Foster City Blvd/Metro Center Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	200	203	101.7%	157.6	81.3	F
	Through	1,130	1,153	102.0%	48.0	8.4	D
	Right Turn	80	81	101.8%	36.8	10.5	D
	Subtotal	1,410	1,438	102.0%	65.1	18.8	E
SB	Left Turn	160	155	97.1%	70.4	9.2	E
	Through	600	575	95.8%	35.6	3.5	D
	Right Turn	210	194	92.1%	9.9	2.5	A
	Subtotal	970	923	95.2%	36.9	3.0	D
EB	Left Turn	760	762	100.2%	63.2	15.0	E
	Through	290	281	96.9%	39.9	4.7	D
	Right Turn	490	486	99.1%	24.0	4.2	C
	Subtotal	1,540	1,528	99.2%	46.9	9.5	D
WB	Left Turn	60	47	78.3%	149.6	10.9	F
	Through	150	128	85.3%	152.9	10.4	F
	Right Turn	510	431	84.6%	126.2	6.4	F
	Subtotal	720	606	84.2%	133.5	6.8	F
Total		4,640	4,496	96.9%	61.5	8.9	E

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Foster City Metro Center Hotel EIR
Cumulative PM
Peak Hour

Intersection 2 **Driveway/SR92WB Ramp/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	100	98	97.8%	64.1	31.9	E
	Through	10	8	83.0%	122.8	140.8	F
	Right Turn	250	222	88.6%	254.7	155.7	F
	Subtotal	360	328	91.0%	197.3	118.6	F
SB	Left Turn	20	19	96.5%	94.9	23.9	F
	Through	30	32	107.7%	62.4	8.8	E
	Right Turn	10	13	131.0%	21.6	15.3	C
	Subtotal	60	65	107.8%	65.0	11.6	E
EB	Left Turn	10	6	61.0%	480.2	300.9	F
	Through	310	203	65.4%	603.6	162.0	F
	Right Turn	880	641	72.9%	406.8	62.0	F
	Subtotal	1,200	850	70.8%	450.0	80.9	F
WB	Left Turn	1,170	1,069	91.4%	14.4	1.5	B
	Through	230	213	92.7%	14.7	2.3	B
	Right Turn	10	8	84.0%	11.2	11.2	B
	Subtotal	1,410	1,291	91.5%	14.4	1.5	B
Total		3,030	2,533	83.6%	177.0	25.7	F

Intersection 3 **Foster City Blvd/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	760	727	95.7%	86.4	29.4	F
	Through	260	248	95.5%	20.5	2.8	C
	Right Turn	90	85	94.1%	5.2	1.3	A
	Subtotal	1,110	1,061	95.5%	64.1	20.7	E
SB	Left Turn	10	7	73.0%	302.4	126.9	F
	Through	1,180	816	69.2%	456.8	43.7	F
	Right Turn	290	213	73.4%	263.6	23.4	F
	Subtotal	1,480	1,037	70.0%	414.2	40.6	F
EB	Left Turn	50	39	78.8%	65.6	25.0	E
	Through	40	29	72.8%	162.7	76.1	F
	Right Turn	490	333	67.9%	364.6	79.6	F
	Subtotal	580	401	69.2%	327.3	75.1	F
WB	Left Turn	250	204	81.6%	307.9	60.8	F
	Through	360	340	94.5%	50.5	14.1	D
	Right Turn	50	47	94.4%	31.8	12.7	C
	Subtotal	660	592	89.6%	148.2	27.6	F
Total		3,830	3,090	80.7%	232.2	25.7	F

Vissim Post-Processor | **Foster City Metro Center Hotel EIR**
Average Results from 10 Runs | **Cumulative PM**
Volume and Delay by Movement | **Peak Hour**

Intersection 5 **Metro Center Blvd/SR92 EB Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	9	89.0%	53.7	37.2	D
	Through	50	53	105.8%	96.3	10.9	F
	Right Turn	30	35	116.7%	9.7	1.8	A
	Subtotal	90	97	107.6%	62.0	15.5	E
SB	Left Turn	280	283	101.2%	33.4	2.6	C
	Through	10	12	118.0%	33.7	14.6	C
	Right Turn	70	75	107.0%	8.4	2.4	A
	Subtotal	360	370	102.8%	29.1	2.5	C
EB	Left Turn	610	504	82.7%	333.1	22.4	F
	Through	410	362	88.3%	117.1	8.9	F
	Right Turn	10	8	83.0%	87.3	40.4	F
	Subtotal	1,030	875	84.9%	246.4	17.6	F
WB	Left Turn	10	8	76.0%	38.4	32.5	D
	Through	230	182	79.0%	72.8	16.2	E
	Right Turn	1,140	881	77.3%	94.3	2.7	F
	Subtotal	1,380	1,071	77.6%	90.5	3.5	F
Total		2,860	2,412	84.3%	135.3	4.0	F

Intersection 6 **Foster City Blvd/Metro Center Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	320	320	100.0%	107.5	32.1	F
	Through	620	637	102.7%	25.6	4.6	C
	Right Turn	100	105	104.7%	15.4	6.2	B
	Subtotal	1,040	1,062	102.1%	50.7	14.2	D
SB	Left Turn	210	150	71.4%	76.0	13.5	E
	Through	830	579	69.7%	69.9	10.2	E
	Right Turn	880	608	69.1%	183.1	24.5	F
	Subtotal	1,920	1,336	69.6%	121.5	15.6	F
EB	Left Turn	190	182	95.5%	48.1	6.9	D
	Through	310	294	94.7%	49.1	3.2	D
	Right Turn	220	205	93.1%	28.9	2.7	C
	Subtotal	720	680	94.4%	42.7	3.2	D
WB	Left Turn	70	52	73.9%	204.2	32.0	F
	Through	180	149	82.6%	240.0	47.5	F
	Right Turn	300	243	81.0%	171.7	34.6	F
	Subtotal	550	443	80.6%	198.0	39.4	F
Total		4,230	3,521	83.2%	92.9	8.8	F

Intersection 2 **Driveway/SR92WB Ramp/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	614	603	98.2%	106.2	26.6	F
	Through	40	41	101.3%	122.3	39.6	F
	Right Turn	1,060	1,011	95.4%	49.2	13.6	D
	Subtotal	1,714	1,655	96.5%	72.4	16.5	E
SB	Left Turn	10	9	93.0%	59.7	30.1	E
	Through	20	21	106.0%	55.3	20.2	E
	Right Turn	10	13	133.0%	14.6	8.8	B
	Subtotal	40	44	109.5%	46.5	15.3	D
EB	Left Turn	10	8	83.0%	299.0	162.1	F
	Through	220	195	88.6%	353.2	51.2	F
	Right Turn	140	142	101.3%	22.7	5.2	C
	Subtotal	370	345	93.3%	219.1	27.8	F
WB	Left Turn	755	749	99.2%	7.2	2.3	A
	Through	223	217	97.4%	6.3	1.6	A
	Right Turn	20	21	102.5%	2.2	2.1	A
	Subtotal	998	987	98.9%	6.9	2.0	A
Total		3,122	3,030	97.1%	69.1	11.5	E

Intersection 3 **Foster City Blvd/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	858	858	100.0%	28.8	6.7	C
	Through	1,157	1,117	96.6%	25.7	3.1	C
	Right Turn	400	399	99.8%	19.7	2.7	B
	Subtotal	2,415	2,374	98.3%	25.8	3.9	C
SB	Left Turn	60	63	104.5%	52.3	7.5	D
	Through	320	325	101.7%	51.2	4.3	D
	Right Turn	80	73	91.8%	27.3	7.0	C
	Subtotal	460	462	100.3%	47.5	2.6	D
EB	Left Turn	500	469	93.8%	57.5	4.2	E
	Through	200	188	93.9%	75.0	8.4	E
	Right Turn	590	552	93.6%	10.4	3.6	B
	Subtotal	1,290	1,209	93.7%	40.4	5.7	D
WB	Left Turn	60	54	89.8%	48.7	3.4	D
	Through	60	55	92.2%	52.1	11.6	D
	Right Turn	10	8	77.0%	12.2	7.8	B
	Subtotal	130	117	89.9%	47.5	6.5	D
Total		4,295	4,162	96.9%	33.2	2.9	C

Vissim Post-Processor **Foster City Metro Center Hotel EIR**
Average Results from 10 Runs **CPP AM**
Volume and Delay by Movement **Peak Hour**

Intersection 5 **Metro Center Blvd/SR92 EB Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	10	101.0%	47.2	32.4	D
	Through	10	11	108.0%	62.1	23.4	E
	Right Turn	30	32	106.0%	9.7	0.7	A
	Subtotal	50	53	105.4%	34.2	7.0	C
SB	Left Turn	1,290	1,268	98.3%	60.9	37.6	E
	Through	50	49	98.2%	61.9	34.2	E
	Right Turn	460	451	98.0%	33.1	44.7	C
	Subtotal	1,800	1,768	98.2%	54.3	38.9	D
EB	Left Turn	103	102	98.9%	55.2	8.5	E
	Through	235	246	104.7%	44.7	6.3	D
	Right Turn	10	10	102.0%	16.5	10.8	B
	Subtotal	348	358	102.9%	46.9	5.5	D
WB	Left Turn	40	36	90.8%	57.4	11.5	E
	Through	281	261	93.0%	38.9	4.3	D
	Right Turn	240	231	96.3%	5.0	0.9	A
	Subtotal	561	529	94.3%	25.0	1.9	C
Total		2,759	2,708	98.1%	47.6	26.3	D

Intersection 6 **Foster City Blvd/Metro Center Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	201	203	100.8%	141.7	89.9	F
	Through	1,130	1,144	101.3%	48.0	5.6	D
	Right Turn	80	83	103.3%	37.3	8.0	D
	Subtotal	1,411	1,430	101.3%	62.5	17.0	E
SB	Left Turn	160	154	96.1%	70.1	13.4	E
	Through	600	579	96.6%	34.8	3.2	C
	Right Turn	210	197	93.7%	9.7	3.1	A
	Subtotal	970	930	95.9%	36.3	3.4	D
EB	Left Turn	775	777	100.3%	56.9	11.1	E
	Through	290	281	96.8%	39.3	6.4	D
	Right Turn	490	489	99.8%	23.1	3.5	C
	Subtotal	1,555	1,547	99.5%	43.4	7.7	D
WB	Left Turn	60	48	80.5%	132.1	15.6	F
	Through	150	130	86.5%	145.2	12.7	F
	Right Turn	510	444	87.1%	120.4	8.5	F
	Subtotal	720	622	86.4%	126.5	8.9	F
Total		4,656	4,528	97.3%	58.7	6.1	E

Vissim Post-Processor | **Foster City Metro Center Hotel EIR**
Average Results from 10 Runs | **CPP PM**
Volume and Delay by Movement | **Peak Hour**

Intersection 2 **Driveway/SR92WB Ramp/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	104	101	96.7%	58.3	37.3	E
	Through	10	9	91.0%	167.8	180.0	F
	Right Turn	250	220	88.1%	277.2	165.0	F
	Subtotal	364	330	90.6%	213.4	121.3	F
SB	Left Turn	20	19	96.0%	91.9	38.4	F
	Through	30	32	107.7%	59.3	10.2	E
	Right Turn	10	13	131.0%	22.2	16.0	C
	Subtotal	60	65	107.7%	63.1	12.7	E
EB	Left Turn	10	6	60.0%	571.6	262.7	F
	Through	310	209	67.5%	585.5	112.5	F
	Right Turn	880	650	73.9%	416.7	81.1	F
	Subtotal	1,200	866	72.2%	459.9	91.2	F
WB	Left Turn	1,177	1,063	90.3%	14.5	1.2	B
	Through	235	215	91.4%	14.2	1.5	B
	Right Turn	10	9	86.0%	12.6	7.5	B
	Subtotal	1,422	1,287	90.5%	14.4	1.2	B
Total		3,046	2,547	83.6%	180.6	25.7	F

Intersection 3 **Foster City Blvd/Chess Dr** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	771	735	95.4%	85.6	33.4	F
	Through	270	258	95.6%	19.3	4.1	B
	Right Turn	90	88	97.4%	5.4	1.1	A
	Subtotal	1,131	1,081	95.6%	63.0	23.5	E
SB	Left Turn	10	8	75.0%	295.8	114.7	F
	Through	1,180	790	66.9%	458.8	57.9	F
	Right Turn	290	206	71.0%	263.8	24.1	F
	Subtotal	1,480	1,003	67.8%	414.3	48.6	F
EB	Left Turn	50	39	78.6%	59.5	17.4	E
	Through	40	30	75.5%	152.9	65.1	F
	Right Turn	490	335	68.3%	350.0	70.8	F
	Subtotal	580	404	69.7%	303.7	59.8	F
WB	Left Turn	250	198	79.3%	343.8	87.3	F
	Through	360	335	93.0%	55.7	9.4	E
	Right Turn	50	47	93.6%	36.3	13.3	D
	Subtotal	660	580	87.9%	159.1	32.7	F
Total		3,851	3,068	79.7%	227.4	29.1	F

Vissim Post-Processor **Foster City Metro Center Hotel EIR**
Average Results from 10 Runs **CPP PM**
Volume and Delay by Movement **Peak Hour**

