CITY OF PACIFICA
PLANNING DEPARTMENT

570 Crespi Drive Project

Initial Study

December 2021

Prepared By

RANEY PLANNING & MANAGEMENT, INC. 20 years
1501 Sports Drive, Suite A, • Sacramento • CA • 95834
Office 916.372.6100 • Fax 916.419.6108

TABLE OF CONTENTS

APPENDICES:

INITIAL STUDY

December 2021

A. BACKGROUND

1.	Project Title:	570 Crespi Drive Project
2.	Lead Agency Name and Address:	City of Pacifica Planning Department 540 Crespi Drive Pacifica, CA 94044
3.	Contact Person and Phone Number:	Christian Murdock Deputy Planning Director (650) 738-7341
4.	Project Location:	540 and 570 Crespi Drive Pacifica, CA 94044 APNs 022-162-130 and 022-162-420
5.	Project Sponsor's Name and Address:	Brendan Murphy P.O. Box 301 San Mateo, CA 94401 (650) 401-3642
6.	Existing and Proposed General Plan Designation:	Commercial
7.	Existing Zoning Designation:	Controlled Manufacturing District (M-1)
8.	Proposed Zoning Designation:	Community Commercial District (C-2)
9.	Potential Approvals from Other Public Agencies:	Regional Water Quality Control Board California Department of Fish and Wildlife U.S. Army Corps of Engineers Bay Area Air Quality Management District

10. Surrounding Land Uses and Setting:

The 1.68-acre project site consists of 570 Crespi Drive and a portion of 540 Crespi Drive, located in the City of Pacifica, California. Surrounding land uses include the Pacifica Community Center, Pacifica Skatepark, and State Route (SR) 1 to the northwest, commercial businesses to the north and southeast, an elementary school to the east, and single-family residences to the south. In addition, the Ocean View Senior Apartments are located to the north of the site, across Crespi Drive. Per the City's General Plan, the site is designated Commercial and zoned Controlled Manufacturing District (M-1).

11. Project Description Summary:

 The 570 Crespi Drive Project (proposed project) would include development of one two-story mixed-use building (Building A) and two three-story residential buildings (Buildings B and C). The project would also include a condominium subdivision to create one commercial condominium and 19 residential condominiums. Building A would consist of 3,165-square feet (sf) of commercial space on the ground floor and three residential units on the second floor. Buildings B and C would be three stories each and would contain seven and nine townhomes, respectively, for a project-wide total of 19 units. The buildings would be constructed on the northernmost half of the site, while the southernmost half of the site would remain undisturbed. Three of the units would be ownership Below Market Rate (BMR) units pursuant to the City's Inclusionary Ordinance. In addition, the project would involve off-site improvements, including construction of a new driveway and associated parking spaces within the northern portion of the existing Pacifica Community Center located immediately to the west at 540 Crespi Drive.

 The proposed project would require approval of a Rezoning, Zoning Text Amendment, General Plan Amendment, Development Agreement, Site Development Permit, Use Permit, Tentative Subdivision Map, Lot Merger and/or Lot Line Adjustment (LLA), and Heritage Tree Removal Authorization. The Development Agreement, among other things, would include the following developer requirements: (1) the creation of three BMR units; (2) an affordable housing contribution to City; (3) the construction of improvements at 540 Crespi Drive as noted above; (4) a driveway lease with City to allow the project to use the City's driveway; and (5) wetland interpretative signage.

12. Status of Native American Consultation Pursuant to Public Resources Code Section 21080.3.1:

 Native American tribes in the project region have not requested notification of new development projects from the City. Thus, pursuant to Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1), project notification letters were not distributed and requests for consultation were not received. Nonetheless, information request letters were sent in June 2020 to the Amah Mutsun Tribal Band of Mission San Juan Batista and the Ohlone Indian Tribe. Responses from the tribes have not been received.

B. SOURCES

The following documents are referenced information sources used for the purposes of this Initial Study:

1. Barry Biermann, Deputy Fire Chief, North County Fire Authority. Personal communication [email] with Clay Gallagher, Associate, Raney Planning and Management, Inc. June 4, 2020.
2. Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. May 2017.
3. California Air Resources Board. *The 2017 Climate Change Scoping Plan Update.* January 20, 2017.
4. California Building Standards Commission. *California Green Building Standards Code*. 2019.
5. California Department of Conservation. *California Important Farmland Finder*. Available at: https://maps.conservation.ca.gov/dlrp/ciff/. Accessed June 2021.

6. California Department of Conservation. *Tsunami Inundation Map for Emergency Planning, Montara Mountain Quadrangle.* June 15, 2009.
7. California Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2021 with 2010 Census Benchmark*. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/. Accessed June 2021.
8. California Department of Forestry and Fire Protection. *San Mateo County, Very High Fire Hazard Severity Zones in LRA*. November 24, 2008.
9. California Department of Toxic Substances Control. *Hazardous Waste and Substances Site List*. Available at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=570+Crespi+Drive%2C +Pacifica%2C+CA. Accessed June 2021.
10. California Department of Transportation. *2017 Traffic Volumes: Route 1.* Available at: https://dot.ca.gov/programs/traffic-operations/census/traffic-volumes/2017/route-1. Accessed June 2021.
11. California Department of Transportation. *Scenic Highways* Available at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed April 2020.
12. CalRecycle. *SWIS Facility/Site Activity Details: Corinda Los Trancos Landfill (Ox Mtn) (41-AA-0002)*. Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223. Accessed June 2021.
13. City of Pacifica. *Climate Action Plan*. July 14, 2014.
14. City of Pacifica. *Design Guidelines.* Revised April 1990.
15. City of Pacifica. *Pacifica Demographics: 2018.* Available at: https://www.cityofpacifica.org/about/eco_dev/census_facts_2000.asp. Accessed June 2021.
16. City of Pacifica. *Pacifica General Plan Draft Environmental Impact Report*. March 2014.
17. City of South San Francisco. *Community Choice Energy*. Available at: https://www.ssf.net/departments/city-manager/sustainability/community-choice-energy #:~:text=South%20San%20Francisco%20has%20joined ,instead%20of%20going%20through%20PG%26E. Accessed June 2021.
18. City/County Association of Governments of San Mateo County, California. *Comprehensive Airport Land Use Plan for the Environs of San Francisco International Airport.* July 2012.
19. City/County Association of Governments of San Mateo County, San Mateo Countywide Water Pollution Prevention Program. *Construction Best Management Practices.* Available at: http://www.cityofpacifica.org/depts/planning/stormwater_compliance/default.asp. Accessed January 4, 2019.
20. City/County Association of Governments of San Mateo County, San Mateo Countywide Water Pollution Prevention Program. *C.3 Stormwater Technical Guidance.* June 2016.
21. City/County Association of Governments. *San Mateo County Congestion Management Program*. April 9, 2020.
22. ENGEO, Inc. *570 Crespi Drive Pacifica, California Geotechnical Peer Review*. March 2, 2020.
23. GeoForensics, Inc. *Crespi Drive Property, 570 Crespi Drive, Pacifica, California, Response to Geotechnical Peer Review*. April 30, 2020.
24. GeoForensics, Inc. *Geotechnical Investigation for Proposed New Townhouse Complex and Commercial Building.* January 5, 2016.
25. Heather Olsen, Superintendent, Pacifica School District. Personal Communication [email] with Clay Gallagher, Associate, Raney Planning and Management, Inc. May 27, 2020.
26. Monk and Associates Environmental Consultants. *Biological Constraints Analysis 570 Crespi Drive, City of Pacifica*. October 8, 2014.

27. Native American Heritage Commission. *570 Crespi Drive Project, San Mateo County.* February 28, 2020.
28. North Coast County Water District. *2015 Urban Water Management Plan.* June 15, 2016.
29. North Coast County Water District. *20-Year Long-Term Water Master Plan.* February 2016.
30. Northwest Information Center. *Re: Record search results for the proposed project located at 570 Crespi Drive, Pacifica, San Mateo County, California.* March 10, 2020.
31. Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program: Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments*. February 2015.
32. Pacifica School District. *Level I Developer Fee Study for Pacifica School District.* June 14, 2018.
33. Regional Water Quality Control Board San Francisco Bay Region. *City of Pacifica, Calera Creek Water Recycling Plant and Wastewater Collection System, Pacifica, San Mateo County.* Available at: https://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2017/April/7_ssr.pdf. April 12, 2017.
34. RKH Civil and Transportation, Inc. *Traffic Impact Analysis, 570 Crespi Drive, Pacifica, California.* November 8, 2021.
35. San Mateo County*. Comprehensive Airport Land Use Compatibility Plan.* December 1996.
36. Saxelby Acoustics LLC. *Environmental Noise Assessment, 570 Crespi Drive.* June 9, 2021.
37. State of California. Division of Mines and Geology. *Generalized Mineral Land Classification Map of the South San Francisco Bay Production—Consumption Region*. Published 1996.
38. U.S. Department of Agriculture Natural Resources Conservation Service. *Web Soil Survey*. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed June 2021.
39. U.S. Environmental Protection Agency. *User's Guide for the AMS/EPA Regulatory Model (AERMOD)*. December 2016.
40. Wood Biological Consulting. *Aquatic Resources Delineation 570 Crespi Avenue, Pacifica CA*. August 20, 2020.
41. Wood Biological Consulting. *Biological Constraints Analysis – Update 540 and 570 Crespi Drive, Pacifica CA.* August 17, 2020.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Less Than Significant with Mitigation Incorporated" or as indicated by the checklist on the following pages.

☐	**Aesthetics**	☐	**Agriculture and Forest Resources**	☐	**Air Quality**
✖	**Biological Resources**	✖	**Cultural Resources**	☐	**Energy**
✖	**Geology and Soils**	☐	**Greenhouse Gas Emissions**	✖	**Hazards and Hazardous Materials**
✖	**Hydrology and Water Quality**	☐	**Land Use and Planning**	☐	**Mineral Resources**
✖	**Noise**	☐	**Population and Housing**	☐	**Public Services**
☐	**Recreation**	✖	**Transportation**	✖	**Tribal Cultural Resources**
☐	**Utilities and Service Systems**	☐	**Wildfire**	☐	**Mandatory Findings of Significance**

D. DETERMINATION

On the basis of this initial study:

☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

✖ I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

______________________	______________________
Signature	Date
Christian Murdock	City of Pacifica
Printed Name	For

E. BACKGROUND AND INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) identifies and analyzes the potential environmental impacts of the 570 Crespi Drive project. The information and analysis presented in this document are organized in accordance with the order of the CEQA checklist in Appendix G of the CEQA Guidelines. If the analysis provided in this document identifies potentially significant environmental effects of the project, mitigation measures that should be applied to the project are prescribed. All of the technical reports and modeling results used for the purposes of this analysis are available upon request at the City of Pacifica Planning Department.

The mitigation measures prescribed for environmental effects described in this IS/MND will be implemented in conjunction with the project, as required by CEQA. The mitigation measures will be incorporated into the project through project conditions of approval. The City will adopt findings and a Mitigation Monitoring and Reporting Program for the project in conjunction with approval of the project.

In 1980, the City of Pacifica adopted the City of Pacifica General Plan. In March of 2014, the City of Pacifica released a Draft General Plan Update and associated Draft Environmental Impact Report (EIR). However, the Draft General Plan Update and associated Draft EIR have not yet been adopted or certified by the City. Therefore, the analysis contained within this IS/MND relies on the guidelines and information contained within the adopted 1980 General Plan.. Although the 2014 Draft General Plan Update has not been adopted, the 2014 Draft General Plan Update contains background information related to the City that remains applicable.

F. PROJECT DESCRIPTION

The following provides a description of the project site location and setting, as well as the proposed project components and the discretionary actions required for the project.

Project Location and Setting

The 1.68-acre project site is located just south of Crespi Drive in the City of Pacifica, California (see Figure 1 and Figure 2). The site consists of the entirety of the 0.98-acre lot identified by Assessor's Parcel Number (APN) 022-162-310, located at 570 Crespi Drive, and the southeastern 0.70-acre portion of APN 022-162-420, located at 540 Crespi Drive. Per the City's General Plan, the site is designated Commercial and is zoned Controlled Manufacturing District (M-1).

The site is currently undeveloped and covered in dense vegetation. Several trees and shrubs are located throughout the project site. It is noted that the western portion of the site was recently disturbed during landscape improvements, while the southern portion of the site is predominantly characterized by a seasonal drainage and wetland area.

Surrounding land uses include the Pacifica Community Center, Pacifica Skatepark, and SR 1 to the west, commercial businesses to the north and southeast, an elementary school to the east, and single-family residences to the south. The Cabrillo Elementary School is located approximately 600 feet east of the project site and SR 1 is approximately 0.75-mile to the west of the site. In addition, the Ocean View Senior Apartments are located to the north of the site, across Crespi Drive.

Figure 1
Regional Project Location

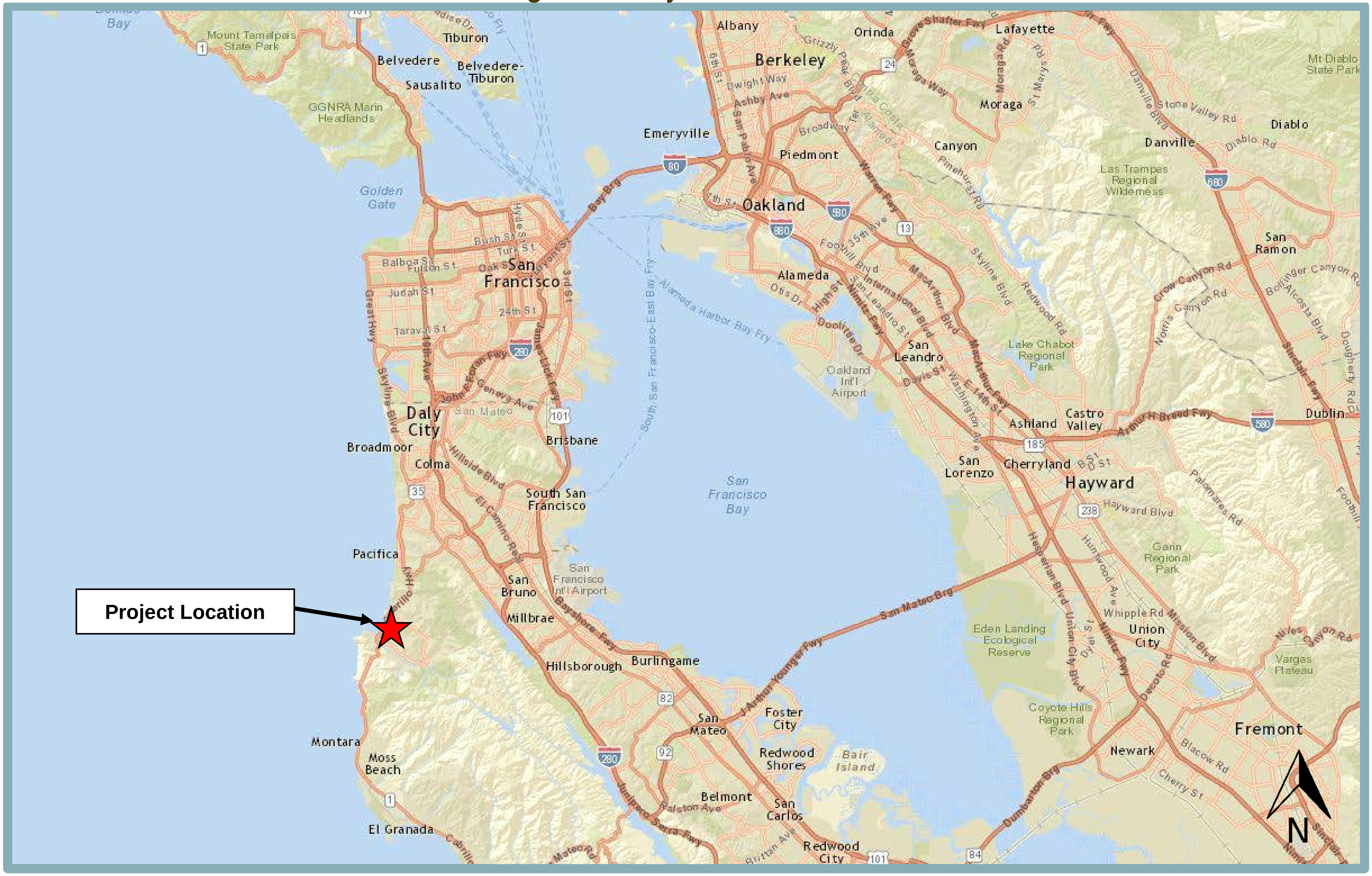
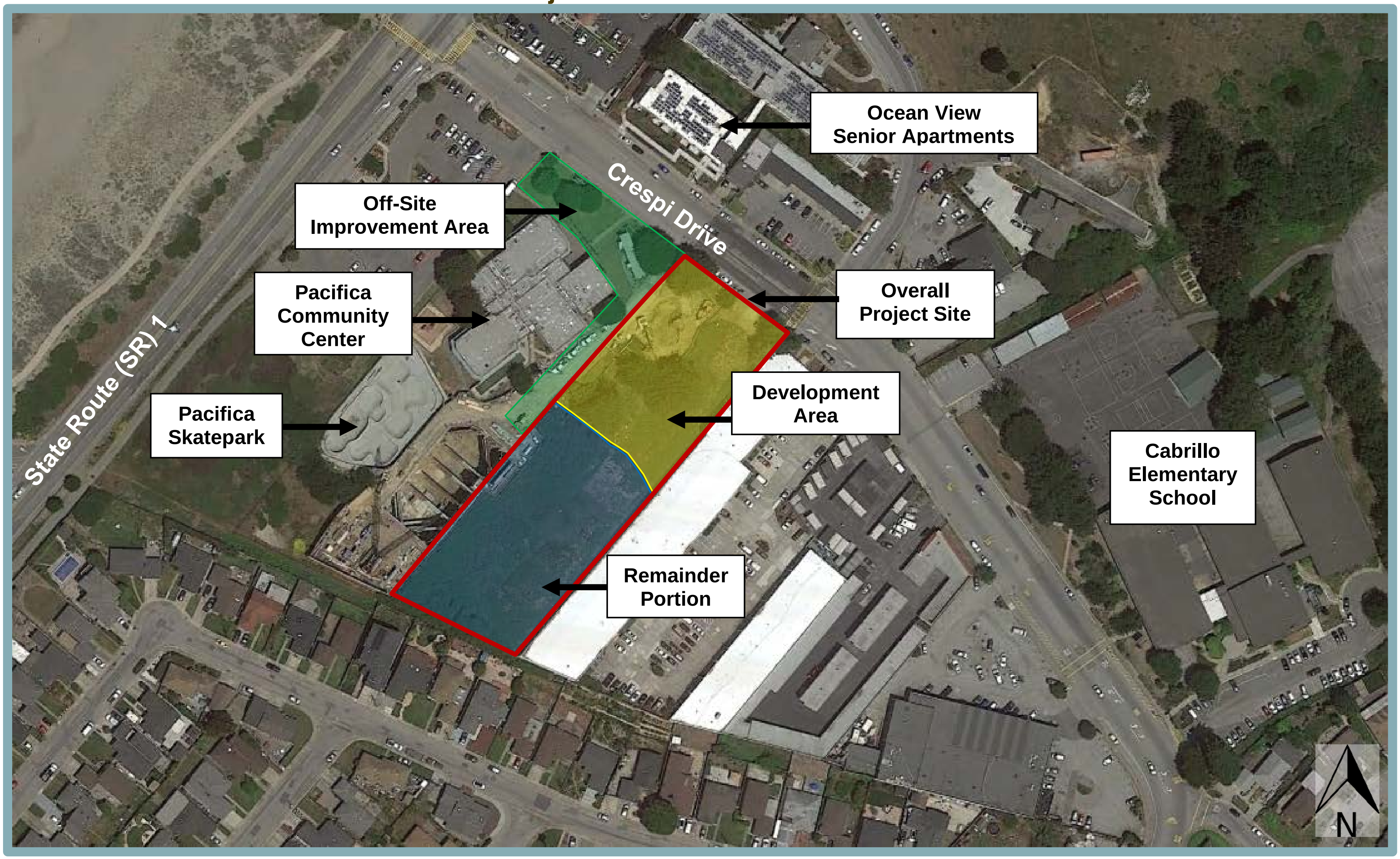


Figure 2
Project Site Boundaries



Project Components

The proposed project would include the purchase of a 0.70-acre portion of APN 022-162-420, located at 540 Crespi Drive, and a Lot Merger and/or LLA to combine the 0.70-acre portion of APN 022-162-420 and APN 022-162-310 (0.98 acre). The new 1.68-acre parcel would be developed with one two-story mixed-use building (Building A) and two three-story residential buildings (Buildings B and C) (see Figure 3). The project would include a condominium subdivision to create one commercial condominium and 19 residential condominiums. In addition, the project would involve off-site improvements, including construction of a new driveway and associated parking spaces within the northern portion of the existing Pacifica Community Center.

The proposed project would require approval of a Rezoning, Zoning Text Amendment, General Plan Amendment, Development Agreement, Site Development Permit, Use Permit, Tentative Subdivision Map, Lot Merger and/or LLA, and Heritage Tree Removal Authorization. Additional details regarding the requested approvals, proposed buildings, access and circulation, landscaping, utilities infrastructure, and off-site improvements are discussed below.

Rezoning / Zoning Text Amendment / General Plan Amendment / Development Agreement / Site Development Permit / Use Permit

As part of the proposed project, the project site would be Rezoned from M-1 to the Community Commercial (C-2) zoning district. Per Municipal Code Section 9-4.1101(b)(8), residential dwelling units are conditionally allowable when located above the ground floor in the same building as a commercial use. As a result, approval of a Use Permit would be required in order to develop the three proposed units on the second story of Building A. A Site Development Permit and a Use Permit would be required to allow a clustered housing development pursuant to PMC Section 9-4.2403.