Intersection 5 **Metro Center Blvd/SR92 EB Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	9	89.0%	53.6	37.3	D
	Through	50	53	105.2%	97.9	14.0	F
	Right Turn	30	35	116.7%	9.7	1.7	A
	Subtotal	90	97	107.2%	62.6	18.3	E
SB	Left Turn	280	283	101.1%	33.4	2.5	C
	Through	10	12	119.0%	34.0	14.6	C
	Right Turn	70	75	107.0%	8.4	2.4	A
	Subtotal	360	370	102.8%	29.2	2.5	C
EB	Left Turn	614	513	83.6%	327.6	23.4	F
	Through	431	383	88.8%	112.4	9.3	F
	Right Turn	10	9	85.0%	81.3	66.2	F
	Subtotal	1,055	905	85.7%	241.7	15.2	F
WB	Left Turn	10	7	72.0%	50.9	33.3	D
	Through	231	182	78.7%	82.9	11.6	F
	Right Turn	1,140	872	76.5%	96.6	4.6	F
	Subtotal	1,381	1,061	76.9%	94.0	5.7	F
Total		2,886	2,432	84.3%	136.4	5.4	F

Intersection 6 **Foster City Blvd/Metro Center Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	321	322	100.3%	106.3	33.0	F
	Through	620	637	102.8%	25.2	2.8	C
	Right Turn	100	104	104.4%	14.0	5.3	B
	Subtotal	1,041	1,064	102.2%	49.5	12.0	D
SB	Left Turn	210	146	69.4%	75.4	10.8	E
	Through	830	568	68.5%	64.6	10.3	E
	Right Turn	880	598	67.9%	177.5	23.5	F
	Subtotal	1,920	1,312	68.3%	117.4	15.8	F
EB	Left Turn	211	204	96.7%	49.8	6.7	D
	Through	310	293	94.4%	47.7	4.8	D
	Right Turn	220	202	92.0%	30.0	2.9	C
	Subtotal	741	699	94.3%	43.0	3.2	D
WB	Left Turn	70	52	74.3%	199.0	18.3	F
	Through	180	147	81.7%	235.0	19.9	F
	Right Turn	300	240	80.0%	172.6	19.0	F
	Subtotal	550	439	79.9%	196.9	17.6	F
Total		4,252	3,514	82.6%	91.1	6.1	F

APPENDIX C
CALEEMOD OUTPUT

Foster City Hotel

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	104.00	Space	0.00	11,796.00	0
High Turnover (Sit Down Restaurant)	2.50	1000sqft	0.00	2,500.00	0
Hotel	155.00	Room	3.01	82,463.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	294	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E's most recent CO2 Intensity Factor modified to value from 2016.

Land Use - Information obtained from the project plan. Lot area increased from 1.36 acres to 3+ acres and assigned to the hotel to generate appropriate default construction and equipment information.

Off-road Equipment - Added drill rig for pile driving

Grading - Assumed up to 5 feet of excavation to replace existing fill materials.

Vehicle Trips - According to focused transportation analysis from Fehr & Peers. Trip rates are conservative because they do not include trip reductions from walk, bike, transit trips.

Water And Wastewater - No lagoons or septic tanks are used for wastewater treatment in the project area.

Construction Off-road Equipment Mitigation - Mitigation Measure AIR-1: Tier 2 engines and level 3 PDF

Stationary Sources - Emergency Generators and Fire Pumps - It was conservatively assumed that a 1,000-kilowatt diesel emergency generator would be used.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblGrading	MaterialExported	0.00	13,000.00

tblGrading	MaterialImported	0.00	13,000.00
tblLandUse	LandUseSquareFeet	41,600.00	11,796.00
tblLandUse	LandUseSquareFeet	225,060.00	82,463.00
tblLandUse	LotAcreage	0.94	0.00
tblLandUse	LotAcreage	0.06	0.00
tblLandUse	LotAcreage	5.17	3.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	294
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	1,341.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	ST_TR	158.37	139.50
tblVehicleTrips	ST_TR	8.19	8.54
tblVehicleTrips	SU_TR	131.84	116.13
tblVehicleTrips	SU_TR	5.95	6.20
tblVehicleTrips	WD_TR	127.15	112.00
tblVehicleTrips	WD_TR	8.17	8.52
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1974	2.1783	1.5089	3.9400e-003	0.1315	0.0917	0.2232	0.0545	0.0861	0.1406	0.0000	357.3681	357.3681	0.0545	0.0000	358.7301
2021	0.5505	0.9658	0.9294	1.7400e-003	0.0211	0.0490	0.0701	5.7200e-003	0.0460	0.0517	0.0000	152.4462	152.4462	0.0309	0.0000	153.2180
Maximum	**0.5505**	**2.1783**	**1.5089**	**3.9400e-003**	**0.1315**	**0.0917**	**0.2232**	**0.0545**	**0.0861**	**0.1406**	**0.0000**	**357.3681**	**357.3681**	**0.0545**	**0.0000**	**358.7301**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1113	2.4664	1.5981	3.9400e-003	0.1315	0.0127	0.1442	0.0545	0.0126	0.0671	0.0000	357.3679	357.3679	0.0545	0.0000	358.7299
2021	0.5100	1.2929	0.9988	1.7400e-003	0.0211	7.1800e-003	0.0283	5.7200e-003	7.1700e-003	0.0129	0.0000	152.4460	152.4460	0.0309	0.0000	153.2179
Maximum	**0.5100**	**2.4664**	**1.5981**	**3.9400e-003**	**0.1315**	**0.0127**	**0.1442**	**0.0545**	**0.0126**	**0.0671**	**0.0000**	**357.3679**	**357.3679**	**0.0545**	**0.0000**	**358.7299**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**16.93**	**-19.57**	**-6.50**	**0.00**	**0.00**	**85.86**	**41.20**	**0.00**	**85.02**	**58.39**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-1-2020**	**8-31-2020**	1.1785	1.2429
2	**9-1-2020**	**11-30-2020**	0.7622	0.8704
3	**12-1-2020**	**2-28-2021**	0.7084	0.8570
4	**3-1-2021**	**5-31-2021**	0.6130	0.7835
5	**6-1-2021**	**8-31-2021**	0.4396	0.4458
		Highest	1.1785	1.2429

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	0.3774	2.0000e-005	2.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.6700e-003	4.6700e-003	1.0000e-005	0.0000	4.9800e-003
Energy	0.0185	0.1682	0.1413	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	291.7907	291.7907	0.0142	5.5800e-003	293.8080
Mobile	0.3547	1.6674	3.5976	0.0121	1.0236	0.0111	1.0347	0.2747	0.0104	0.2852	0.0000	1,112.2873	1,112.2873	0.0439	0.0000	1,113.3844
Stationary	0.0550	0.2460	0.1403	2.6000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	25.5325	25.5325	3.5800e-003	0.0000	25.6219
Waste						0.0000	0.0000		0.0000	0.0000	23.2648	0.0000	23.2648	1.3749	0.0000	57.6375
Water						0.0000	0.0000		0.0000	0.0000	1.6596	3.6113	5.2708	6.0700e-003	3.6800e-003	6.5200
Total	**0.8056**	**2.0816**	**3.8815**	**0.0134**	**1.0236**	**0.0320**	**1.0556**	**0.2747**	**0.0313**	**0.3060**	**24.9244**	**1,433.2264**	**1,458.1508**	**1.4427**	**9.2600e-003**	**1,496.9768**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3774	2.0000e-005	2.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.6700e-003	4.6700e-003	1.0000e-005	0.0000	4.9800e-003
Energy	0.0185	0.1682	0.1413	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	291.7907	291.7907	0.0142	5.5800e-003	293.8080
Mobile	0.3547	1.6674	3.5976	0.0121	1.0236	0.0111	1.0347	0.2747	0.0104	0.2852	0.0000	1,112.2873	1,112.2873	0.0439	0.0000	1,113.3844
Stationary	0.0550	0.2460	0.1403	2.6000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	25.5325	25.5325	3.5800e-003	0.0000	25.6219
Waste						0.0000	0.0000		0.0000	0.0000	23.2648	0.0000	23.2648	1.3749	0.0000	57.6375
Water						0.0000	0.0000		0.0000	0.0000	1.3277	2.9343	4.2620	4.8600e-003	2.9500e-003	5.2617
Total	**0.8056**	**2.0816**	**3.8815**	**0.0134**	**1.0236**	**0.0320**	**1.0556**	**0.2747**	**0.0313**	**0.3060**	**24.5925**	**1,432.5495**	**1,457.1419**	**1.4415**	**8.5300e-003**	**1,495.7185**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.33**	**0.05**	**0.07**	**0.08**	**7.88**	**0.08**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2020	6/5/2020	5	5	
2	Grading	Grading	6/6/2020	6/17/2020	5	8	
3	Building Construction	Building Construction	6/18/2020	5/5/2021	5	230	
4	Paving	Paving	5/6/2021	5/31/2021	5	18	
5	Architectural Coating	Architectural Coating	6/1/2021	6/24/2021	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 127,445; Non-Residential Outdoor: 42,482; Striped Parking Area: 708 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Bore/Drill Rigs	1	1.00	221	0.50
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	3,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	41.00	16.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0466	0.0000	0.0466	0.0251	0.0000	0.0251	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1060	0.0538	1.0000e-004		5.4900e-003	5.4900e-003		5.0500e-003	5.0500e-003	0.0000	8.3577	8.3577	2.7000e-003	0.0000	8.4253
Total	**0.0102**	**0.1060**	**0.0538**	**1.0000e-004**	**0.0466**	**5.4900e-003**	**0.0521**	**0.0251**	**5.0500e-003**	**0.0301**	**0.0000**	**8.3577**	**8.3577**	**2.7000e-003**	**0.0000**	**8.4253**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0136	0.4751	0.0955	1.2800e-003	0.0275	1.5300e-003	0.0290	7.5500e-003	1.4700e-003	9.0100e-003	0.0000	124.5356	124.5356	6.4100e-003	0.0000	124.6959
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.1000e-004	1.1100e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3115	0.3115	1.0000e-005	0.0000	0.3117
Total	**0.0137**	**0.4752**	**0.0966**	**1.2800e-003**	**0.0278**	**1.5300e-003**	**0.0293**	**7.6400e-003**	**1.4700e-003**	**9.1100e-003**	**0.0000**	**124.8472**	**124.8472**	**6.4200e-003**	**0.0000**	**125.0076**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0466	0.0000	0.0466	0.0251	0.0000	0.0251	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0200e-003	0.0843	0.0574	1.0000e-004		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	8.3577	8.3577	2.7000e-003	0.0000	8.4252
Total	**3.0200e-003**	**0.0843**	**0.0574**	**1.0000e-004**	**0.0466**	**3.5000e-004**	**0.0470**	**0.0251**	**3.5000e-004**	**0.0254**	**0.0000**	**8.3577**	**8.3577**	**2.7000e-003**	**0.0000**	**8.4252**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0136	0.4751	0.0955	1.2800e-003	0.0275	1.5300e-003	0.0290	7.5500e-003	1.4700e-003	9.0100e-003	0.0000	124.5356	124.5356	6.4100e-003	0.0000	124.6959
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.1000e-004	1.1100e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3115	0.3115	1.0000e-005	0.0000	0.3117
Total	**0.0137**	**0.4752**	**0.0966**	**1.2800e-003**	**0.0278**	**1.5300e-003**	**0.0293**	**7.6400e-003**	**1.4700e-003**	**9.1100e-003**	**0.0000**	**124.8472**	**124.8472**	**6.4200e-003**	**0.0000**	**125.0076**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.8500e-003	0.1073	0.0653	1.2000e-004		5.1400e-003	5.1400e-003		4.7300e-003	4.7300e-003	0.0000	10.8362	10.8362	3.5000e-003	0.0000	10.9238
Total	**9.8500e-003**	**0.1073**	**0.0653**	**1.2000e-004**	**0.0262**	**5.1400e-003**	**0.0314**	**0.0135**	**4.7300e-003**	**0.0182**	**0.0000**	**10.8362**	**10.8362**	**3.5000e-003**	**0.0000**	**10.9238**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.7000e-004	1.7700e-003	1.0000e-005	5.7000e-004	0.0000	5.7000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4984	0.4984	1.0000e-005	0.0000	0.4987
Total	**2.4000e-004**	**1.7000e-004**	**1.7700e-003**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**5.7000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4984**	**0.4984**	**1.0000e-005**	**0.0000**	**0.4987**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1500e-003	0.1092	0.0785	1.2000e-004		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	10.8362	10.8362	3.5000e-003	0.0000	10.9238
Total	**4.1500e-003**	**0.1092**	**0.0785**	**1.2000e-004**	**0.0262**	**4.8000e-004**	**0.0267**	**0.0135**	**4.8000e-004**	**0.0140**	**0.0000**	**10.8362**	**10.8362**	**3.5000e-003**	**0.0000**	**10.9238**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.7000e-004	1.7700e-003	1.0000e-005	5.7000e-004	0.0000	5.7000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4984	0.4984	1.0000e-005	0.0000	0.4987
Total	**2.4000e-004**	**1.7000e-004**	**1.7700e-003**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**5.7000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4984**	**0.4984**	**1.0000e-005**	**0.0000**	**0.4987**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1495	1.3526	1.1878	1.9000e-003		0.0788	0.0788		0.0741	0.0741	0.0000	163.2850	163.2850	0.0398	0.0000	164.2809
Total	**0.1495**	**1.3526**	**1.1878**	**1.9000e-003**		**0.0788**	**0.0788**		**0.0741**	**0.0741**	**0.0000**	**163.2850**	**163.2850**	**0.0398**	**0.0000**	**164.2809**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3600e-003	0.1302	0.0327	3.1000e-004	7.4000e-003	6.3000e-004	8.0300e-003	2.1400e-003	6.1000e-004	2.7500e-003	0.0000	29.5332	29.5332	1.5200e-003	0.0000	29.5713
Worker	9.5800e-003	6.8600e-003	0.0710	2.2000e-004	0.0228	1.5000e-004	0.0230	6.0800e-003	1.4000e-004	6.2200e-003	0.0000	20.0104	20.0104	4.8000e-004	0.0000	20.0225
Total	**0.0139**	**0.1370**	**0.1037**	**5.3000e-004**	**0.0302**	**7.8000e-004**	**0.0310**	**8.2200e-003**	**7.5000e-004**	**8.9700e-003**	**0.0000**	**49.5436**	**49.5436**	**2.0000e-003**	**0.0000**	**49.5938**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0762	1.6606	1.2601	1.9000e-003		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003	0.0000	163.2848	163.2848	0.0398	0.0000	164.2807
Total	**0.0762**	**1.6606**	**1.2601**	**1.9000e-003**		**9.5600e-003**	**9.5600e-003**		**9.5600e-003**	**9.5600e-003**	**0.0000**	**163.2848**	**163.2848**	**0.0398**	**0.0000**	**164.2807**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3600e-003	0.1302	0.0327	3.1000e-004	7.4000e-003	6.3000e-004	8.0300e-003	2.1400e-003	6.1000e-004	2.7500e-003	0.0000	29.5332	29.5332	1.5200e-003	0.0000	29.5713
Worker	9.5800e-003	6.8600e-003	0.0710	2.2000e-004	0.0228	1.5000e-004	0.0230	6.0800e-003	1.4000e-004	6.2200e-003	0.0000	20.0104	20.0104	4.8000e-004	0.0000	20.0225
Total	**0.0139**	**0.1370**	**0.1037**	**5.3000e-004**	**0.0302**	**7.8000e-004**	**0.0310**	**8.2200e-003**	**7.5000e-004**	**8.9700e-003**	**0.0000**	**49.5436**	**49.5436**	**2.0000e-003**	**0.0000**	**49.5938**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0846	0.7757	0.7376	1.2000e-003		0.0427	0.0427		0.0401	0.0401	0.0000	103.0786	103.0786	0.0249	0.0000	103.7003
Total	**0.0846**	**0.7757**	**0.7376**	**1.2000e-003**		**0.0427**	**0.0427**		**0.0401**	**0.0401**	**0.0000**	**103.0786**	**103.0786**	**0.0249**	**0.0000**	**103.7003**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2600e-003	0.0744	0.0186	1.9000e-004	4.6700e-003	1.6000e-004	4.8300e-003	1.3500e-003	1.5000e-004	1.5100e-003	0.0000	18.4653	18.4653	9.1000e-004	0.0000	18.4880
Worker	5.6000e-003	3.8600e-003	0.0409	1.3000e-004	0.0144	9.0000e-005	0.0145	3.8400e-003	9.0000e-005	3.9200e-003	0.0000	12.1875	12.1875	2.7000e-004	0.0000	12.1943
Total	**7.8600e-003**	**0.0782**	**0.0595**	**3.2000e-004**	**0.0191**	**2.5000e-004**	**0.0193**	**5.1900e-003**	**2.4000e-004**	**5.4300e-003**	**0.0000**	**30.6528**	**30.6528**	**1.1800e-003**	**0.0000**	**30.6823**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0481	1.0482	0.7954	1.2000e-003		6.0300e-003	6.0300e-003		6.0300e-003	6.0300e-003	0.0000	103.0785	103.0785	0.0249	0.0000	103.7002
Total	**0.0481**	**1.0482**	**0.7954**	**1.2000e-003**		**6.0300e-003**	**6.0300e-003**		**6.0300e-003**	**6.0300e-003**	**0.0000**	**103.0785**	**103.0785**	**0.0249**	**0.0000**	**103.7002**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2600e-003	0.0744	0.0186	1.9000e-004	4.6700e-003	1.6000e-004	4.8300e-003	1.3500e-003	1.5000e-004	1.5100e-003	0.0000	18.4653	18.4653	9.1000e-004	0.0000	18.4880
Worker	5.6000e-003	3.8600e-003	0.0409	1.3000e-004	0.0144	9.0000e-005	0.0145	3.8400e-003	9.0000e-005	3.9200e-003	0.0000	12.1875	12.1875	2.7000e-004	0.0000	12.1943
Total	**7.8600e-003**	**0.0782**	**0.0595**	**3.2000e-004**	**0.0191**	**2.5000e-004**	**0.0193**	**5.1900e-003**	**2.4000e-004**	**5.4300e-003**	**0.0000**	**30.6528**	**30.6528**	**1.1800e-003**	**0.0000**	**30.6823**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8500e-003	0.0976	0.1103	1.7000e-004		5.2100e-003	5.2100e-003		4.8100e-003	4.8100e-003	0.0000	14.7336	14.7336	4.6300e-003	0.0000	14.8493
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.8500e-003**	**0.0976**	**0.1103**	**1.7000e-004**		**5.2100e-003**	**5.2100e-003**		**4.8100e-003**	**4.8100e-003**	**0.0000**	**14.7336**	**14.7336**	**4.6300e-003**	**0.0000**	**14.8493**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.8000e-004	4.0400e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2024	1.2024	3.0000e-005	0.0000	1.2031
Total	**5.5000e-004**	**3.8000e-004**	**4.0400e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2024**	**1.2024**	**3.0000e-005**	**0.0000**	**1.2031**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7700e-003	0.1448	0.1218	1.7000e-004		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	14.7335	14.7335	4.6300e-003	0.0000	14.8493
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7700e-003**	**0.1448**	**0.1218**	**1.7000e-004**		**7.6000e-004**	**7.6000e-004**		**7.6000e-004**	**7.6000e-004**	**0.0000**	**14.7335**	**14.7335**	**4.6300e-003**	**0.0000**	**14.8493**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.8000e-004	4.0400e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2024	1.2024	3.0000e-005	0.0000	1.2031
Total	**5.5000e-004**	**3.8000e-004**	**4.0400e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2024**	**1.2024**	**3.0000e-005**	**0.0000**	**1.2031**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4455					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9700e-003	0.0137	0.0164	3.0000e-005		8.5000e-004	8.5000e-004		8.5000e-004	8.5000e-004	0.0000	2.2979	2.2979	1.6000e-004	0.0000	2.3019
Total	**0.4475**	**0.0137**	**0.0164**	**3.0000e-005**		**8.5000e-004**	**8.5000e-004**		**8.5000e-004**	**8.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.6000e-004**	**0.0000**	**2.3019**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.6100e-003	1.0000e-005	5.7000e-004	0.0000	5.7000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4810	0.4810	1.0000e-005	0.0000	0.4812
Total	**2.2000e-004**	**1.5000e-004**	**1.6100e-003**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**5.7000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4810**	**0.4810**	**1.0000e-005**	**0.0000**	**0.4812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4455					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0300e-003	0.0212	0.0165	3.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	2.2979	2.2979	1.6000e-004	0.0000	2.3019
Total	**0.4465**	**0.0212**	**0.0165**	**3.0000e-005**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.6000e-004**	**0.0000**	**2.3019**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.6100e-003	1.0000e-005	5.7000e-004	0.0000	5.7000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4810	0.4810	1.0000e-005	0.0000	0.4812
Total	**2.2000e-004**	**1.5000e-004**	**1.6100e-003**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**5.7000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4810**	**0.4810**	**1.0000e-005**	**0.0000**	**0.4812**