In addition, a Zoning Text Amendment is proposed in order to allow residential uses on the ground level and in buildings that do not contain commercial uses in areas zoned C-2. Approval of the proposed Zoning Text Amendment would allow for the development of Buildings B and C in the C-2 zoning district. The proposed Zoning Text Amendment would allow residential-only buildings to be constructed on sites that also contain a commercial building in areas throughout the City zoned C-2, subject to approval of a Use Permit. Approval of Use Permits is subject to the requirements of CEQA. Consequently, development of new residential uses on the ground level and in buildings that do not contain commercial uses on other parcels zoned C-2 would require site-specific environmental review and would not be allowed by-right by the proposed Zoning Text Amendment.

Similar to the Zoning Text Amendment, a General Plan Amendment would be required to allow residential uses on the ground level and in buildings that do not contain commercial uses in areas with the Commercial land use designation.

The project would also include approval of a Development Agreement which would require the proposed project to construct 17 parking spaces at the adjacent Community Center.

Tentative Subdivision Map, Lot Merger and/or Lot Line Adjustment

The proposed project would include approval of a Tentative Subdivision Map and a Lot Merger and/or LLA to combine APN 022-162-310, located at 570 Crespi Drive, and the southeastern 0.70-acre portion of APN 022-162-420, located at 540 Crespi Drive. The Tentative Subdivision Map would also include the creation of condominiums on the site. The Tentative Subdivision Map is provided as Figure 4.

Figure 3
Site Plan

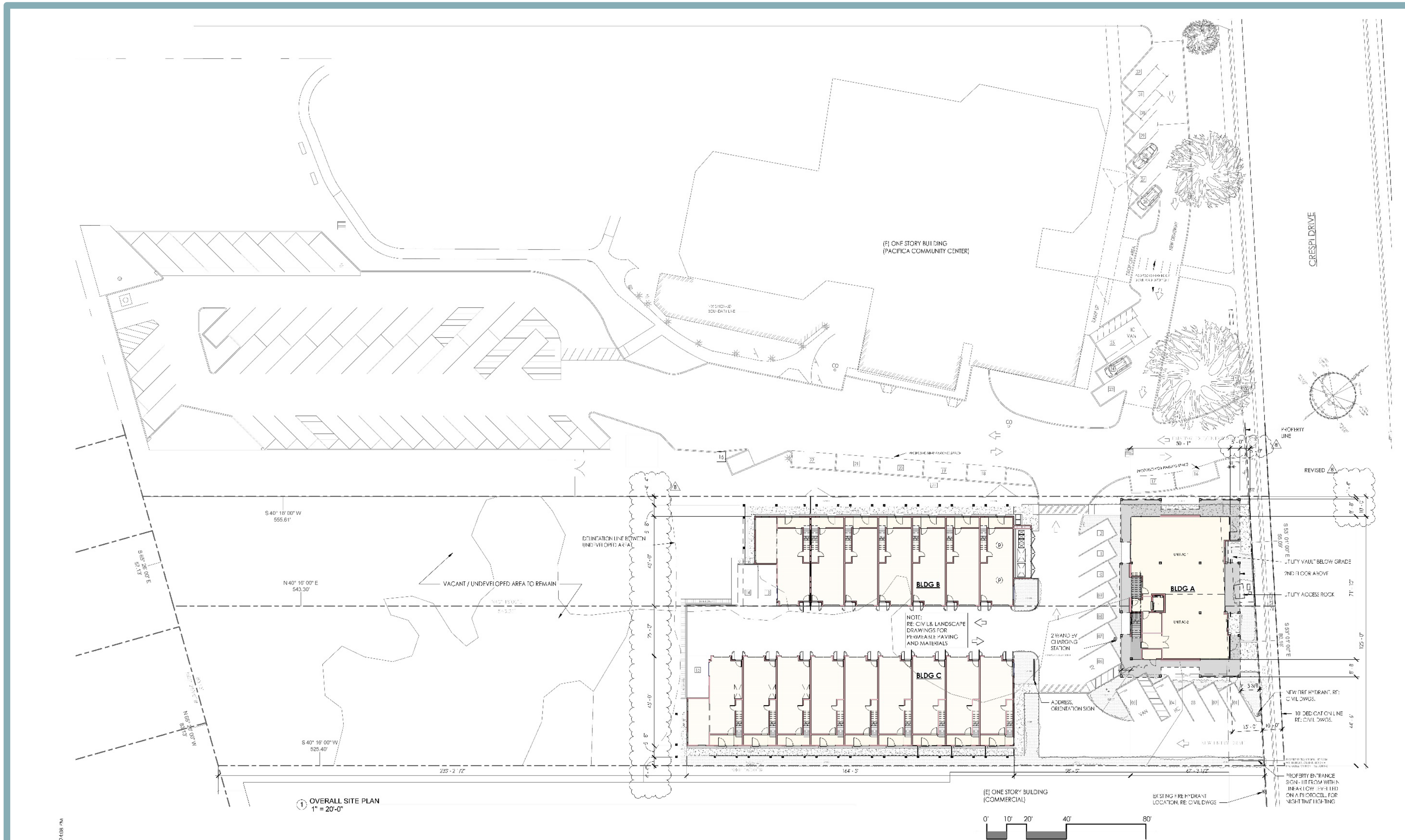
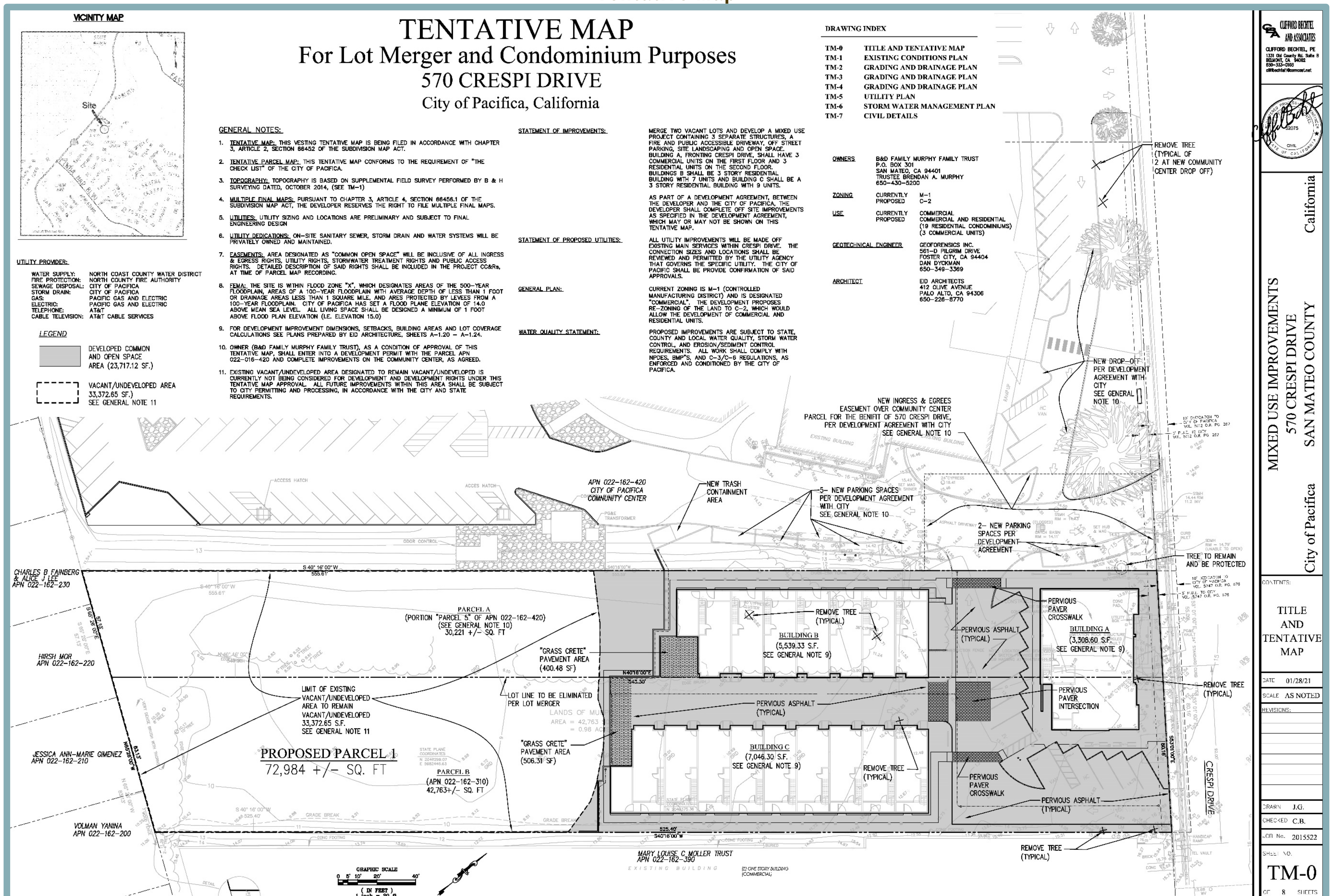


Figure 4
Tentative Map



Proposed Buildings

Building A would consist of 3,165 sf of commercial space on the ground floor and three residential units on the second floor. Buildings B and C would be three stories each and would contain seven and nine townhomes, respectively, for a project-wide total of 19 units. The buildings would be constructed on the northernmost half of the site, while the southernmost half of the site would remain undisturbed. Three residential units would be Below Market Rate ownership units. Refer to Figure 5, Figure 6, and Figure 7 for the first-, second-, and third-story floor plans for all proposed buildings. Construction would occur over an approximately two-year period. Grading would involve import of approximately 2,400 cubic yards of soil.

As discussed above, Building A would be developed as a mixed-use building with the ground floor consisting of 3,165-sf of commercial space and three residential units on the second floor. The westernmost unit in Building A would be approximately 1,312 sf with one bedroom, two bathrooms, and two balconies. The center unit in Building A would be approximately 925 sf with one bedroom, one bathroom, and a single balcony. The easternmost unit in Building A would be approximately 1,312 sf with one bedroom, two bathrooms, and two balconies.

Building B would include seven town homes, and Building C would include nine townhomes. All units would include a tandem garage on the first floor with a first-floor entry, with the residential space included on the second and third floors.

The first-floor entryway, second floor, and third floor of each unit would total approximately 1,521 sf, with the exception that the southernmost unit in Building B would be 2,212 sf, and the southernmost unit in Building C would be 2,227 sf. A roof deck would be provided above each unit in Buildings B and C.

Parking, Access, and Circulation

Primary access to the project site would be provided from Crespi Drive. The driveway entrance would be provided along the eastern side of Building A and loop around the southern portion of Building A, before exiting the site to the west (refer to Figure 3). A two-way drive aisle would connect to the proposed loop to allow residents access to Building B and C. The first floor of Building B and Building C would include private tandem garages for each proposed unit. Additionally, a total of 15 uncovered parking spaces would be provided on the project site, five of which would be located on the east side of Building A, seven located directly south of Building A, two south of Building B, and one south of Building C. Of the 47 total parking spaces provided on-site, three would provide electric vehicle charging.

The proposed project would also include improvements to the northern portion of the Pacifica Community Center parcel. The improvements would include construction of a new east to west driveway with seven uncovered parking spaces and a drop-off area intended for use by the Pacifica Community Center. The new driveway would connect to existing driveways located to the west and to the east of the Community Center.