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	0.3547	1.6674	3.5976	0.0121	1.0236	0.0111	1.0347	0.2747	0.0104	0.2852	0.0000	1,112.2873	1,112.2873	0.0439	0.0000	1,113.3844
Unmitigated	0.3547	1.6674	3.5976	0.0121	1.0236	0.0111	1.0347	0.2747	0.0104	0.2852	0.0000	1,112.2873	1,112.2873	0.0439	0.0000	1,113.3844

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
High Turnover (Sit Down Restaurant)	280.00	348.75	290.33	337,981	337,981
Hotel	1,320.60	1,323.70	961.00	2,412,288	2,412,288
Total	1,600.60	1,672.45	1,251.33	2,750,269	2,750,269

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
High Turnover (Sit Down Restaurant)	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Hotel	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

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	108.7249	108.7249	0.0107	2.2200e-003	109.6543
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	108.7249	108.7249	0.0107	2.2200e-003	109.6543
NaturalGas Mitigated	0.0185	0.1682	0.1413	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	183.0658	183.0658	3.5100e-003	3.3600e-003	184.1537
NaturalGas Unmitigated	0.0185	0.1682	0.1413	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	183.0658	183.0658	3.5100e-003	3.3600e-003	184.1537

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					
Enclosed Parking with Elevator	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
High Turnover (Sit Down Restaurant)	419800	2.2600e-003	0.0206	0.0173	1.2000e-004		1.5600e-003	1.5600e-003		1.5600e-003	1.5600e-003	0.0000	22.4021	22.4021	4.3000e-004	4.1000e-004	22.5353
Hotel	3.01072e+006	0.0162	0.1476	0.1240	8.9000e-004		0.0112	0.0112		0.0112	0.0112	0.0000	160.6637	160.6637	3.0800e-003	2.9500e-003	161.6185
Total		**0.0185**	**0.1682**	**0.1413**	**1.0100e-003**		**0.0128**	**0.0128**		**0.0128**	**0.0128**	**0.0000**	**183.0658**	**183.0658**	**3.5100e-003**	**3.3600e-003**	**184.1537**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	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
High Turnover (Sit Down Restaurant)	419800	2.2600e-003	0.0206	0.0173	1.2000e-004		1.5600e-003	1.5600e-003		1.5600e-003	1.5600e-003	0.0000	22.4021	22.4021	4.3000e-004	4.1000e-004	22.5353
Hotel	3.01072e+006	0.0162	0.1476	0.1240	8.9000e-004		0.0112	0.0112		0.0112	0.0112	0.0000	160.6637	160.6637	3.0800e-003	2.9500e-003	161.6185
Total		**0.0185**	**0.1682**	**0.1413**	**1.0100e-003**		**0.0128**	**0.0128**		**0.0128**	**0.0128**	**0.0000**	**183.0658**	**183.0658**	**3.5100e-003**	**3.3600e-003**	**184.1537**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	69124.6	9.2182	9.1000e-004	1.9000e-004	9.2970
High Turnover (Sit Down Restaurant)	72450	9.6617	9.5000e-004	2.0000e-004	9.7442
Hotel	673723	89.8451	8.8600e-003	1.8300e-003	90.6130
Total		**108.7249**	**0.0107**	**2.2200e-003**	**109.6543**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	69124.6	9.2182	9.1000e-004	1.9000e-004	9.2970
High Turnover (Sit Down Restaurant)	72450	9.6617	9.5000e-004	2.0000e-004	9.7442
Hotel	673723	89.8451	8.8600e-003	1.8300e-003	90.6130
Total		**108.7249**	**0.0107**	**2.2200e-003**	**109.6543**

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	0.3774	2.0000e-005	2.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.6700e-003	4.6700e-003	1.0000e-005	0.0000	4.9800e-003
Unmitigated	0.3774	2.0000e-005	2.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.6700e-003	4.6700e-003	1.0000e-005	0.0000	4.9800e-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	0.0446					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3326					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.2000e-004	2.0000e-005	2.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.6700e-003	4.6700e-003	1.0000e-005	0.0000	4.9800e-003
Total	**0.3774**	**2.0000e-005**	**2.4100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.6700e-003**	**4.6700e-003**	**1.0000e-005**	**0.0000**	**4.9800e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0446					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3326					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.2000e-004	2.0000e-005	2.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.6700e-003	4.6700e-003	1.0000e-005	0.0000	4.9800e-003
Total	**0.3774**	**2.0000e-005**	**2.4100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.6700e-003**	**4.6700e-003**	**1.0000e-005**	**0.0000**	**4.9800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.2620	4.8600e-003	2.9500e-003	5.2617
Unmitigated	5.2708	6.0700e-003	3.6800e-003	6.5200

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0.758834 / 0.0484362	0.8387	9.8000e-004	6.0000e-004	1.0406
Hotel	3.93185 / 0.436872	4.4322	5.0900e-003	3.0900e-003	5.4794
Total		**5.2708**	**6.0700e-003**	**3.6900e-003**	**6.5200**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0.607067 / 0.0484362	0.6754	7.8000e-004	4.8000e-004	0.8371
Hotel	3.14548 / 0.436872	3.5865	4.0700e-003	2.4700e-003	4.4246
Total		**4.2620**	**4.8500e-003**	**2.9500e-003**	**5.2617**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	23.2648	1.3749	0.0000	57.6375
Unmitigated	23.2648	1.3749	0.0000	57.6375

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	29.75	6.0390	0.3569	0.0000	14.9613
Hotel	84.86	17.2258	1.0180	0.0000	42.6762
Total		**23.2648**	**1.3749**	**0.0000**	**57.6375**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	29.75	6.0390	0.3569	0.0000	14.9613
Hotel	84.86	17.2258	1.0180	0.0000	42.6762
Total		**23.2648**	**1.3749**	**0.0000**	**57.6375**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	1341	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