Landscaping

The proposed project would include landscaping features throughout the development area, the off-site improvement area, and along the Crespi Drive frontage (see Figure 8 and Figure 9). Proposed plant types include, but are not limited to, crape myrtle, desert willow, sea lavender, dwarf mat rush, and Cleveland sage. All landscaping improvements would be consistent with the City's landscape design requirements, and would include at least two inches of mulch.

Figure 5
Floor Plan – Level 1

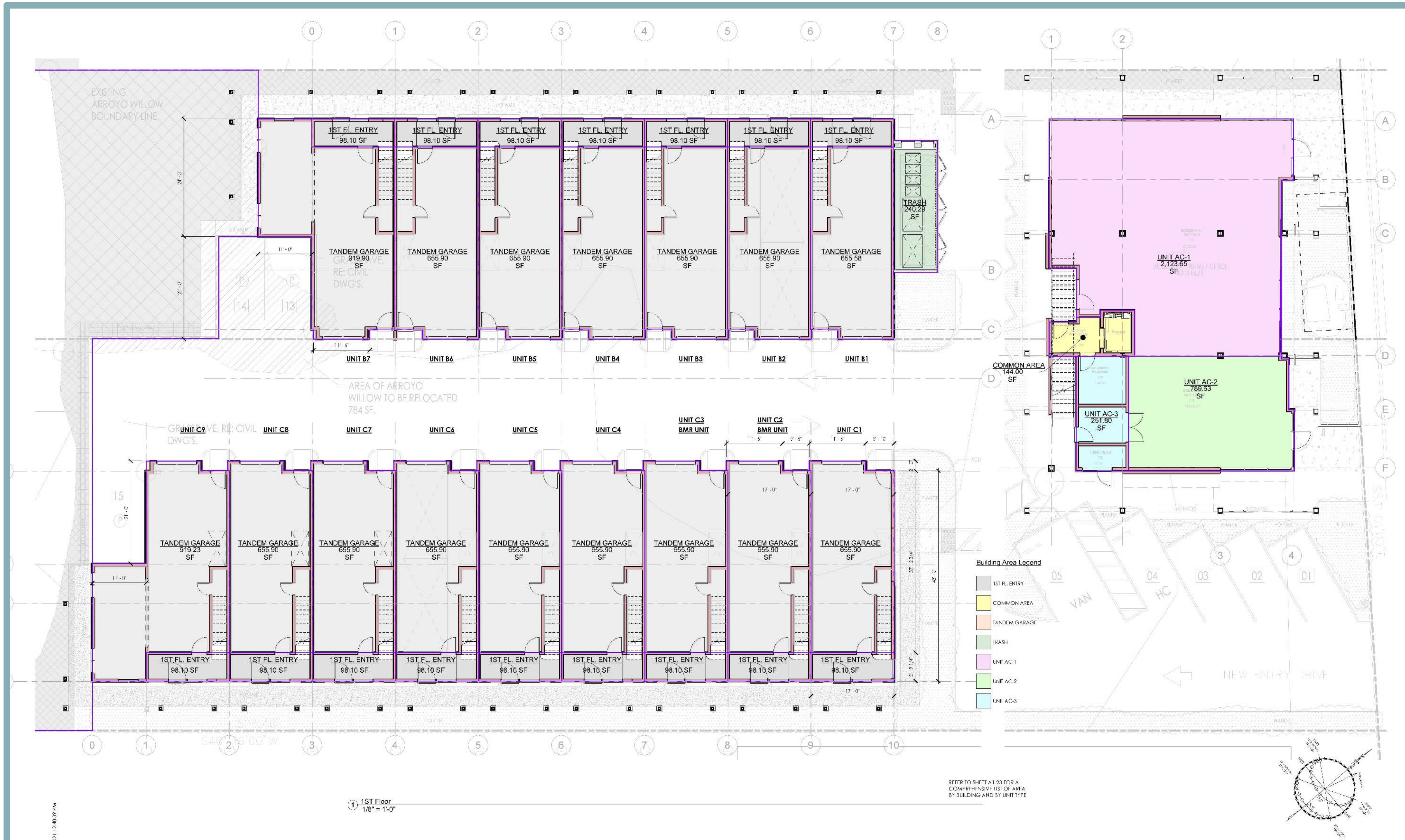


Figure 6
Floor Plan – Level 2

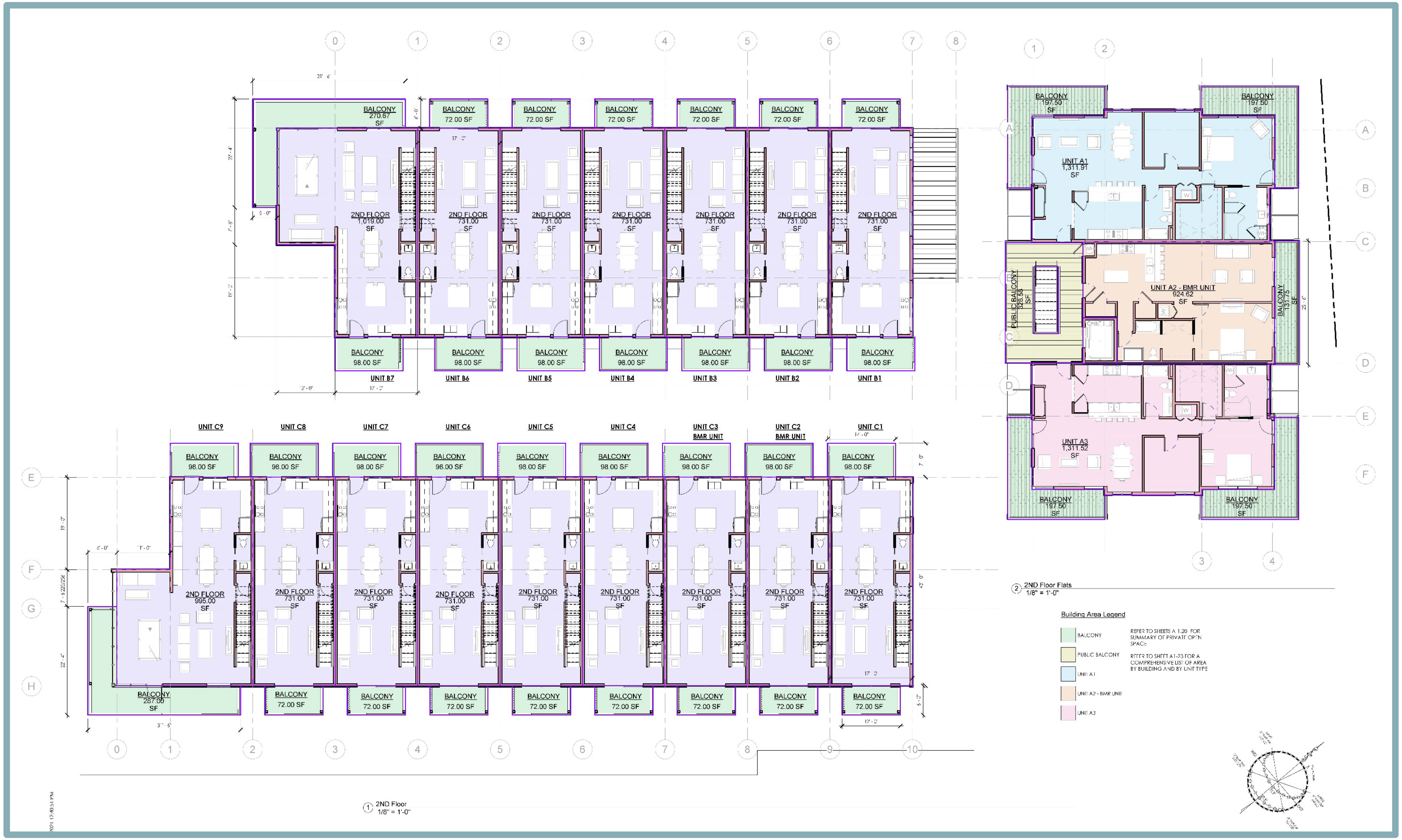


Figure 7
Buildings B and C Floor Plan – Level 3

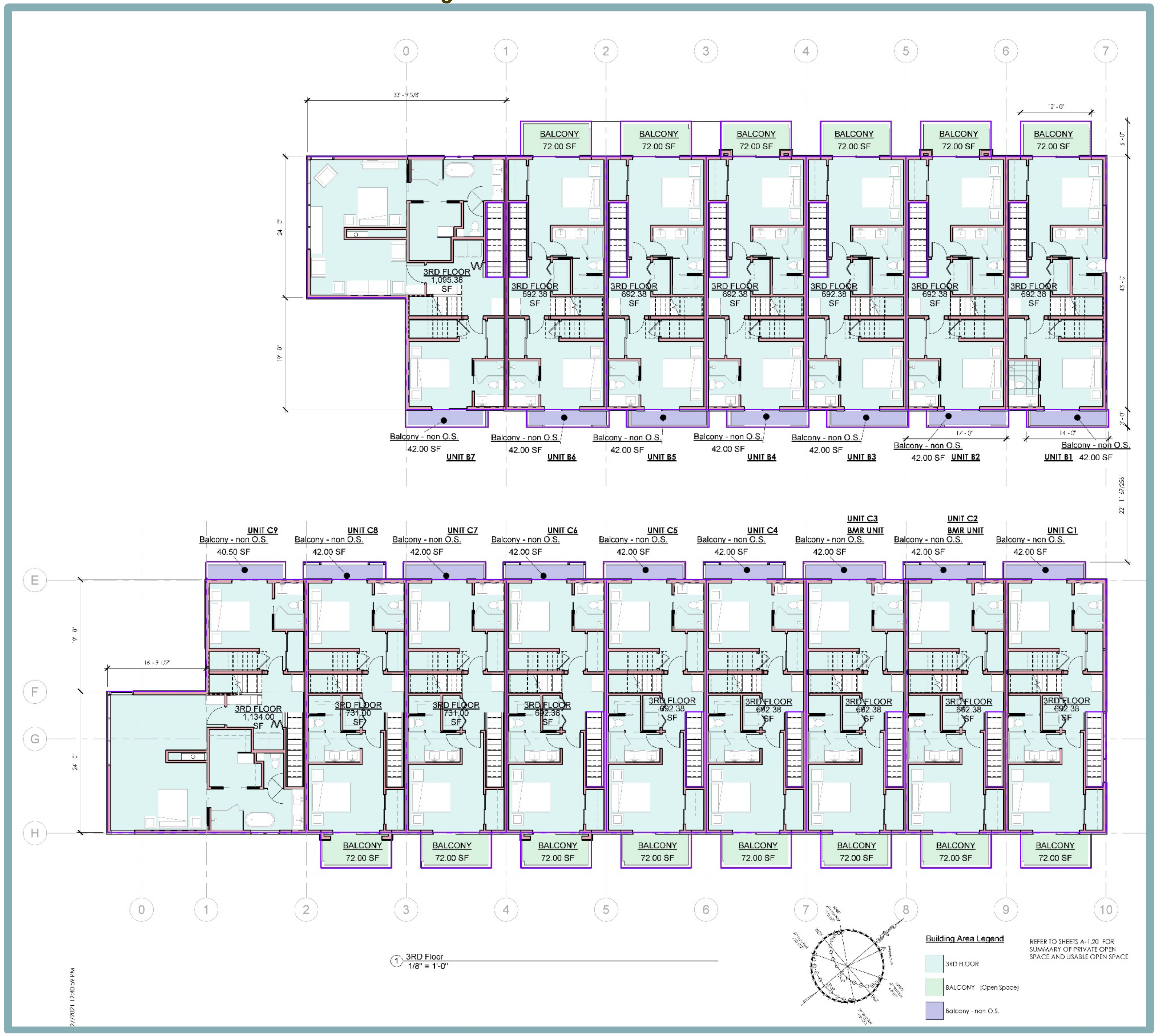


Figure 8
Site Landscaping Plan

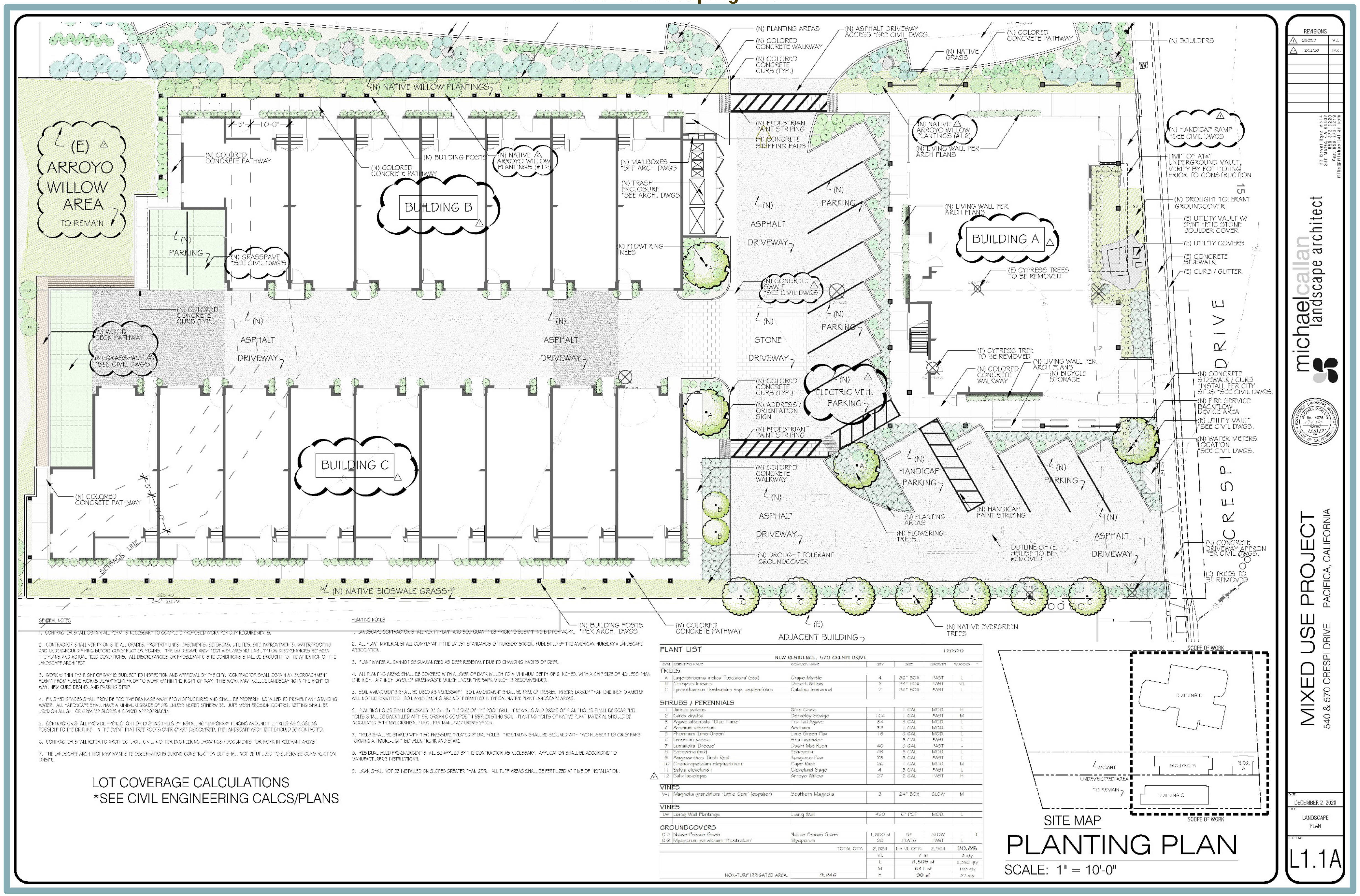
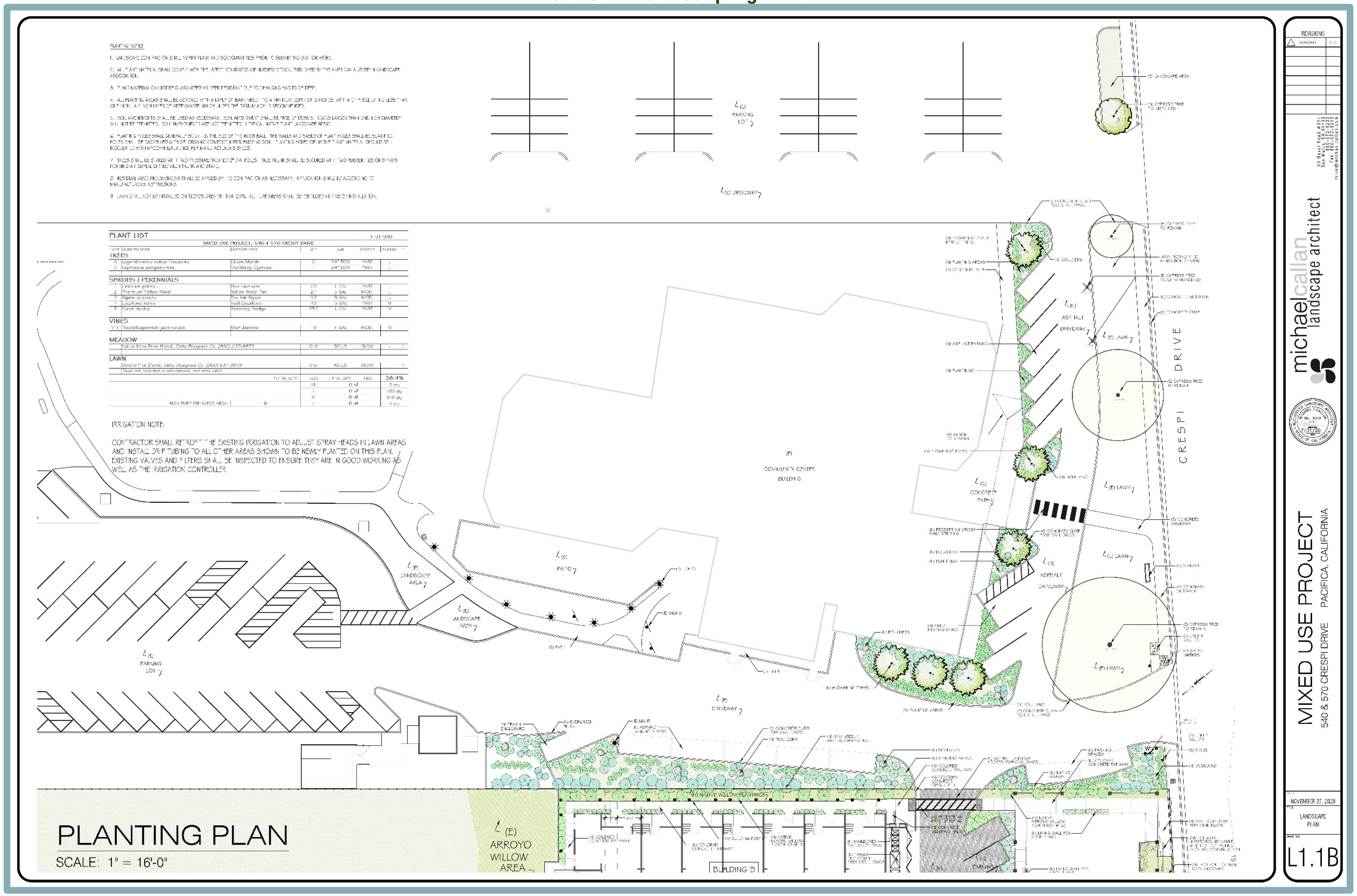


Figure 9
Off-Site Landscaping Plan



Utilities

Sewer service for the proposed project would be provided by the City. The proposed project would include connection to existing sanitary sewer infrastructure in Crespi Drive. Each building would be served by an eight-inch sanitary sewer line to connect to the proposed residential units (see Figure 10). In addition, each building would be constructed with a new sanitary sewer cleanout connected to the eight-inch sewer lines. The eight-inch lines would eventually connect to an existing sanitary sewer line within Crespi Drive to be routed to the City's wastewater treatment plant.

Water service would be provided by the North Coast County Water District (NCCWD) through connection to the existing water main located at Crespi Drive. A four-inch water line would be routed from all three buildings to provide fire service, while a three-inch water line would be routed from the proposed buildings to provide domestic water services.

Electricity and natural gas services would be provided by Pacific Gas & Electric (PG&E). A new vault would be constructed by PG&E in the northern portion of the project site, near Building A, to provide natural gas and electricity to the proposed structures. In addition, the proposed project would connect to existing telecommunications infrastructure in the project area.

All runoff from impervious areas within the project site, including all hardscape, parking areas, and driveways would be collected by new four-, six-, eight- and 10-inch storm drain pipes within the proposed driveway and parking area (see Figure 11). Runoff flowing through the storm drains would empty into proposed bioswales on the western and eastern boundaries of the site, or be directed to a bioretention area in the southeast corner of the project site. Treated stormwater would either be discharged into the vacant land to the south of the development area or into the City's stormwater system through connection of an existing six-inch storm drain west of the site. The proposed driveway and parking area north of the existing community center would be a self-treating area.

Off-Site Improvements

The proposed project would include various off-site improvements associated with the access and circulation. As discussed above, the proposed project would include construction of a new west to east driveway off Crespi Drive along the northern boundary of the Pacifica Community Center. Additional off-site improvements would include construction of 17 parking spaces to the west of the project site, a drop-off area, a new trash containment area, and landscape improvements. Figure 12 presents the proposed off-site improvements.

Discretionary Actions

The proposed project would require City approval of the following:

- Rezoning of the site from M-1 to C-2;
- Zoning Text Amendment to allow residential uses in buildings that do not contain commercial uses in C-2 zoning district;
- Development Agreement to require certain public benefits and to provide certain developer benefits;
- Use Permit to allow residential uses within the C-2 zone;
- Site Development Permit and Use Permit to allow a clustered residential housing development; and
- Tentative Subdivision Map to create new residential and commercial condominiums;
- Lot Merger and/or LLA to merge APN 022-162-310 and a portion of APN 022-162-420; and
- Heritage Tree Removal Authorization to authorize heritage tree removal.