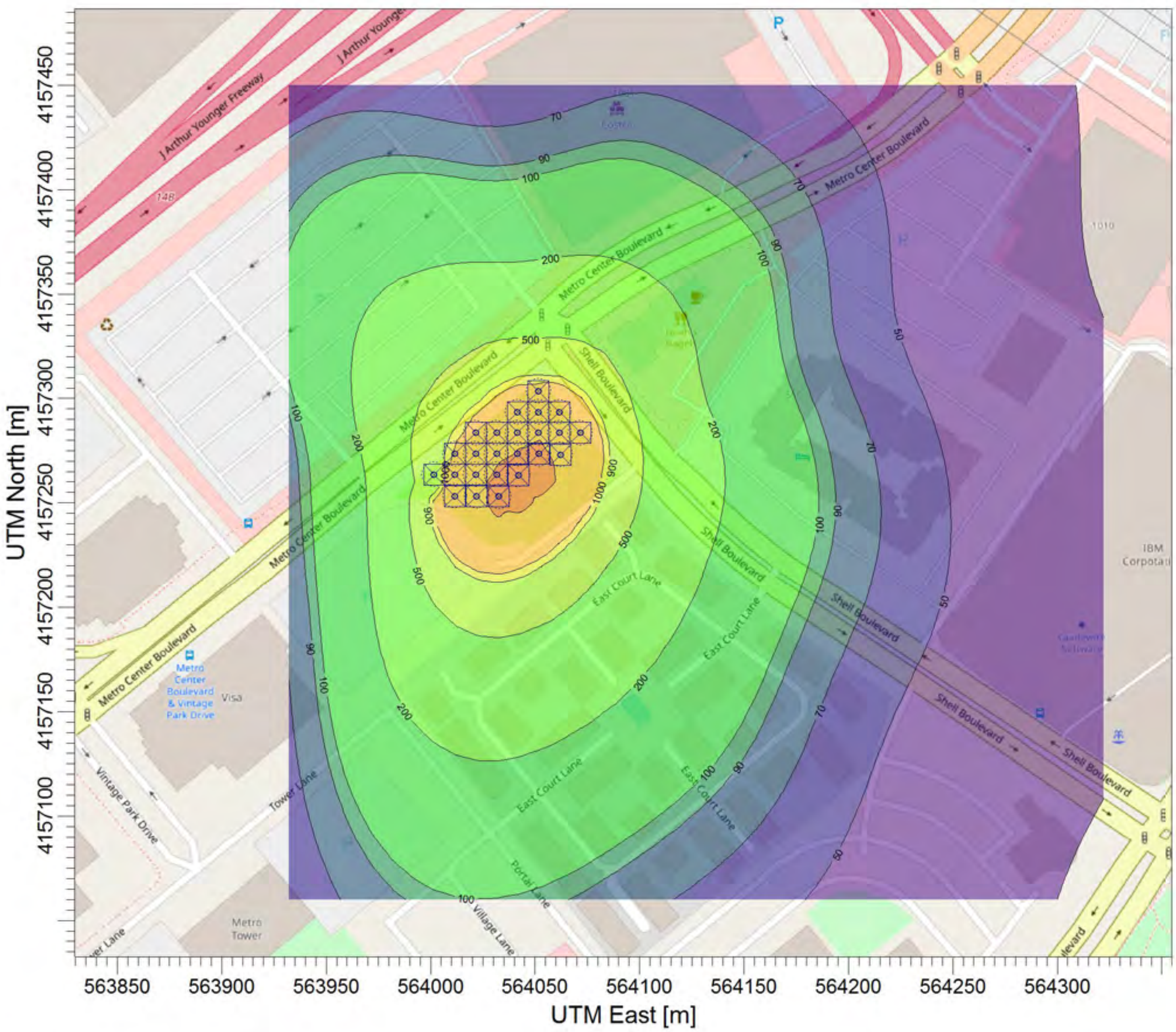
Unmitigated/Mitigated

	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)	0.0550	0.2460	0.1403	2.6000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	25.5325	25.5325	3.5800e-003	0.0000	25.6219
Total	**0.0550**	**0.2460**	**0.1403**	**2.6000e-004**		**8.0900e-003**	**8.0900e-003**		**8.0900e-003**	**8.0900e-003**	**0.0000**	**25.5325**	**25.5325**	**3.5800e-003**	**0.0000**	**25.6219**

11.0 Vegetation

PROJECT TITLE:

Foster City Hotel Project



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

ug/m^3

Max: 2284 [ug/m^3] at (564042.19, 4157260.00)

23 50 70 90 100 200 500 900 1000 2000 2284

COMMENTS:	SOURCES:	COMPANY NAME:	
	24	**BASELINE Environmental Consulting**	
	RECEPTORS: **1600**	MODELER:	
	OUTPUT TYPE: **Concentration**	SCALE: 1:3,302 0 ▬▬▬ 0.1 km	
	MAX: **2284 ug/m^3**	DATE: **11/11/2019**	PROJECT NO.:

Summary of ISCST3 Model Parameters, Assumptions, and Results for DPM and $PM_{2.5}$ Emissions during Construction

ISCST3 Model Parameters and Assumptions			
Source Type	**Units**	**Value**	**Notes**
Volume Source: Off-Road Equipment Exhaust			
Hours/Work Day	hours/day	10.00	Construction hours are limited to 7AM-5PM M-F
DPM Emission Rate	gram/second	0.006093	Exhaust PM_{10} from off-road equipment
Number of Sources	count	24	SMAQMD, 2015
Emission Rate/Source	gram/second	0.000254	Scaling factor is (1/Emission Rate) to convert result from ISCST3
Release Height	meters	5.0	SMAQMD, 2015
Length of Side	meters	10.0	SMAQMD, 2015
Initial Lateral Dimension	meters	2.3	ISCST3 Calculator
Initial Vertical Dimension	meters	1.0	SMAQMD, 2015
ISCST3 Model Results			
Sensitive Receptor	**Pollutant**	**Annual Average Concentration**	**Notes**
MEIR	DPM (µg/m^3)	0.1967	Nearest residential receptor under the unmitigated scenario
	$PM_{2.5}$ (µg/m^3)	0.1847	Nearest residential receptor under the unmitigated scenario
	DPM (µg/m^3)	0.0246	Nearest residential receptor under the mitigated scenario
	$PM_{2.5}$ (µg/m^3)	0.0231	Nearest residential receptor under the mitigated scenario
MEIS	DPM (µg/m^3)	0.0090	Nearest school receptor under the unmitigated scenario
	$PM_{2.5}$ (µg/m^3)	0.0085	Nearest school receptor under the unmitigated scenario
	DPM (µg/m^3)	0.0011	Nearest school receptor under the mitigated scenario
	$PM_{2.5}$ (µg/m^3)	0.0011	Nearest school receptor under the mitigated scenario

Notes:

DPM = diesel particulate matter

PM_{10} = particulate matter with aerodynamic resistance diameters equal to or less than 10 microns

$PM_{2.5}$ = particulate matter with aerodynamic resistance diameters equal to or less than 2.5 microns

µg/m^3 = micrograms per cubic meter

Sacramento Metropolitan Air Quality Management District (SMAQMD), 2015. *Guide to Air Quality Assessment in Sacramento County* . June.

Summary of Health Risk Assessment at MEIR for DPM Emissions during Construction

Health Risk Assessment Parameters and Results					
Unmitigated DPM Emissions					
Inhalation Cancer Risk Assessment for DPM	**Units**	**Age Group**			**Notes**
		3rd Trimester	**0-2 Years**	**2-9 Years**	
DPM Concentration (C)	μg/m^3	0.197	0.197	0.197	ISCST3 Annual Average
Daily Breathing Rate (DBR)	L/kg-day	361	1090	861	95th percentile (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	0.96	350 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/μg-L	0.000001	0.000001	0.000001	Conversion of μg to mg and L to m^3
Dose	mg/kg/day	0.000068	0.000206	0.000163	C*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	(mg/kg/day)$^{-1}$	1.1	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	10	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	0.25	2.00	0.17	Based on total construction period of 26 months
Averaging Time (AT)	years	70	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	0.85	0.85	0.72	OEHHA, 2015.
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	2.27	54.93	0.92	D*CPF*ASF*ED/AT*FAH*CF (OEHHA, 2015)
Total Cancer Risk	per million	58.12			At MEIR location
Hazard Index for DPM	**Units**	**Value**	**Notes**		
Chronic REL	μg/m^3	5.0	OEHHA, 2015		
Chronic Hazard Index for DPM	unitless	0.04	At MEIR location		
Mitigated DPM Emissions					
Inhalation Cancer Risk Assessment for DPM	**Units**	**Age Group**			**Notes**
		3rd Trimester	**0-2 Years**	**2-9 Years**	
DPM Concentration (C)	μg/m^3	0.025	0.025	0.025	ISCST3 Annual Average
Daily Breathing Rate (DBR)	L/kg-day	361	1090	861	95th percentile (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	0.96	350 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/μg-L	0.000001	0.000001	0.000001	Conversion of μg to mg and L to m^3
Dose	mg/kg/day	0.000009	0.000026	0.000020	C*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	(mg/kg/day)$^{-1}$	1.1	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	10	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	0.25	2.00	0.17	Based on total construction period of 13 months
Averaging Time (AT)	years	70	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	0.85	0.85	0.72	OEHHA, 2015
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	0.28	6.88	0.12	D*CPF*ASF*ED/AT*FAH*CF (OEHHA, 2015)
Total Cancer Risk	per million	7.17			At MEIR location
Hazard Index for DPM	**Units**	**Value**	**Notes**		
Chronic REL	μg/m^3	5.0	OEHHA, 2015		
Chronic Hazard Index for DPM	unitless	0.0049	At MEIR location		

Notes:

DPM = diesel particulate matter

REL = reference exposure level

μg/m^3 = micrograms per cubic meter

L/kg-day = liters per kilogram-day

m^3/L = cubic meters per liter

(mg/kg/day)$^{-1}$ = 1/milligrams per kilograms per day

MEIR = maximum exposed individual resident

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.*

Summary of Health Risk Assessment at MEIS for DPM Emissions during Construction

Health Risk Assessment Parameters and Results				
Unmitigated DPM Emissions				
Inhalation Cancer Risk Assessment for DPM	**Units**	**Age Group 0-2 Years**	**Age Group 2-9 Years**	**Notes**
DPM Concentration (C)	μg/m^3	0.009	0.009	ISCST3 Annual Average
Worker Adjustment Factor (WAF)	unitless	2.9	2.9	OEHHA,2015 4-44 to 4-45
Daily Breathing Rate (DBR)	L/kg-8 Hr	1200	640	95th percentile, moderate intensity (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.68	0.68	250 days/365 days(OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/μg-L	0.000001	0.000001	Conversion of μg to mg and L to m^3
Dose	mg/kg/day	0.000022	0.000012	C*WAF*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	(mg/kg/day)$^{-1}$	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	1.50	0.67	Based on total construction period of 26months
Averaging Time (AT)	years	70	70	70 years for residents (OEHHA, 2015)
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	5.10	0.36	D*CPF*ASF*ED/AT*CF (OEHHA, 2015)
Total Cancer Risk	per million	5.46		At MEIS location
Hazard Index for DPM	**Units**	**Value**	**Notes**	
Chronic REL	μg/m^3	5.0	OEHHA, 2015	
Chronic Hazard Index for DPM	unitless	0.00	At MEIS location	
Mitigated DPM Emissions				
Inhalation Cancer Risk Assessment for DPM	**Units**	**Age Group 0-2 Years**	**Age Group 2-9 Years**	**Notes**
DPM Concentration (C)	μg/m^3	0.001	0.001	ISCST3 Annual Average
Worker Adjustment Factor (WAF)	unitless	2.9	2.9	9 h/day, 5 days per week work schedule
Daily Breathing Rate (DBR)	L/kg-day	1200	640	95th percentile, moderate intensity (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.68	0.68	250 days/365 days(OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/μg-L	0.000001	0.000001	Conversion of μg to mg and L to m^3
Dose	mg/kg/day	0.000003	0.000001	C*WAF*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	(mg/kg/day)$^{-1}$	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	1.50	0.67	Based on total construction period of 28 months
Averaging Time (AT)	years	70	70	70 years for lifetime exposure (OEHHA, 2015)
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	0.64	0.05	D*CPF*ASF*ED/AT*CF (OEHHA, 2015)
Total Cancer Risk	per million	0.68		At MEIS location
Hazard Index for DPM	**Units**	**Value**	**Notes**	
Chronic REL	μg/m^3	5.0	OEHHA, 2015	
Chronic Hazard Index for DPM	unitless	0.0002	At MEIS location	

Notes:

DPM = diesel particulate matter

REL = reference exposure level

μg/m^3 = micrograms per cubic meter

L/kg-day = liters per kilogram-day

m^3/L = cubic meters per liter

(mg/kg/day)$^{-1}$ = 1/milligrams per kilograms per day

MEIS = maximum exposed individual student

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.*

APPENDIX D

TRAFFIC NOISE MODEL OUTPUTS

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Site preperation

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	0.0
Average automobile speed (mph):	0.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	81.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 65.0

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Metro Center Blvd between Vintage Park Dr and Shell Blvd AM E

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	865.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	27.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	63.8

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Metro Center Blvd between Vintage Park Dr and Shell Blvd AM E+P

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	905.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	29.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	64.1

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Chess Drive east of Foster City Boulevard AM E

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	296.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	10.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	59.3

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Chess Drive east of Foster City Boulevard AM C

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	766.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	24.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	63.3

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Chess Drive east of Foster City Boulevard AM C+P

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	766.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	24.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	63.3

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Chess Drive east of Foster City Boulevard PM E

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	300.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	7.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 58.7

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Chess Drive east of Foster City Boulevard PM C

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	784.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	16.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	62.7

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Chess Drive east of Foster City Boulevard PM C+P

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	784.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	16.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	62.7

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Edewater Boulevard between Metro Center Boulevard and E. Hillsdale Boulevard AM E

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	71.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	2.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	52.8

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Edewater Boulevard between Metro Center Boulevard and E. Hillsdale Boulevard AM C

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	343.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	7.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	59.1

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Edewater Boulevard between Metro Center Boulevard and E. Hillsdale Boulevard AM C+P

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	343.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	7.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	59.1

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Edewater Boulevard between Metro Center Boulevard and E. Hillsdale Boulevard PM E

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	97.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	1.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	52.8