Figure 10
Preliminary Utility Plan

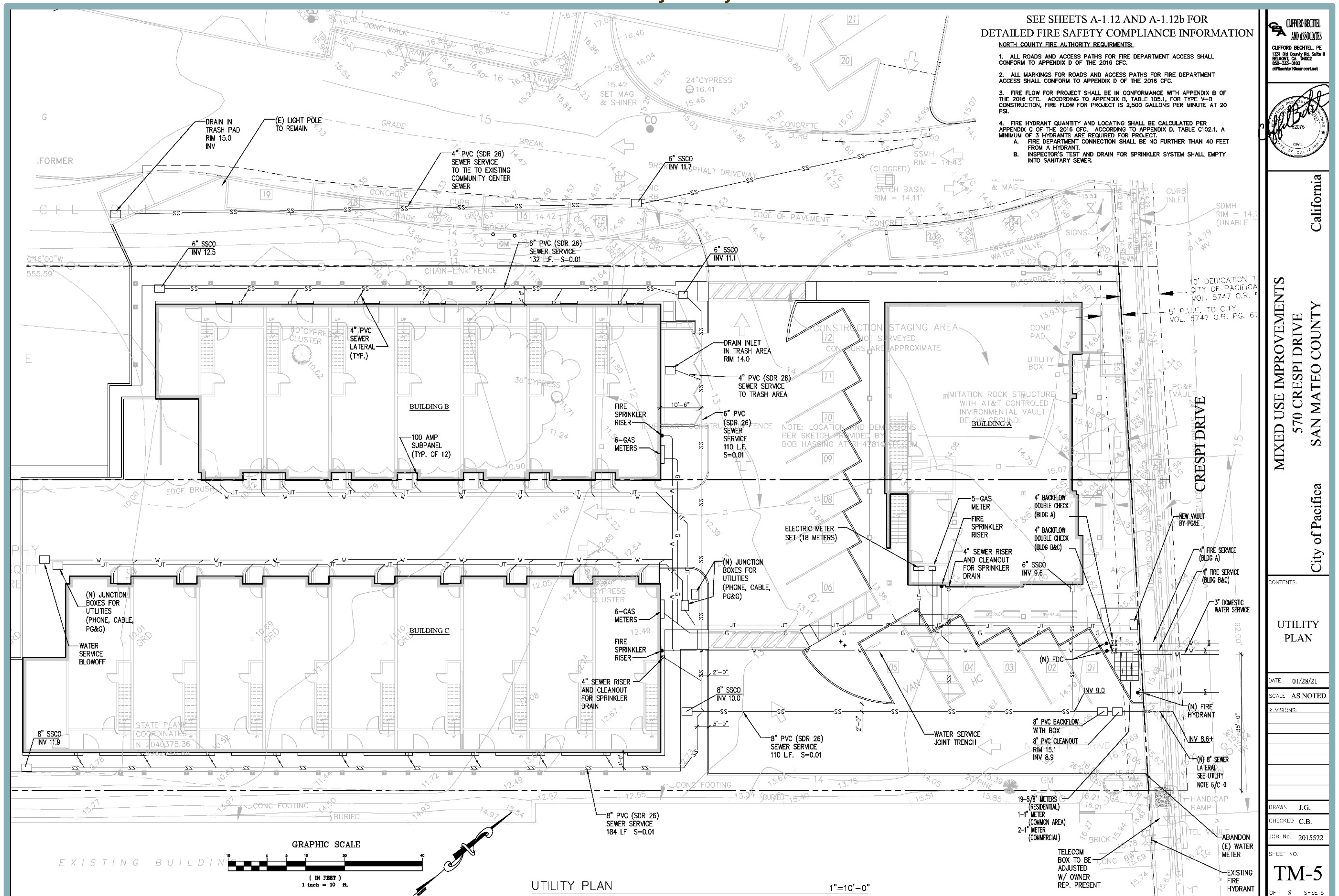


Figure 11
Preliminary Grading and Drainage Plan

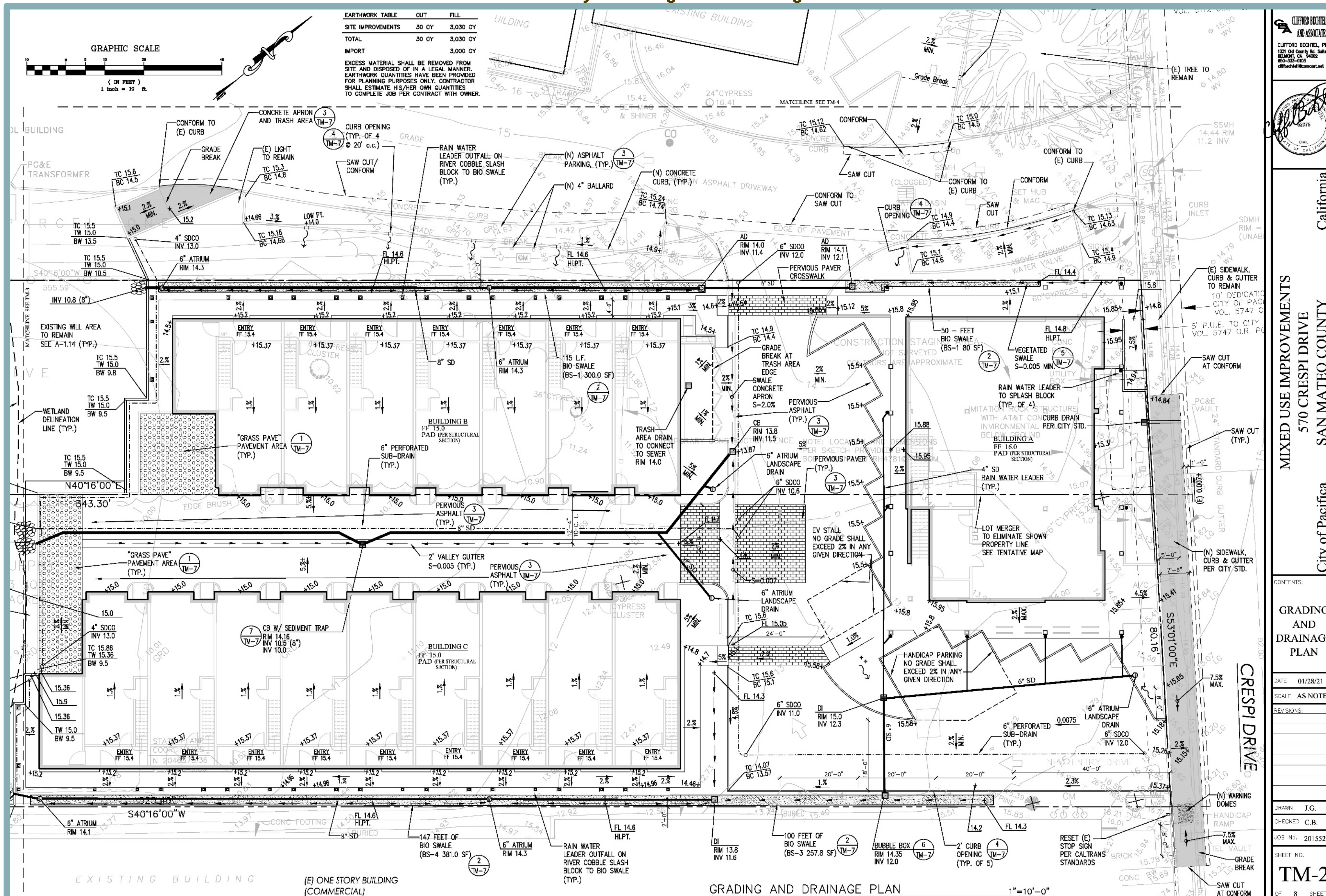
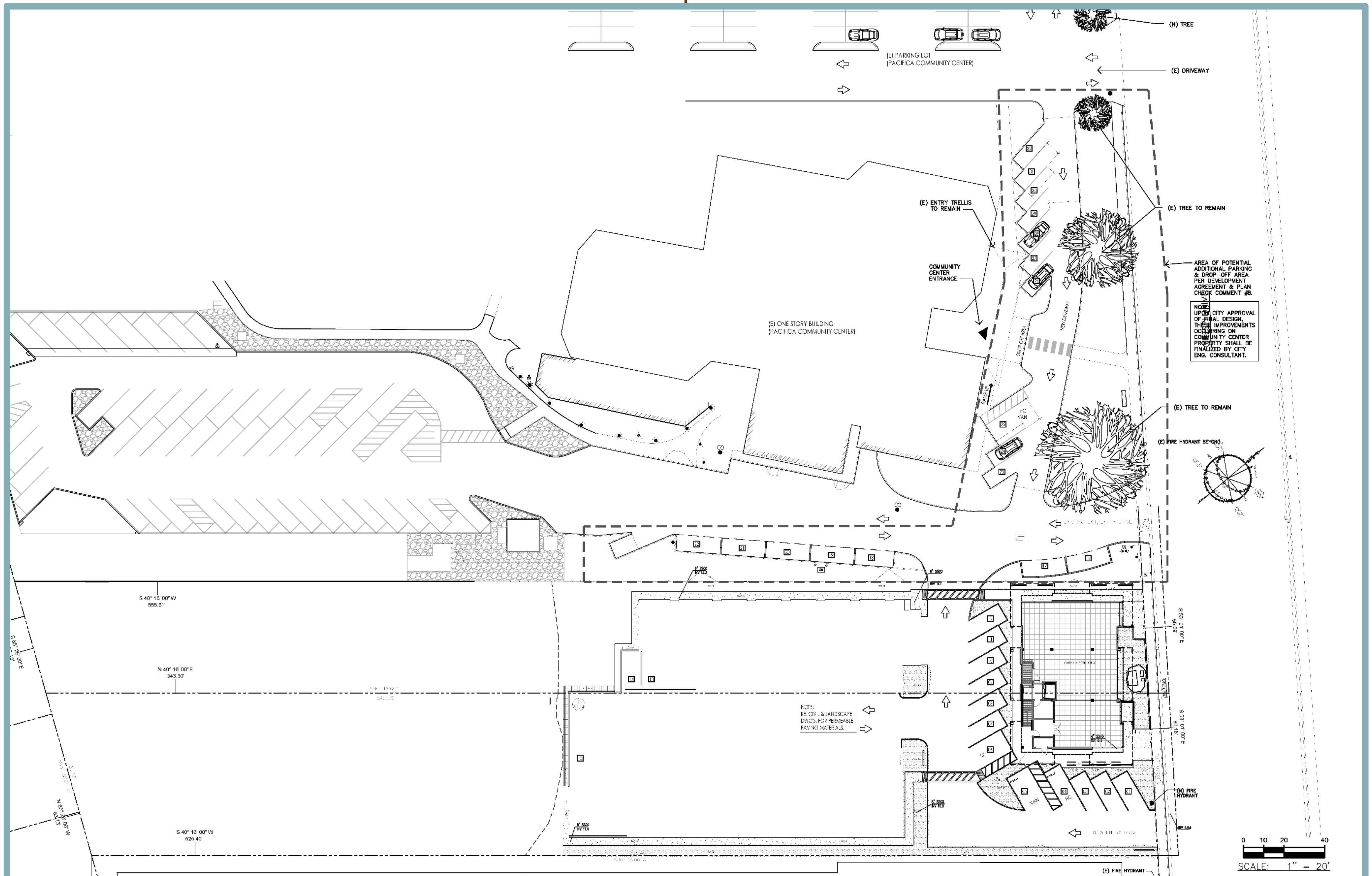


Figure 12
Off-Site Improvements



G. ENVIRONMENTAL CHECKLIST

The following Checklist contains the environmental checklist form presented in Appendix G of the CEQA Guidelines. The checklist form is used to evaluate the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist. For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared.