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Edewater Boulevard between Metro Center Boulevard and E. Hillsdale Boulevard PM C

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	425.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	5.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	59.4

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Edewater Boulevard between Metro Center Boulevard and E. Hillsdale Boulevard PM C+P

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	425.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	5.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	59.4

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Mariners Island Boulevard south of Edgewater Boulevard AM E

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	27.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	1.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	49.1

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Mariners Island Boulevard south of Edgewater Boulevard AM C

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	58.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	2.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	52.3

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Mariners Island Boulevard south of Edgewater Boulevard AM C+P

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	58.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	2.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	52.3

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Mariners Island Boulevard south of Edgewater Boulevard PM E

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	42.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	1.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 50.2

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Mariners Island Boulevard south of Edgewater Boulevard PM C

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	99.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	1.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 52.9

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Mariners Island Boulevard south of Edgewater Boulevard PM C+P

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	99.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	1.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	52.9

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

US-92 WB Ramps north of Chess Drive PM E

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	36.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	1.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	49.8

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

US-92 WB Ramps north of Chess Drive PM C

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	89.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	1.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 52.5

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

US-92 WB Ramps north of Chess Drive PM C+P

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	89.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	1.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	52.5

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Vintage Park Drive north of Chess Drive AM E

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	565.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	18.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	62.0

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Vintage Park Drive north of Chess Drive AM C

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	1396.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	44.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	65.9

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Vintage Park Drive north of Chess Drive AM C+P

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	1407.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	44.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	65.9

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Vintage Park Drive north of Chess Drive PM E

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	743.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	8.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	61.7

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Vintage Park Drive north of Chess Drive PM C

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	1593.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	17.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	65.0

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Vintage Park Drive north of Chess Drive PM C+P

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	1603.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	17.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	65.0

APPENDIX E
WATER SUPPLY ASSESSMENT

APPENDIX E: WATER SUPPLY ASSESSMENT

A. EXECUTIVE SUMMARY

The Water Supply Assessment (WSA) will provide information for use in the California Environmental Quality Act (CEQA) analysis for the proposed project. The requirements for the WSA are described in the California Water Code Sections 10910 through 10915, amended by the enactment of Senate Bill 610 (SB 610) in 2002. SB 610 requires an assessment of whether available water supplies are sufficient to serve the demand generated by the new project, as well as the reasonably foreseeable cumulative demand during normal year, single dry year, and multiple dry year conditions over the next 20 years.

This WSA builds on previous water demand projections created as part of the Bay Area Water Supply and Conservation Agency (BAWSCA) Regional Demand and Conservation Projections, which was completed in September 2014. The new demands from the BAWSCA study were approved by Estero Municipal Improvement District (EMID) and were used as a basis for the 2015 Urban Water Management Plan (UWMP) submitted by EMID in June 2016. The supply information is based on the 2015 UWMP, approved by the EMID Board of Directors on June 6, 2016. The most recent WSA adopted by the EMID Board of Directors in March 2019 was the Pilgrim Triton Master Plan Project Phase C.

All the development projects included in this WSA are within the service area of EMID. It is important to note that, though some projects were completed by the time this WSA was published (i.e., the projects were completed sometime between 2016 and 2019), there was not enough historical water use data to create an accurate, actual site water use estimate. In fact, some of the buildings were not fully occupied, landscape was not fully established, and a full year of water use was not available to ascertain water use trends through the various seasons. All future development projects are required to maximize the efficient use of water by installing water saving plumbing fixtures and drought tolerant landscaping to reduce water demand.

The process of determining water demand for developing project sites is a dynamic one, and by the next WSA submittal there will be more actual site data available under non-dry year conditions. EMID has completed the WSA based on the land use proposed for the projects listed below.

1. Lincoln Centre will require approximately 120 acre-feet per year (AFY) of additional water demand. Phase 1, consisting of 360,000 square feet (approximately 58 percent), of this project was completed in 2019. This project will be completed between years 2020 and 2025.

2. Gilead Integrated Corporate Campus Master Plan Project will require approximately 105 AFY of additional water demand. This project will be completed in various phases by 2030.
3. Pilgrim Triton Master Plan Project with the proposed change to Phase C will require approximately 128 AFY of additional water demand. This project will be completed in various phases by 2030.
4. Foster Square (formerly 15-Acres Project) will require approximately 56 AFY of additional water demand. This project is currently under construction and will be fully completed by 2020.
5. Tidelands (400 Mariners Island Boulevard, City of San Mateo) residential project required approximately 14 AFY of additional water demand. This project was completed in 2017.
6. TownePlace Suites (formerly Chess Hotel) required approximately 11 AFY of additional water demand. This project was completed in 2017.
7. Chess/Hatch Drive Offices Project will require approximately 15 AFY of additional water demand. This project will be completed between years 2025 and 2030.
8. 1297 Chess Drive (formerly Harry's Hofbrau) required approximately 2 AFY of additional water demand. This project was completed in 2017.
9. 1601 Beach Park Blvd will require approximately 5.5 AFY of additional water demand. This project will be completed by year 2025.
10. New Hotel in Metro Center (corner of Metro Center Boulevard and Shell Boulevard in the City of Foster City) will require approximately 9.6 AFY of additional water demand. This project will be completed between years 2020 and 2025.

The analysis determined that the EMID projects listed above will add a total of 467 AFY additional demand to the existing demand. Project and demand values are summarized in Table G-6. The evaluation concluded that EMID will have sufficient water supply to serve all the proposed projects as well as existing customers in the 20-year time horizon.

Prior to issuance of a use permit for project entitlements, utility analyses shall be performed by the project developer to determine whether existing transmission/distribution infrastructure has adequate capacity to deliver the needed water to the project sites. The costs of the improvements shall be the responsibility of the developer.

B. INTRODUCTION

1. Purpose and Authorization

The purpose of the Water Supply Assessment (WSA) is to determine whether there is adequate water supply to meet the water needs of the new proposed projects within the EMID service area. The WSA was developed by the collaborative efforts of the project team consisting of Urban Planning Partners, Maddaus Water Management Inc., and Foster City (EMID) Planning and Engineering Departments. Urban Planning Partners was the project manager; Maddaus Water Management provided estimating calculations for the water demand of the Pilgrim Triton Master Plan Project Phase C and assisted to compile the WSA report; Foster City and EMID staff provided information on all other development projects and demands contained within the report.

2. Scope of Investigation

This WSA focuses on the development of the new hotel proposed for the southwest corner of Metro Center Boulevard and Shell Boulevard, in the Metro Center General Development Plan area. In addition, it focuses on the potential development at 1601 Beach Park Blvd, but also includes projects considered in the 2008 EIR, and projects proposed and in various planning stages after the EIR was approved on April 21, 2008 by the City Council.

3. Documents and Persons Consulted

Information in this report is supplemental to EMID's 2007 CEQA Water Use Analysis conducted for the Pilgrim Triton Master Plan Project published by EMID in February 2007 and the Pilgrim Triton Master Plan EIR,[1] supplemented by information on other proposed projects prepared by Foster City staff from January 2017 to August 2019.

C. PROJECT DESCRIPTIONS INCLUDED IN WSA

The following descriptions include the projects in this WSA that have been approved or proposed as well as those that are currently under construction or have yet to begin construction.

Lincoln Centre Life Sciences Research Campus Project: The approved project is on approximately 20 acres of land located in Foster City. Access to the site is from Lincoln Centre Drive, which currently terminates within the project site. It was previously developed with seven one- and two-story office/warehouse buildings totaling approximately 280,000 square feet. All seven buildings were demolished by the current owner and project applicant. The approved project would contain up to 595,000 gross square feet of life sciences research facilities in a campus setting, including up to 555,000 gross square feet of laboratory and office uses and a 40,000-square-foot

[1] LSA Associates. *Pilgrim-Triton Master Plan Environmental Impact Report,* March 2008.

building to house amenities for employees and visitors. Phase 1 consists of 320,000 square feet in two lab/office buildings and 40,000 square feet in one amenities building and was completed in early 2018. The actual amount approved for development will be dependent upon traffic studies and traffic capacity. This project will be fully completed between years 2020 and 2025.

Gilead Integrated Corporate Campus Master Plan Project: The approved project is on approximately 72 acres of land located in Foster City, within the Vintage Park Master Planned Development, owned by Gilead Sciences, Inc. In February 2010, the City approved the expansion of the 40-acre Gilead campus to add about 570,000 net new square feet of offices and labs. In 2013, the City Council approved an integrated Master Plan to incorporate land Gilead purchased from Electronics For Imaging. The resulting campus has a maximum build-out of 2,500,600 square feet and includes a mix of office buildings, laboratory buildings, cafeterias, manufacturing spaces, meeting spaces and a pilot lab. Two office/lab buildings (309 Velocity Way and 355 Lakeside Drive) and two parking garages within the approved integrated Master Plan have been completed since 2013. Additionally, two lab buildings, 324 and 357 Lakeside Drive, have been constructed as of 2018. This project will be completed in various phases by 2030.

Pilgrim Triton Master Plan Project: The approved project originally included 296,000 square feet of commercial/office space, a one-acre park, and 730 units of residential housing. The Project Phase C proposes to increase the land use from the originally planned 17 residential units to a total of 92 housing units. With a net increase of 75 residential units for Pilgrim Triton Phase C, the total number of residential units for the entire Master Plan area with the amendment would increase from 730 units to 805 units. The total amount of commercial/office space for the entire Master Plan area with the amendment would decrease from 296,000 square feet to 70,057 square feet. Phase C includes 70 for-sale townhouse units consisting of 2-, 3-, and 4-bedroom plans, and ranging in size from approximately 1,220 square feet to 2,050 square feet. Phase C also will include 22 workforce housing units that will be 1- and 2-bedroom units and range in size from approximately 760 square feet to 1,110 square feet. This project will be completed in various phases by year 2030.

Foster Square (formerly 15-Acres Project): The approved project is on approximately 15 acres located in Neighborhood 1 adjacent to the Foster City Civic Center and the Peninsula Jewish Community Center. The approved project consists of the following: 200 market rate senior units, 131 assisted living units, 24 memory care beds, 66 affordable housing units, and 30,000 square feet of retail. The assisted living, memory care and affordable housing components were completed in late 2016. The remainder of the project is currently under construction and will be completed in the next one to two years.

Tidelands (400 Mariners Island Boulevard, City of San Mateo): The completed project consists of a 76-unit residential development on approximately 3 acres of property located at the southwest corner of E. Third Avenue and Mariners Island Boulevard in the City of San Mateo. EMID is responsible for providing water to the project site. This project was completed in 2017.

TownePlace Suites (formerly Chess Hotel): The completed project is on approximately 1.7 acres of land located in Foster City, within the Vintage Park Neighborhood. The project replaced a 9,385-square-foot, one-story, unoccupied restaurant with a new 69,222-square-foot, five-story, 115-room hotel. The project site is located off Vintage Park Drive and Chess Drive at 1299 Chess Drive. This project was completed in 2017.

Chess/Hatch Drive Office Project: The approved project would redevelop approximately 190,000 square feet of low-scale one- and two-story commercial/industrial buildings on approximately 12 acres with up to 800,000 square feet of office space in three multi-story buildings up to 10 stories in height served by a combination of at-grade parking lots and a parking structure. The approved Master Plan would require the demolition of 11 existing buildings. This project will be completed between years 2025 and 2030.

1297 Chess Drive (formerly Harry's Hofbrau): The completed project redeveloped the former Harry's Hofbrau restaurant (approximately 8,841 square feet on a 1.5-acre site) located at 1297 Chess Drive in the Vintage Park neighborhood to a retail restaurant building of approximately 11,692 square feet and about 550 square feet of outdoor dining space. The restaurant space includes a Habit Burger at 2,555 square feet, a Mod Pizza at 2,600 square feet, and a Panera Bread at 4,643 square feet. The site also includes a FedEx at 1,894 square feet. This project was completed in 2017.

1601 Beach Park Blvd: The proposed project consists of a 31-unit residential development. The proposal includes demolition of an existing church building to construct 31 condominium-style townhomes and site improvements on an approximately 1.35-acres site located at 1601 Beach Park Boulevard. The subject site is located at the northwest corner of Beach Park Boulevard and Gull Avenue. As proposed, the 31 townhomes include a mix of three (3) unit types, all of which have four (4) bedrooms. EMID would be responsible for providing water to the project site. As of October 2019, an environmental analysis for the development is under way. Though a Use Permit application (for site design/architecture, etc.) has yet to be submitted, the project is considered likely to be entitled and constructed. The project is being pursued under an aggressive timeline, estimated to begin within the next two years or so and completed between years 2020 and 2025.

New Hotel in Metro Center: The proposed project involves the development of an approximately 83,000 square-foot, six-story hotel on an approximately 1.36-acre vacant lot at the corner of Metro Center Boulevard and Shell Boulevard in the City of Foster City. There is no building to be demolished, but there is existing irrigation at site. The project site is located in a primarily commercial neighborhood, although a multifamily condominium complex is situated directly adjacent to the project site, to the south. Other land uses adjacent to the project site include offices, hotels, and large-scale retail. The most recent proposal for the hotel includes 154 guest rooms[2], a restaurant, meeting space, and a rooftop bar, in addition to several features generally associated with short-stay hotels, including a fitness center, lobby lounge, and a guest laundry room. It is envisioned that the hotel will serve the local and regional market as an upscale destination, anticipated to be affiliated with Marriott brands AC Hotels or Aloft. The building would be constructed on a raised podium above the surface-level parking. The proposed development would provide approximately 140 parking spaces, new drive aisles, landscaping, and covered outdoor seating areas. Auto access to the site would be provided via driveways on Shell Boulevard and Metro Center Boulevard. This project will be completed between years 2020 and 2025.