Less Than Significant with Mitigation Incorporated: An impact that requires mitigation to reduce the impact to a less-than-significant level.

Less-Than-Significant Impact: Any impact that would not be considered significant under CEQA relative to existing standards.

No Impact: The project would not have any impact.

I. AESTHETICS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	✖	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	✖	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from 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?	☐	☐	✖	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	✖	☐

Discussion

a. Examples of typical scenic vistas would include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. In general, a project's impact to a scenic vista would occur if development of the project would substantially change or remove a scenic vista. Policy 3 in the Community Design Element of the City's General Plan sets the goal of protecting the City's irreplaceable scenic and visual amenities, but does not define or identify specific scenic vistas.

Land uses surrounding the project site include the Pacifica Community Center, Pacifica Skatepark, and SR 1 to the northwest, commercial businesses to the north and southeast, an elementary school to the east, and single-family residences to the south. In addition, the Ocean View Senior Apartments are located to the north of the site, across Crespi Drive.

The project site is currently designated by the City of Pacifica General Plan as Commercial. Given that the project would be consistent with the existing General Plan designation of the site, the proposed project would not be substantially different than what has been anticipated in the City's General Plan. In addition, the proposed off-site improvements would consist of minor upgrades to the existing Pacifica Community Center. It is noted that although the project requires approval of a Rezoning and a Zoning Text Amendment, the proposed project would result in similar visual features as that of mixed-use commercial and residential development and would be consistent with the General Plan land use designation for the site.

Based on the above, designated scenic vistas do not exist in the project area, and the project is consistent with the level of development that has been anticipated for the site in the General Plan. Therefore, the proposed project would not have a substantial adverse effect on a scenic vista, and a ***less-than-significant*** impact would occur.

b. The City does not contain an Officially Designated Scenic Highway.[1] SR 1, located approximately 0.75-mile west of the project site, is an Eligible State Scenic Highway, but is not officially designated. In addition, the project site is only partially visible from SR 1 due to existing development between the site and SR 1. Furthermore, the proposed project would be consistent with the developed nature of the surrounding area. It should also be noted that a portion of the trees at the project site frontage would be retained as part of the proposed project. Thus, the proposed project would not substantially damage scenic resources, including, but not limited to, trees rock outcroppings, and historic buildings within a State Scenic Highway. As such, a ***less-than-significant*** impact would occur.

c. The project site is located in an urbanized area of the City. As noted above, surrounding land uses include the Pacifica Community Center, Pacifica Skatepark, and SR 1 to the northwest, commercial businesses to the north and southeast, an elementary school to the east, and single-family residences to the south. In addition, the Pacific Ocean is located further west of the site, beyond SR 1. Currently, the project site is vacant and partially covered in vegetation. Several trees and shrubs are located throughout the project site. Because the proposed project would include a Rezoning, the proposed change in zoning has the potential to conflict with zoning or other regulations governing scenic quality. The following discussion evaluates the proposed project's aesthetic consistency with surrounding land uses, and compliance with regulations related to scenic quality.

As shown in Figure 13, the primary view of the project site from Crespi Drive consists of vegetation, trees, and shrubbery, as well as the existing hillside to the east. Additionally, it is noted that the project site has been subject to previous disturbance related to development and subsequent demolition of buildings that had been located on the project site. As a result, the existing visual character of the project site does not represent natural and/or non-urban conditions. The anticipated view of the project site from Crespi Drive following implementation of the proposed project is shown in Figure 14. As demonstrated therein, the visual character of the project site would partially change as a result of the proposed project. Although the proposed project would include the removal of several on-site trees, the project would preserve trees along the project site frontage and within the off-site improvement area. In addition, the project site has been planned for development and, as a result, such a change in visual character has been previously anticipated and evaluated.

As shown in Figure 15, views of the hillside to the east of the project site are available from SR 1. As shown in Figure 16, the existing views of the hills behind the proposed buildings would remain following implementation of the project. Additionally, the site is surrounded by existing development and the project would be consistent with the scale of existing nearby development. Therefore, the proposed project would not substantially degrade the existing visual character of the site and the surrounding area.

Furthermore, development of the of the proposed project and associated changes to the visual character and quality of the site have been anticipated by the City's General Plan because the project would be consistent with the General Plan land use designation for the site. Additionally, the proposed off-site improvements would include minor upgrades to the Pacific Community Center property to construct a new driveway and 17 parking spaces, and would be consistent with the type and scale of the existing development.

---

[1] California Department of Transportation. *Scenic Highways* Available at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed April 2020.

Figure 13
Current View of Site from Crespi Drive

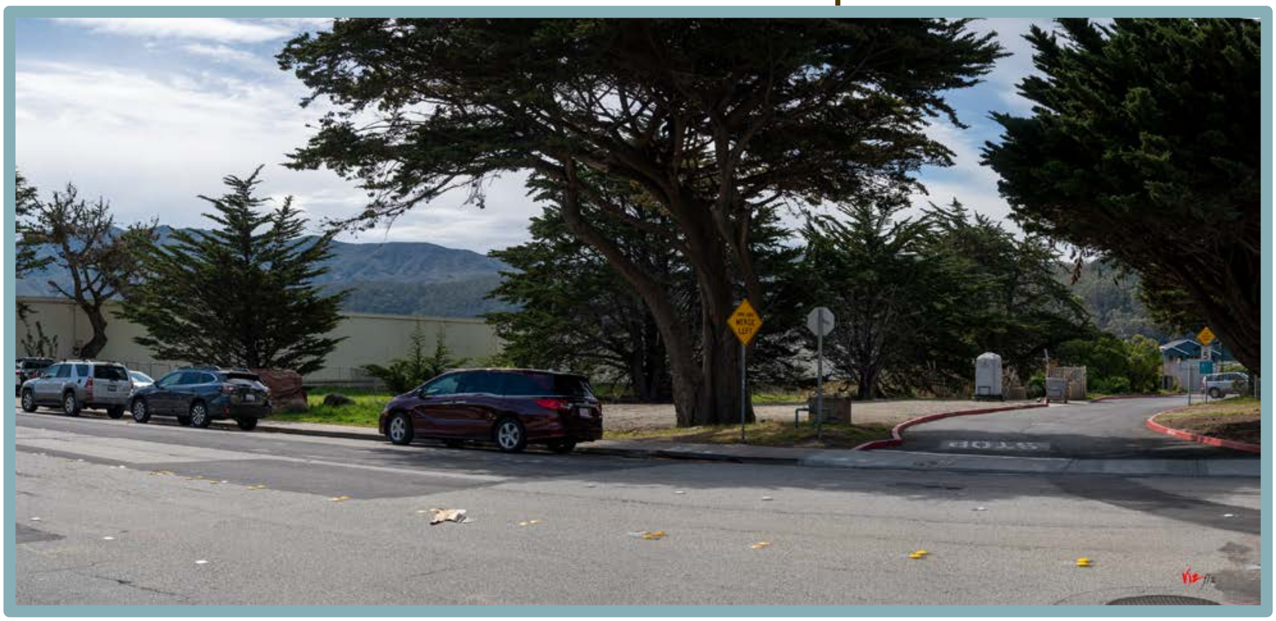


Figure 14
Proposed View of Project Site from Crespi Drive

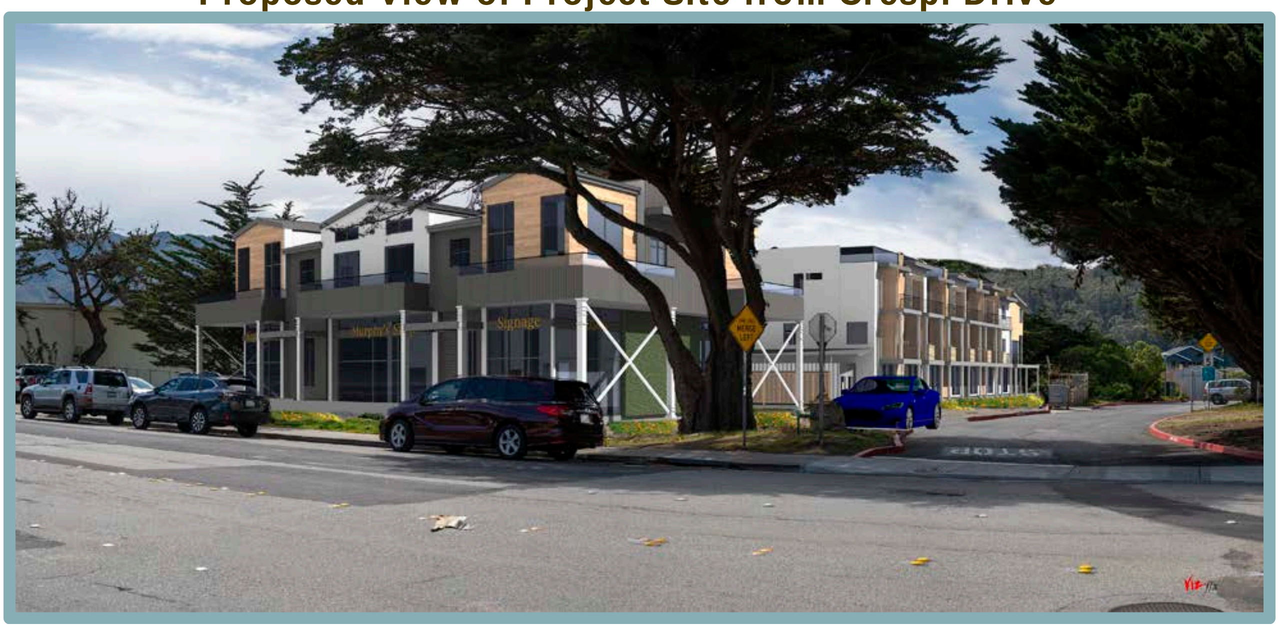


Figure 15
Current View of Site from SR 1

Figure 16
Proposed View of the Project Site from SR 1

Although the project would require approval of a Rezoning and a Zoning Text Amendment, the proposed project would be generally consistent with the surrounding land use types and development intensity. For instance, the surrounding area is currently occupied by single- and multi-family residences, as well as commercial uses. Based on the above, the proposed project is within the scope of what has been anticipated for development on the project site by the City, and is consistent with the developed nature of the surrounding area.