D. EMID AND ITS WATER SUPPLY SOURCE

1. EMID

EMID manages the distribution, operation, and maintenance of the City of Foster City's water supply system. The City's sources of water, water treatment facilities, and water distribution system are described below. EMID also supplies water to residents in part of the City of San Mateo (Mariner's Island area).

EMID purchases all its water from the San Francisco Public Utility Commission (SFPUC) as a contractual member of the Bay Area Water Supply and Conservation Agency (BAWSCA). The SFPUC's water system consists of three regional water supply and conveyance systems: the Hetch Hetchy system, the Alameda system, and the Peninsula system. The Hetch Hetchy system is supplied by runoff from the upper Tuolumne River watershed on the western slope of the central Sierra Nevada Mountains. The Alameda system includes conveyance facilities connecting the Hetch Hetchy aqueducts and the Alameda water sources to the Peninsula system. The Peninsula system includes water facilities that connect the EMID and other Peninsula customers to the SFPUC distribution system and the Bay Division Pipelines. EMID does not have any groundwater or recycled water sources to supplement its supply.

EMID receives the already treated water from SFPUC and distributes it to its customers. EMID has only one main source of water supply, a 24-inch transmission main that is connected to SFPUC's 54-inch Crystal Springs No. 2 line. The connection point is in the City of San Mateo on Crystal Springs Road. As a retailer, EMID has no direct control over its water supply and treatment.

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[2] During preparation of this Draft EIR, the number of hotel rooms was increased from 154 to 156 rooms after completion of this water supply assessment. However, the addition of two rooms would have a negligible effect on the results of the water supply assessment and would not change the findings.

EMID has 4 at-grade water storage tanks with a total capacity of 20 million gallons for emergencies and peak and fire flow demand. Booster pumps are necessary to pump water from the storage tanks into the distribution system. The booster pump station has two electrical pumps and four engine drive pumps. The engine driven pumps are powered by natural gas with propane backup.

2. Supply Source and Contractual Provisions

In 1934, San Francisco combined the Hetch Hetchy system and the Spring Valley system to create the SFPUC system. The rights to local diversions were originally held by the Spring Valley Water Company, which was formed in 1862. The SFPUC is owned and operated by the City and County of San Francisco. EMID does not hold any existing water rights and all its water supply assurances come through the contract with SFPUC. In 1984, SFPUC executed a Settlement Agreement and Master Water Sales Contract (Contract) with the members of BAWSCA. The Contract is governed by the Master Sales Agreement (MSA), which expired in June 2009. In August of 2009, BAWSCA and its member agencies signed a new Water Supply Agreement and Individual Water Sales Contract with San Francisco. The Contract runs through June 30, 2034 and it guarantees a supply assurance of 184 million-gallons-per-day (MGD) to BAWSCA member agencies. The supply assurance to EMID is 5.9 MGD or 6,608 AFY.

In 2015, EMID purchased 4,459 AFY of water from SFPUC.[3] Compared to historical use, SFPUC purchases have declined due to a decrease in water demand and the recent California extreme drought.

3. Water Supply Improvement Program

To enhance the ability of the SFPUC's water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply, the SFPUC is undertaking a Water System Improvement Program (WSIP). The WSIP will deliver capital improvements aimed at enhancing the SFPUC's ability to meet its water service mission of providing high quality water to its customers in a reliable, affordable, and environmentally sustainable manner.

The origins of the WSIP are rooted in the "Water Supply Master Plan" dated April 2000. Planning efforts for the WSIP gained momentum in 2002 with the passage of San Francisco ballot measures Propositions A and E, which approved the financing for the water system improvements. Also in 2002, Governor Gray Davis signed Assembly Bill No. 1823, the Wholesale Regional Water System Security and Reliability Act. The AB 1823 imposed various state-mandated programs on the wholesale regional water systems. One of the mandates is for SFPUC to adopt the WSIP.

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[3] Erler & Kalinowski, Inc. *2015 Urban Water Management Plan for the Estero Municipal Improvement District*, June 2016.

SFPUC's website describes the WSIP as follows:

"The Water System Improvement Program (WSIP) is a $4.8 billion, multi-year capital program to upgrade the SFPUC's regional and local water systems. The program will deliver capital improvements that enhance the SFPUC's ability to provide reliable, affordable, high quality drinking water in an environmentally sustainable manner to 2.7 million people in the greater Bay Area. The program consists of 87 projects – 35 local projects located within San Francisco and 52 regional projects, spread over seven counties from the Sierra foothills to San Francisco. The current forecasted date to complete the overall WSIP is December 2021.

As of August 1, 2018, the WSIP is approximately 96 percent complete. For the local projects 34 are complete and the Lake Merced Pump Station Essential Upgrades in construction. For the regional projects seven are in construction and 40 projects are in close-out or have been completed."[4]

4. Emergency Connections

In addition to the 24-inch transmission main, EMID has two separate 12-inch emergency supply connections with California Water Service Company (which serves the City of San Mateo) and with Mid-Peninsula Water Agency (formerly called Belmont County Water District, which serves the City of Belmont, San Carlos, and part of Redwood City). EMID has agreements with both agencies that allow EMID to use these connections during emergency situations. Both the California Water Service Company and the Mid-Peninsula Water Agency are members of BAWSCA.

5. Service Area Information and Population and Employment Projections

EMID, currently serving a population of approximately 37,000, is located midway between San Francisco and San Jose. It is ten miles south of the San Francisco International Airport. The service area of EMID consists of the City of Foster City and the Mariner's Island area of the City of San Mateo. Most customers are residential users with a broad cross-section of offices, commercial businesses, and a small number of industrial businesses.

Today, the City of Foster City is almost built-out with several redevelopment projects in various stages of planning. At 100 percent buildout of the EMID service area, the population served by EMID is expected to be approximately 40,000 and employment is anticipated to grow to almost 36,000. Table G-1 shows the projected population and

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[4] SFPUC website, accessed September 6, 2019. Online: http://www.sfwater.org/index.aspx?page=115

employment in 5-year increments anticipated until the year 2035. The percent increases for the population and employment growth are also shown in the table.

This WSA uses the population and employment projections contained in the EMID 2015 UWMP[5].

TABLE G-1 EMID CURRENT AND PROJECTED POPULATION AND EMPLOYMENT PER 2015 UWMP

	2015[1]	2020	2025	2030	2035	2040
Service Area Population	36,231	37,200	37,800	38,400	39,000	39,600
Service Area Employment	23,533	28,488	29,744	32,749	34,805	35,910
% Population Increase		2.6	1.6	1.6	1.5	1.5
% Employment Increase		21.1	4.4	10.1	6.3	3.2

[1] 2015 data is based on actual numbers.

6. EMID Water Supply Projections

The SFPUC has the capacity to meet the demands of its retail and wholesale customers in wet and normal years. The Water Supply Agreement provides for a 184 MGD or 206,106 AFY supply assurance to BAWSCA member agencies. SFPUC's annual supply assurance to EMID, going forward, is 5.9 MGD or 6,608 AFY as shown in Table G-2. Although the Master Agreement and accompanying Water Supply Contract expire in 2034, the supply assurance (which quantifies San Francisco's obligation to supply water to its individual wholesale customers) survives their expiration and continues indefinitely.

TABLE G-2 ANNUAL SUPPLY ASSURANCE FROM SFPUC

Water Supply Source	2015[1]	2020	2025	2030	2035	2040
SFPUC, MGD	4.0	5.9	5.9	5.9	5.9	5.9
SFPUC, AFY	4,463	6,608	6,608	6,608	6,608	6,608

[1] 2015 data is based on actual numbers.

According to SFPUC's Water System Improvement Program, this amount is subject to further reductions in the event of drought, water shortage, earthquake, rehabilitation, or maintenance of the system. Table G-3 shows SFPUC's projected deliveries to EMID for a single dry year and for five consecutive dry years, based on the 2015 UWMP allocations. The SFPUC's plan calls for a 26 percent supply reduction of the normal year supply in the first year followed by 34 percent reductions of the normal year supply for the next

[5] Erler & Kalinowski, Inc. *2015 Urban Water Management Plan for the Estero Municipal Improvement District*, Table 2-1 and Table 2-2, June 2016.

4 years. The percent reductions would be the same for any given five consecutive dry years. During the periods of supply reductions, EMID will have to implement the Water Shortage Contingency Plan to reduce demand. The EMID's Water Shortage Contingency Plan describes the triggering levels and actions to be considered for each stage of demand reduction. As detailed in the next section, EMID Water Supply Shortage Contingency, the plan has five stages with each stage set to respond to increasingly more severe conditions. Therefore, the system demand will decrease to meet the reduced allocations by SFPUC.

TABLE G-3 EMID PROJECTED ANNUAL SUPPLY ALLOCATIONS FOR A SINGLE AND MULTIPLE DRY YEARS

Water Supply Source	Normal Year	Single Year Year 1	Year 2	Year 3	Year 4	Year 5
SFPUC, AFY	6,614	4,888	4,394	4,394	4,394	4,394
% Reduction		26%	34%	34%	34%	34%

7. EMID Water Supply Shortage Contingency

The EMID Water Shortage Contingency Plan (WSCP) was adopted in June 2016 in response to the Urban Water Management Planning Act, requiring all California urban water retailers supplying water to more than 3,000 customers, or supplying more than 3,000 AFY of water, to adopt a water shortage contingency plan as part of the Urban Water Management Plan. The objective of this legislation is to prompt every water agency to plan for droughts and to prepare a series of responses based upon the severity and length of drought. EMID's Water Shortage Contingency Plan includes five (5) stages of increasingly restrictive actions that would be implemented in response to water supply reductions. As required by CWC Section 10632(a), this includes preparing and planning for up to a 50 percent supply reduction. In the amended WSCP adopted in 2018, EMID has elected to refine their Water Shortage Contingency Plan to more aggressively implement reductions in a Stage 2 Drought to achieve 15 percent water savings compared to the previous 10 percent targeted goal. This revised approach to Stage 2 will add to the reliability and resiliency of being more responsive to early dry year conditions as they start to increase above the normal monthly water demands in the EMID service area.

Stage I: This is the normal stage that includes mandatory prohibitions in force at all times with the intent to eliminate water waste. This stage is a continuing effort to conserve water regardless of water supply conditions. It includes actions such as: (a) the enforcement of current plumbing code regulations requiring the installation of high efficiency fixtures in new construction; (b) ongoing public outreach; and (c) EMID's continued implementation of demand management measures.

Stage II: This stage is triggered by a declaration of the EMID Board of Directors in accordance with Chapters 8.59 and 8.60 of the EMID code, upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 15 percent due to water supply shortages or an emergency. This stage includes actions such as: (a) reduction in the frequency of water main flushing where possible; (b) no more than three (3) days per week outdoor irrigation of ornamental landscapes or turf using potable water; (c) increased public outreach, including information regarding fines or penalties for non-compliance; and (d) free water use surveys to the top 20 percent of water users in each customer category.

Stage III: This stage is triggered by a declaration of the EMID Board and will result in mandatory water conservation with a goal of reducing water demand 16 to 20 percent due to water supply shortages or emergency. This stage involves actions that include: (a) increased public outreach; particularly to the top 10 percent water users in each category, including a dedicated customer service hotline; (b) scheduling staff for enforcement and customer service training with the potential to hire additional or temporary staff where necessary; (c) the implementation of a drought surcharge on water rates as legally permitted; (d) and a limit of two (2) days per week outdoor irrigation of ornamental landscapes or turf using potable water.

Stage IV: This stage is triggered by a declaration of the EMID Board and will result in mandatory water conservation with a goal of reducing water demand 21 percent to 30 percent due to water supply shortages or emergency. This stage involves actions that include: (a) expanding public outreach (e.g., hosting public events and workshops); (b) increasing enforcement and water waste patrols; (c) changing to monthly metering and billing; prohibiting vehicle washing except at facilities using recycled or recirculating water; (d) and limiting outdoor irrigation of ornamental landscapes or turf using potable water to one (1) day per week (unless an exception is granted). The routine flushing of water mains will be suspended during this stage except when necessary to address immediate health or safety concerns.

Stage V: This stage is triggered by a declaration of the EMID Board and will result in mandatory water conservation with a goal of reducing water demand 31percent to 50 percent due to water supply shortages or emergency. This stage involves actions such as: (a) increased public outreach and development of water budgets for all accounts, including appropriate notice to those accounts, where water use shall not exceed these water budgets established by EMID for each customer; and (b) turf irrigation is always prohibited during this stage and existing irrigation systems shall not be expanded.

Table G-4 shows the 3-year estimated minimum water supply from SFPUC to EMID as a three-year worst-case supply projection (e.g., in a case of drought or other causes of reduced water supply) based on the 2015 Urban Water Management Plan allocation provided for EMID based on the BAWSCA Drought Implementation Plan.

TABLE G-4 PROJECTED DELIVERIES FOR THREE MULTIPLE DRY YEARS

	One Critical Dry Year	Current Deliveries During Multiple Dry Years		
		Year 1	Year 2	Year 3
SFPUC System-Wide Shortage[1]	10%	10%	22%	22%
Wholesale Allocation, MGD	152.6	152.6	132.5	132.5
EMID Allocation Factor[2]	2.9%	3%	3%	3%
EMID Allocation, AFY	4,888	4,888	4,394	4,394
EMID Allocation, MGD	4.36	4.36	3.92	3.92
Allocation as % of 5.9 MGD Assurance	74%	74%	66%	66%

[1] See Table 1 in Appendix H of the EMID 2015 Urban Water Management Plan.
[2] Water supply available to EMID during a normal year is assumed to be equal to EMID's Individual Supply Guarantee. The EMID's allocation factor and the supply available to EMID during dry year types were provided by BAWSCA Tier 2 Allocations (see Appendix H of EMID's 2015 Urban Water Management Plan). The values were obtained per application of the Tier 1 and Tier 2 allocation processes described in the City's Water Supply Agreement and the BAWSCA Drought Implementation Plan.

Abbreviations:
EMID = Estero Municipal Improvement District
MGD = million gallons per day
SFPUC = San Francisco Public Utilities Commission

References:
(1) SFPUC, 2016. Regional Water System Long-Term Supply Reliability 2015-2040, letter to BAWSCA, January 5, 2016.
(2) BAWSCA, 2016. UWMP Tier 2 Drought Implementation Plan Scenarios, email message to BAWSCA member agencies, dated January 6, 2016.

E. WATER DEMAND PROJECTIONS

1. Future System Demand Projections

Table G-5 shows the future system demand projections and the difference (excess supply allocation) until 2040. As shown, available supplies are sufficient to meet system demand projections in a normal year.

TABLE G-5 FUTURE SYSTEM DEMAND PROJECTIONS (WITHOUT ADDITIONAL PROJECTS)[1]

	2015[2]	2020	2025	2030	2035	2040
SFPUC Supply, AFY	6,610	6,610	6,610	6,610	6,610	6,610
Demand Projections with Passive and Active Conservation Savings, AFY	4,459	4,450	4,444	4,514	4,582	4,628
Annual Excess	2,151	2,160	2,166	2,096	2,028	1,982
Percent Excess	33%	33%	33%	32%	31%	30%

[1] Table values are consistent with the EMID 2015 UWMP.
[2] 2015 data is based on actual demand numbers found in the EMID 2015 UWMP.

2. Net Additional Demand from Proposed Projects

This section presents background information on the proposed projects in addition to their net additional demand. All the development projects are within the service area of EMID. It is important to note that though some projects were completed by the time this WSA was published (completed sometime between 2016 and 2019), there was not enough actual historical water use data to create an accurate site demand estimate. In fact, some of the buildings were not fully occupied, landscape was not fully established, and a full year of water use was not available to ascertain water use trends through the various seasons. The process of determining water demand for developing project sites is a dynamic one, and by the next WSA submittal there will be more actual site data available under non-dry year conditions. EMID has completed the WSA based on the land use proposed for the projects listed below.

Lincoln Centre Life Sciences Research Campus Project: The project proposes that 70 percent of the gross square footage be developed for office uses and 30 percent be developed for laboratory uses. To ensure that maximum water demand is studied, the WSA analysis of water supply impacts also evaluated a variant that would be 30 percent office and 70 percent laboratory. The latter would require more water and was used to compute the net project demand for the proposed project to be 120 AFY. This project will be completed between years 2020 and 2025.

Gilead Integrated Corporate Campus Master Plan Project: EMID Staff has determined that the existing land use at 355 Lakeside Drive and 309 Velocity Way is similar to the land use for the proposed research and development (R&D) and office space buildings, respectively. Therefore, the historical consumption data for these sites were used as a basis to project water demand for the proposed R&D (laboratory) space and office space. The consumption data shows that 25 gallons of water per year (GPY) for each square foot of R&D space and 13 GPY for each square foot of office space is needed. Based on the calculations, approximately 74 AFY will be required for the R&D buildings and 63 AFY for the office space. The project also includes the demolition of 14 buildings, which will consume approximately 33 AFY. Therefore, the net project demand for the proposed project is Gilead Integrated Corporate Campus Master Plan Project is approximately 105 AFY. This project will be completed in various phases by 2030.

Pilgrim Triton Master Plan Project: The estimated water use for the 713 residential units (excluding the 17 townhouses already approved in Phase C) and the proposed 70 townhouses in Phase C is164 gallons per day (GPD) per unit. The methodology used to estimate the water use per townhouse and residential unit involves calculating a total estimated indoor use plus a total estimated outdoor use. The indoor use was calculated by first estimating the number of people living in a residence and then using the typical average indoor water use of 55 GPD per person. The outdoor water use was calculated based on the estimated square footage of turf and shrubs and a standard watering factor for the planting types as well as a regional evapotranspiration rate. The evapotranspiration rate provides the number of inches of water needed to irrigate each planting type in inches of water per year. The evapotranspiration rate is then multiplied by the square footage of plantings to get a total estimated water use for the site. The outdoor water use was divided between all the residential units to get an estimated outdoor water use in GPD per unit. The indoor and outdoor estimates were added together to yield the total estimated water use per residential unit.

The workforce housing units will range in size from approximately 760 square feet to 1,110 square feet and are estimated to require a total of 2 AFY, based on 84 GPD per workforce housing unit. The estimated water use for the workforce housing units was calculated using the methodology described previously for townhouses with typical water use of 55 GPD per person for indoor use and the same evapotranspiration rates for outdoor use. The workforce housing indoor water use per unit (164 GPD) is lower than the townhouse water use per unit (84 GPD) because the estimated average number of people living in a workforce housing unit is less than in a townhouse. The office space will require approximately 3 AFY based on water use data from Gilead Sciences at 309 Velocity Way, where similar land uses estimate a demand use factor of 13 GPY per square foot. The park will require approximately 1 AFY. And according to the water consumption data for the existing buildings, approximately 21 AFY of water was consumed on the site (in non-drought year 2007).

The approved Pilgrim Triton Master Plan would be 126 AFY. However, with the proposed shift to more residential and less commercial, the net project water demand for the proposed Pilgrim Triton Master Plan with Amendment project was estimated to increase by 2 AFY. The total net water demand would increase to 128 AFY, including the following estimates for each land use:

- 2.9 AFY for 70,057 square feet of office space
- 0.6 AFY for 1 acre of park space
- 143.5 AFY for 783 residential units
- 2.1 AFY for the proposed 22 workforce units
- -21 AFY credit for existing buildings to be demolished

This project will be completed in various phases by year 2030.

Foster Square (formerly 15-Acres Project): A demand factor of 93 GPD/unit, based on year 2016-2017 water use data from the Atria at 707 Thayer Lane in Foster City, yields a demand of 36.9 AFY for the 155 senior care housing (assisted living units) and 200 senior independent condominium units combined. The 66 affordable senior apartments, fully occupied since 2016, require approximately 12.8 AFY based on 173 GPD/unit. The estimated water use factor of 173 GPD/unit was calculated using the methodology described previously for the Pilgrim Triton Master Plan Project, except a typical landscaping area was assumed as detailed landscaping plans were not available. The 30,000 square foot commercial space located below the senior apartments and assisted living facility will require 1.23 AFY based on the large office space with cooling tower water use factor of 13 GPY per square foot derived from the 2016-2017 water use data from Gilead Sciences 309 Velocity Way. An additional 10 percent of office and residential demand is assumed for irrigation. The 15-Acres Project will require approximately 56 AFY of additional water demand. This project is currently under construction and will be fully completed by year 2020.

Tidelands (400 Mariners Island Boulevard, City of San Mateo Residential Project): The water consumption for the 76 residential units is 12.8 AFY based on an estimated water use of 151 GPD/apartment. This estimate does not include irrigation and is based on the annual average water use of over 150 apartments from December 2012 through December 2016 for 3 Plaza View Lane in the Pilgrim Triton development. A 10 percent additional demand for outside landscaping, yield the total demand for the project at approximately 14 AFY. This project was completed in 2017.

TownePlace Suites (formerly Chess Hotel): This proposed 115-room hotel will require approximately 12.3 AFY based on a water demand factor of 77 GPD/room derived from 2012-2017 water use data from the Crowne Plaza Hotel at 1221 Chess Dr. The Crowne Plaza water use includes irrigation, 0.5 GPM faucet aerators, 50 percent 1.6 gallon per flush (GPF) toilets, 50 percent 1.28 GPF toilets, on-site laundry, and amenities like conference rooms and a pool. Since the TownePlace Suites is unlikely to have on-site laundry and will have 100 percent low-flush toilets the demand factor was reduced by 20 percent. 1.2 AFY of demand based on 2009, 2010, and 2011 consumption for the Black Angus Restaurant which has been demolished is subtracted from the demand for proposed hotel to calculate net site demand of approximately 11 AFY. This project was completed in 2017.

Chess/Hatch Drive Office Project: Historical 2016-2017 consumption data from Gilead Sciences at 309 Velocity Way was used to calculate the projected demand for the project. Based on a large office space with a cooling tower, a water use factor of 13 GPY/square foot was applied to the proposed 800,000 square feet of office space. This factor includes landscape irrigation and yields a demand of 33 AFY for the proposed development. Consumption data for the existing buildings at 1155-1191 Chess Drive which will be demolished was used to determine the existing water demand of approximately 18 AFY. Therefore, the net demand resulting from the proposed project is calculated by subtracting the existing consumption from the total demand, resulting in approximately 15 AFY of additional water demand. This project will be completed between years 2025 and 2030.

1297 Chess Drive (formerly Harry's Hofbrau): Water use estimates are based on the square footage of the proposed 2,555 square foot Habit Burger, a 2,600 square foot Mod Pizza, and a 4,643 square foot Panera Bread restaurant and the 1,894 square foot FedEx for an additional water demand of approximately 2.4 AFY. A unit water use factor of 0.2 GPD/square foot was applied to the "fast casual" restaurants and a retail unit water use factor of 0.111 GPD/square foot was used for the FedEx space. Restaurant and retail unit water use factors were provided by Castaic Lake Water Agency based on their CII Demand Factor Study in December 2016. This project was completed in 2017.

1601 Beach Park Blvd: The proposed project consists of a 31-unit residential development. The proposal includes demolition of an existing church building to construct 31 condominium-style townhomes and site improvements on an approximately 1.35-acre site located at 1601 Beach Park Boulevard. The subject site is located at the northwest corner of Beach Park Boulevard and Gull Avenue. As proposed, the 31 townhomes include a mix of three (3) unit types, all of which have four (4) bedrooms. A 147 GPD per unit water use factor was applied to the 31 four-bedroom and 3.5-bath units. The existing church building being demolished has had no water use in recent years and therefore no water demand is associated with the site. This analysis conservatively assumes any previous demand on site is negligible and is not accounted for as far as reducing the net demand. The project is considered likely to be entitled and constructed and is estimated to be completed between years 2020 and 2025. The total water demand required for this project is approximately 5.5 AFY.

New Hotel in Metro Center: The approved project involves the development of an approximately 83,000 square-foot, six-story hotel with 154 guest rooms, a restaurant, meeting space, rooftop bar, fitness center, lobby lounge, and guest laundry room. Water use estimates are derived from number of guests, staff, occupancy, site area, etc. Values are consistent with industry standards and represent 90 GPD/room and 17 GPD/(100 square feet). There is no building to be demolished, but there is existing irrigation on site. Two years of consumption data from August 2017 to July 2019, solely for the purpose of irrigation, was used to determine the existing site water demand of approximately 6 AFY. Therefore, the net demand resulting from the proposed project is calculated by subtracting the existing consumption from the total projected development project demand, resulting in approximately 10 AFY of additional water demand. This project will be completed between years 2020 and 2025.

Table G-6 shows the total projected annual additional demand generated from the various development projects that are under review by the City of Foster City. EMID has a first-come, first-served policy for serving new development projects, with each new major project requiring a demand analysis. The calculations have been revised based on current information and are included in Table G-6 to show the cumulative demand.

TABLE G-6 ANNUAL NET ADDITIONAL FUTURE DEMANDS FROM VARIOUS PROJECTS (AFY)

Development Project	2020	2025	2030	2035	2040
Lincoln Centre Life Sciences Research Campus	69	120	120	120	120
Gilead Integrated Corporate Campus	70	87	105	105	105
Pilgrim Triton Master Plan Project	27	92	128	128	128
15-Acres Project (Foster Square)	56	56	56	56	56
Tidelands (400 Mariner's Island Blvd)	14	14	14	14	14
TownePlace Suites	11	11	11	11	11
Chess/Hatch Drive Offices Project	0	6	15	15	15
1297 Chess Drive	2	2	2	2	2
1601 Beach Park Blvd	-	5	5	5	5
New Hotel in Metro Center	-	10	10	10	10
Subtotal Projects	250	404	467	467	467
2015 UWMP Demand Projection with Passive and Active Conservation Savings Annual Increase	0	6	(71)	(68)	(46)
Total	**250**	**410**	**396**	**399**	**420**

Table G-7 shows the total system demand projected for EMID including the demand from the proposed projects. The total system demand is calculated by adding the net demand generated from the proposed projects from Table G-7 to the system demand projections.

TABLE G-7 TOTAL SYSTEM DEMAND WITH ADDED PROJECTS

System Demand, No Drought	2015[1]	2020	2025	2030	2035	2040
Demand Projection for EMID, with Passive and Active Conservation, MGD	3.98	3.97	3.96	4.03	4.09	4.13
Demand Projection for EMID, with Passive and Active Conservation, AFY	4,459	4,449	4,444	4,514	4,582	4,628
Net Demand from Additional Projects, AFY	0	250	410	396	399	420
Total System Demand, AFY	4,459	4,700	4,854	4,910	4,981	5,048
SFPUC Supply Assurance, AFY	6,610	6,610	6,610	6,610	6,610	6,610
Estimated Remaining SFPUC Supply, AFY	2,151	1,910	1,757	1,700	1,630	1,562
Est. Remaining Supply Reliability, %	33%	29%	27%	26%	25%	24%

[1] 2015 data is based on actual numbers.

F. COMPARISON OF SUPPLY ALLOCATION VS. WATER DEMAND PROJECTIONS

1. Comparison of Supply Versus Demand

Table G-8 shows a comparison of the supply allocations from Table G-5 and projected total system demands from Table G-7, through the 20-year planning horizon as required by SB 610. As discussed in Table G-3, during a period of five consecutive dry years, the SFPUC's plan calls for a 26 percent supply reduction of the normal year supply in the first year, followed by a 34 percent reduction of the normal year supply for each of the next four years. To meet the reductions, EMID will have to cut back its consumption in kind by implementing the Water Shortage Contingency Plan based on the severity of the drought. The EMID's Water Shortage Contingency Plan describes the triggering levels and actions to be considered for each stage of demand reduction. The plan has five stages, with each stage set to respond to increasingly more severe conditions. In 2018, EMID elected to refine its Water Shortage Contingency Plan to achieve water savings of up to 15 percent rather than the previous 10 percent goal that was targeted in a Stage 2 Drought.

As shown in Table G-8, there will continue to be sufficient supplies to meet all projected demand, including the additional demand generated from the proposed projects in all conditions until year 2040. This conclusion is dependent on EMID's implementation of the mandatory demand reduction as outlined in the EMID Water Shortage Contingency Plan.

In the event of prolonged drought conditions, EMID would implement the Water Shortage Contingency Plan, which would result in reduced water demand of up to 50 percent within the service area. The Water Shortage Contingency Plan thus would ensure an adequate water supply within the EMID service area if the SFPUC reduces water deliveries to EMID by 10 percent to 20 percent (as would occur during a prolonged drought). For instance, a 20 percent reduction in water demand would reduce the overall demand during year 5 of a 5-year drought to approximately 3,702 AFY starting in 2040 with the new projects built out, as shown in Table G-8. The anticipated supply that year, considering a 22 percent reduction in water deliveries from the SFPUC, would be 4,039 AFY as shown in Table G-4. Thus, even under a 5-year drought scenario starting in 2040, EMID would be estimated to provide adequate water to all existing and anticipated development and maintain a water surplus of approximately 355 AFY.

TABLE G-8 ANNUAL SUPPLY ALLOCATION VS. MULTIPLE DRY YEARS DEMAND (AFY) WITH DEMAND CUTBACKS IN DRY YEARS CONSISTENT WITH THE 2018 REVISED WATER SHORTAGE CONTINGENCY PLAN

Year		Normal Year	Single Dry Year	Year 2	Year 3	Year 4	Year 5
			Demand Reduction %				
			15%	15%	20%	20%	20%
2015[1]	Allocation	6,613	4,887	4,394	4,394	4,394	4,394
	ACTUAL Demand	(4,459)	(3,790)	(3,790)	(3,567)	(3,567)	(3,567)
	Excess	2,154	1,097	604	827	827	827
2020	Maximum Allocation	6,613	4,887	4,394	4,394	4,394	4,394
	Demand (NOT including proposed projects)	(4,450)	(3,782)	(3,782)	(3,560)	(3,560)	(3,560)
	Demand (including proposed projects)	(4,700)	(3,995)	(3,995)	(3,760)	(3,760)	(3,760)
	Excess (NOT including proposed projects)	2,163	1,105	612	834	834	834
	Excess (including proposed projects)	**1,913**	**892**	**399**	**634**	**634**	**634**
2025	Maximum Allocation	6,613	4,887	4,394	4,394	4,394	4,394
	Demand (NOT including proposed projects)	(4,444)	(3,777)	(3,777)	(3,555)	(3,555)	(3,555)
	Demand (including proposed projects)	(4,854)	(4,126)	(4,126)	(3,883)	(3,883)	(3,883)
	Excess (NOT including proposed projects)	2,170	1,110	617	839	839	839
	Excess (including proposed projects)	**1,760**	**761**	**268**	**511**	**511**	**511**
2030	Maximum Allocation	6,613	4,887	4,394	4,394	4,394	4,394
	Demand (NOT including proposed projects)	(4,514)	(3,837)	(3,837)	(3,611)	(3,611)	(3,611)
	Demand (including proposed projects)	(4,910)	(4,174)	(4,174)	(3,928)	(3,928)	(3,928)
	Excess (NOT including proposed projects)	2,099	1,050	557	783	783	783
	Excess (including proposed projects)	**1,703**	**713**	**220**	**466**	**466**	**466**

Year		Normal Year	Single Dry Year	Year 2	Year 3	Year 4	Year 5
			Demand Reduction %				
			15%	15%	20%	20%	20%
2035	Maximum Allocation	6,613	4,887	4,394	4,394	4,394	4,394
	Demand (NOT including proposed projects)	(4,582)	(3,895)	(3,895)	(3,665)	(3,665)	(3,665)
	Demand (including proposed projects)	(4,981)	(4,234)	(4,234)	(3,985)	(3,985)	(3,985)
	Excess (NOT including proposed projects)	2,032	993	499	728	728	728
	Excess (including proposed projects)	**1,633**	**653**	**160**	**409**	**409**	**409**
2040	Maximum Allocation	6,613	4,887	4,394	4,394	4,394	4,394
	Demand (NOT including proposed projects)	(4,628)	(3,934)	(3,934)	(3,702)	(3,702)	(3,702)
	Demand (including proposed projects)	(5,048)	(4,291)	(4,291)	(4,039)	(4,039)	(4,039)
	Excess (NOT including proposed projects)	1,985	953	460	692	692	692
	Excess (including proposed projects)	**1,565**	**596**	**103**	**355**	**355**	**355**

[1] 2015 data is based on actual numbers.

2. Supply and Demand Conclusion

In conclusion, the water demand associated with the new hotel proposed to be located in the Metro Center General Development Plan area, and all foreseeable development as of October 2019 (including the development at 1601 Beach Park Blvd that is likely to be entitled and constructed by year 2025), could be accommodated during multiple dry years (such as those that could result from global climate change). This could happen through implementation of the mandatory demand reductions as outlined in the recently updated 2018 Water Shortage Contingency Plan.

The new hotel proposed to be located at the southwest corner of Metro Center Boulevard and Shell Boulevard, in the Metro Center General Development Plan area, as a whole would generate an additional net water demand of 10 AFY. The 31-unit condominium at 1601 Beach Park Blvd would generate an additional net water demand of 5 AFY. The water demand would be within the anticipated supply range for EMID and would not lead to insufficient water supplies in existing entitlements and resources or require new or expanded entitlements. Therefore, the proposed projects would result in a less-than-significant impact upon the existing and anticipated potable water supply.

G. DEMAND MANAGEMENT MEASURES

1. Description of Adopted Water Conservation Measures

Over the years, EMID has implemented demand management measures to reduce the overall demand for water. Water conservation helpful tips are available online and in brochures to educate customers. Every year during the National Public Works Week, local schools and teachers are invited to participate in water facility tours and activities to promote water conservation. Table G-9 presents the water conservation measures EMID is currently implementing or planning to implement.

TABLE G-9 EMID CURRENT AND PROPOSED CONSERVATION MEASURES

Measure Name	Description
Water Loss Control Program	Maintain a thorough annual accounting of water production, sales by customer class and quantity of water produced but not sold (non-revenue water). In conjunction with system accounting, include audits that identify and quantify known legitimate uses of non-revenue water to determine remaining potential for reducing water losses. Goal is to lower the Infrastructure Leakage Index (ILI) and non-revenue water every year by a pre-determined amount based on cost-effectiveness. These programs typically pay for themselves based on savings in operational costs (and saved rate revenue can be directed more to system repairs/replacement and other costs). Specific goals and methods to be developed by Utility. May include accelerated main and service line replacement. Enhanced real loss reduction may include more ambitious main replacement and active leak detection. Capture water from water main flushing and hydrant flow testing for reuse. **Measure start: Ongoing.**
Metering with Advanced Metering Infrastructure (AMI)	Retrofit system with AMI meters and associated network capable of providing continuous consumption data to Utility offices. Improved identification of system and customer leaks is a major conservation benefit. Some of the costs of these systems are offset by operational efficiencies and reduced staffing, as regular meter reading and those for opening and closing accounts are accomplished without need for physical or drive-by meter reading. Also enables enhanced billing options and ability to monitor unauthorized usage (such as use/tampering with closed accounts or irrigation if time of day or days per week are regulated). Customer service is improved as staff can quickly access continuous usage records to address customer inquiries. Optional features include online customer access to their usage, which has been shown to improve accountability and reduce water use. A ten-year change-out would be a reasonable objective. Require that new customers install such AMI meters as described above and possibly purchase means of viewing daily consumption inside their home/business either through the Internet (if available) or separate device. The AMI system would, on demand, indicate to the customer and Utility where and how their water is used, facilitating water use reduction and prompting leak identification. This would require Utility to install an AMI system. Require that larger or irrigation customers install such AMI meters as described above and possibly purchase means of viewing daily consumption by landscape/property managers, or business either through the Internet (if available) or separate device. **Measure start: 2013-Ongoing.**

TABLE G-9 EMID CURRENT AND PROPOSED CONSERVATION MEASURES

Measure Name	Description
Agency Public Information & Program Administration (added to BAWSCA)	Continue with a regional water conservation outreach campaign. May modify to be a general “Use Only What You Need” message like Denver Water's program or a “Beat the Peak” message media campaign like Cary, North Carolina or Tucson, Arizona: http://cms3.tucsonaz.gov/ water/beatthepeak. Also considered a program with focused action like: “Take Control of your Controller” Campaign for a focused social media based campaign as a media campaign. Consider determining appropriate usage and media campaign message with marketing study/focus groups. Utility would sponsor bilingual training for managers and workers in landscape maintenance methods that will save irrigation water. Model after Green Gardener Program. Santa Barbara County Water Agency example: http://www.greengardener.org. With some of these programs, names of businesses that have obtained training are included in Utility publications and/or Web sites (as an incentive to participate). **Measure start: Ongoing.**
In-School Education	School assembly program, classroom presentations, and other options for school education. Measure based on the Resource Action Program Water Wise School Program. **Measure start: Ongoing.**
Single and Multi-Family Water Surveys	Indoor water surveys for existing single-family residential customers. Target those with high water use and provide a customized report to owner. May include give-away of efficient shower heads, aerators, and toilet devices. Usually combined with outdoor surveys (See Irrigation Measures). Indoor water surveys for existing multi-family residential customers (2 units or more). Target those with high water use and provide a customized report to owner. Usually combined with outdoor surveys (see Irrigation Measures) and sometimes with single-family surveys. Customer leaks can go uncorrected at properties where owners are least able to pay costs of repair. These programs may require that customer leaks be repaired, but either subsidize part of the repair and/or pay the cost with revolving funds that are paid back with water bills over time. May also include an option to replace inefficient plumbing fixtures at low-income residences. Provide incentive to install pressure regulating valve on existing properties with pressure exceeding 80 psi. **Measure start: Ongoing.**
WaterSense Fixtures Giveaway	Utility would buy showerheads and faucet aerators in bulk and give them away at Utility office or community events. Need to coordinate this program with the School Education measure on retrofit kit giveaways to the same customer categories. **Measure start: Current-2020.**
Ultra-High-Efficiency Toilet (UHET) Residential Rebates	Provide a rebate or voucher for the installation of an UHET. (Toilets flushing 1.28 GPF or less and include dual flush technology). Rebate amounts would reflect the incremental purchase cost. **Measure start: Current through December 2019.**

TABLE G-9 EMID CURRENT AND PROPOSED CONSERVATION MEASURES

Measure Name	Description
"Lawn Be Gone" Landscape Conversion/ Turf Removal	Provide a per-square-foot incentive to remove turf and replace with low water use plants or permeable hardscape. Rebate based on dollars per square foot removed and capped at an upper limit for single-family residence. **Measure start: Ongoing.**
Water Conserving Landscape & Codes (not including WBICs and turf removal) SF MF CII	Develop and enforce Water Efficient Landscape Design Standards. Standards specify that development projects subject to design review be landscaped according to climate appropriate principals, with appropriate turf ratios, plant selection, efficient irrigation systems, and smart irrigation controllers. There are many examples that have demonstrated significant water savings. The ordinance could require certification of landscape professionals. **Measure start: Ongoing.**
HET CII Rebates	Provide a rebate or voucher for the installation of a high efficiency toilet (HET). Toilets flushing 1.28 GPF or less and include dual flush technology. Rebate amounts would reflect the incremental purchase cost. **Measure start: Current-2020.**
Outdoor Water Audit – Large Landscape	Outdoor water audits offered for existing large landscape customers. Normally those with high water use are targeted and provided a customized report on how to save water. All large multi-family residential, , and public irrigators of large landscapes would be eligible for free landscape water audits upon request. Tied to the Waterfluence Budget Program. **Measure start: Ongoing.**
Landscape Water Budgets/Monitoring-Large Landscape Dedicated Meters & Mixed-Use Conversion	Website that provides feedback on irrigation water use (budget vs. actual). Current Waterfluence Program. May include the cost for dedicated meter conversion. **Measure start: 2015.**
"Lawn Be Gone" MF Large Landscape Conversion/Turf Removal	Provide a per-square-foot incentive to remove turf and replace with low water use plants or hardscape. Rebate is based on price per square foot removed and capped at an upper limit for multi-family or commercial residence. **Measure start: Ongoing.**
Rotating Sprinkler Nozzle Incentive Program SF MF Large Landscape	Provide rebates to replace standard spray sprinkler nozzles with rotating nozzles that have lower application rates. Nozzles cost about $6 and rebates have been on the order of $4 with a minimum purchase of about 20 nozzles. **Measure start: 2015.**

Source: Foster City. Public Works Water Conservation Rebate Programs webpage, accessed August 2019: https://www.fostercity.org/publicworks/page/water-conservation-rebate-programs

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