Based on the above, the project site is located in an urbanized area, and development of the project has been generally anticipated by the City. Therefore, the proposed project would not conflict with applicable zoning and other regulations governing scenic qualities, and a ***less-than-significant*** impact would occur.

d. The project site is currently undeveloped and consists of areas with dense vegetation, ruderal grasses, and dirt patches. Sources of light and glare do not exist on the project site. Therefore, development of the proposed project would introduce new sources of light and glare where none currently exist. Sources of light would include, but would not be limited to, illuminated signage, exterior and interior lighting associated with the proposed townhouses, and vehicle headlights within the site. The new structures would include windows which could reflect light and create glare in the surrounding area. However, the structures would be set back from the street by at least 15 feet and windows would not directly face the entrance of any nearby residence. Furthermore, because existing development is located to the south, east, and west, the increase in light and glare sources would be consistent with the existing setting and would not be expected to result in significant adverse effects to daytime and nighttime views in the area.

In addition, the Pacifica Design Guidelines require that exterior lighting is subdued and enhance building design.[2] The Guidelines prohibit use of lighting that creates glare for occupants or neighbors, and require that large areas requiring illumination are lit with low, shielded fixtures. The proposed off-site parking spaces would be subject to such Guidelines as well. Compliance with the Pacifica Design Guidelines would ensure that the project would not introduce sources of light or glare that would pose a hazard or nuisance to neighboring development.

As such, a ***less-than-significant*** impact would occur related to the creation of a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

---

[2] City of Pacifica. *Design Guidelines* [pg. 3]. Revised April 1990.

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

Discussion

a,e. Per the California Department of Conservation Important Farmland Finder, the project site consists entirely of Urban and Built-Up Land.[3] Furthermore, the site is not zoned or designated in the General Plan for agriculture uses. Therefore, the proposed project would result in a ***less-than-significant*** impact related to converting Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use or involving other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

b. Currently, the project site is designated Commercial per the City's General Plan and is zoned M-1. Although the proposed project would include a Rezone of the site to C-2, the City has anticipated development of the site with non-agricultural uses. Furthermore, the site is not under a Williamson Act contract and is not zoned for agricultural uses. Therefore, buildout of the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and ***no impact*** would occur.

c,d. The project area is not considered forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), and is not zoned Timberland Production (as defined by Government Code Section 51104[g]). Therefore, the proposed project would have ***no impact*** with regard to conversion of forest land or any potential conflict with forest land, timberland, or Timberland Production zoning.

[3] California Department of Conservation. *California Important Farmland Finder*. Available at: https://maps.conservation.ca.gov/dlrp/ciff/. Accessed June 2021.

III. AIR QUALITY. *Would the project:*		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a.	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	✖	☐
b.	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?	☐	☐	✖	☐
c.	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	✖	☐
d.	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	✖	☐

Discussion

a,b. The City of Pacifica is located in the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The SFBAAB area is currently designated as a nonattainment area for the State and federal ozone, State and federal fine particulate matter 2.5 microns in diameter ($PM_{2.5}$), and State respirable particulate matter 10 microns in diameter (PM_{10}) ambient air quality standards (AAQS). The SFBAAB is designated attainment or unclassified for all other AAQS. It should be noted that on January 9, 2013, the U.S. Environmental Protection Agency (USEPA) issued a final rule to determine that the Bay Area has attained the 24-hour $PM_{2.5}$ federal AAQS. Nonetheless, the Bay Area must continue to be designated as nonattainment for the federal $PM_{2.5}$ AAQS until such time as the BAAQMD submits a redesignation request and a maintenance plan to the USEPA, and the USEPA approves the proposed redesignation.

In compliance with regulations, due to the nonattainment designations of the area, the BAAQMD periodically prepares and updates air quality plans that provide emission reduction strategies to achieve attainment of the AAQS, including control strategies to reduce air pollutant emissions through regulations, incentive programs, public education, and partnerships with other agencies. The current air quality plans are prepared in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments (ABAG).

The most recent federal ozone plan is the 2001 Ozone Attainment Plan, which was adopted on October 24, 2001 and approved by the California Air Resources Board (CARB) on November 1, 2001. The plan was submitted to the USEPA on November 30, 2001 for review and approval. The most recent State ozone plan is the 2017 Clean Air Plan, adopted on April 19, 2017. The 2017 Clean Air Plan was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, toxic air contaminants (TACs), and greenhouse gases (GHGs). Although a plan for achieving the State PM_{10} standard is not required, the BAAQMD has prioritized measures to reduce PM in developing the control strategy for the 2017 Clean Air Plan. The control strategy serves as the backbone of the BAAQMD's current PM control program.

The aforementioned air quality plans contain mobile source controls, stationary source controls, and transportation control measures to be implemented in the region to attain the State and federal AAQS within the SFBAAB. Adopted BAAQMD rules and regulations, as well as thresholds of significance, have been developed with the intent to ensure continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated nonattainment, consistent with applicable air quality plans. The BAAQMD's established significance thresholds associated with development projects for emissions of the ozone precursors reactive organic gases (ROG) and oxides of nitrogen (NO_x), as well as for PM_{10}, and $PM_{2.5}$, expressed in pounds per day (lbs/day) and tons per year (tons/yr), are listed in Table 1. By exceeding the BAAQMD's mass emission thresholds for operational emissions of ROG, NO_X, PM_{10}, or $PM_{2.5}$, a project would be considered to conflict with or obstruct implementation of the BAAQMD's air quality planning efforts.

Table 1
BAAQMD Thresholds of Significance

Pollutant	Construction	Operational	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO_x	54	54	10
PM_{10} (exhaust)	82	82	15
$PM_{2.5}$ (exhaust)	54	54	10
Source: BAAQMD, CEQA Guidelines, May 2017.			

The proposed project's construction and operational emissions were quantified using the California Emissions Estimator Model (CalEEMod) software version 2020.4.0 – a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including construction data, trip generation rates, vehicle mix, trip length, average speed, and compliance with the California Building Standards Code (CBSC). Where project-specific information is available, such information should be applied in the model. Accordingly, the proposed project's modeling assumes the following project and/or site-specific information:

- Construction would begin in October 2021;[4]
- Construction would occur over an approximately two-year period;
- Grading would involve import of approximately 2,400 cubic yards of soil;
- The project site is located within 0.01-mile of the nearest transit stop; and
- The project would comply with the Model Water Efficient Landscape Ordinance (MWELO) and the 2019 CALGreen Code.

The modeling incorporated construction of the off-site improvements as well. The proposed project's estimated emissions associated with construction and operations are presented and discussed in further detail below. A discussion of the proposed project's contribution to cumulative air quality conditions is provided below as well. All CalEEMod results are included as Appendix A to this IS/MND.

---

4 It is noted that, in reality, construction is not anticipated to occur until 2022. However, by assuming that construction would commence at an earlier date, the modeling prepared for the project presents a more conservative analysis. As technology improves and State regulations governing heavy-duty equipment become more stringent, air quality emissions associated with construction tend to decrease. Therefore, construction-related emissions associated with this proposed project are likely to be less than those values presented in this Initial Study.

Construction Emissions

According to the CalEEMod results, the proposed project, including the off-site improvements, would result in maximum unmitigated construction criteria air pollutant emissions as shown in Table 2. As shown in the table, the proposed project's construction emissions would be below the applicable thresholds of significance for NO_X, ROG, PM_{10}, and $PM_{2.5}$.

Table 2
Maximum Unmitigated Construction Emissions (lbs/day)

Pollutant	Proposed Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	2.18	54	**NO**
NO_X	21.75	54	**NO**
PM_{10}*	0.94	82	**NO**
$PM_{2.5}$*	0.86	54	**NO**

Note:
* Denotes emissions from exhaust only. BAAQMD does not have adopted PM thresholds for fugitive emissions.

Source: CalEEMod, June 2021 (see Appendix A).

All projects under the jurisdiction of the BAAQMD are required to implement all of the BAAQMD's Basic Construction Mitigation Measures, which include the following:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
5. 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.
6. 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.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency 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.

The proposed project's required implementation of the BAAQMD's Basic Construction Mitigation Measures listed above would help to further minimize construction-related emissions.

Even without consideration of BAAQMD's Basic Construction Mitigation Measures, as shown in Table 2, construction of the proposed project would result in emissions of criteria air pollutants below BAAQMD's thresholds of significance. Consequently, the proposed project would not conflict with air quality plans during project construction.

Operational Emissions

According to the CalEEMod results, the proposed project would result in maximum unmitigated operational criteria air pollutant emissions as shown in Table 3. As shown in the table, the proposed project's operational emissions would be below the applicable thresholds of significance.

Table 3
Unmitigated Maximum Operational Emissions

Pollutant	Proposed Project Emissions		Threshold of Significance		Exceeds Threshold?
	lbs/day	tons/yr	lbs/day	tons/yr	
ROG	8.64	0.16	54	10	**NO**
NO_X	0.82	0.10	54	10	**NO**
PM_{10}*	1.49	0.01	82	15	**NO**
$PM_{2.5}$*	1.49	0.01	54	10	**NO**

* Emissions from exhaust only. BAAQMD does not have adopted PM thresholds for fugitive emissions.

Source: CalEEMod, June 2021 (see Appendix A).

Because the proposed project's operational emissions would be below the applicable thresholds of significance, the proposed project would not be considered to conflict with air quality plans during project operations.

Cumulative Emissions

Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By nature, air pollution is largely a cumulative impact. A single project is not sufficient in size to, by itself, result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. The thresholds of significance presented in Table 1 represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. If a project exceeds the significance thresholds presented in Table 1, the proposed project's emissions would be cumulatively considerable, resulting in significant adverse cumulative air quality impacts to the region's existing air quality conditions. Because the proposed project would not result in emissions above the applicable thresholds of significance for ROG, NO_X, PM_{10}, or $PM_{2.5,}$ the project would not 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.

Conclusion

As stated previously, the applicable regional air quality plans include the 2001 Ozone Attainment Plan and the 2017 Clean Air Plan. Because the proposed project would not result in construction-related or operational emissions of criteria air pollutants in excess of BAAQMD's thresholds of significance, conflicts with or obstruction of the implementation of regional air quality plans would not occur. In addition, the project would not 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. Thus, a ***less-than-significant*** impact would result.

c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. The nearest sensitive receptors include the Pacifica Community Center, located approximately 50 feet to the west, the Ocean View Senior Apartments, located approximately 150 feet to the north, and the existing single-family residences, located approximately 200 feet to the south. Cabrillo Elementary School is located approximately 600 feet east of the project site.

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions and TAC emissions, which are addressed in further detail below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. High levels of localized CO concentrations are only expected where background levels are high, and traffic volumes and congestion levels are high. Emissions of CO are of potential concern, as the pollutant is a toxic gas that results from the incomplete combustion of carbon-containing fuels such as gasoline or wood.

In order to provide a conservative indication of whether a project would result in localized CO emissions that would exceed the applicable threshold of significance, the BAAQMD has established screening criteria for localized CO emissions. According to BAAQMD, a proposed project would result in a less-than-significant impact related to localized CO emission concentrations if all of the following conditions are true for the project:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, 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; and
- 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, underpass, etc.).

As discussed in Section XVII, Transportation, given that the project would generate fewer than 100 peak hour trips and would be consistent with the site's current General Plan land use designation, the project would not conflict with the San Mateo County Congestion Management Program (CMP).[5] In addition, the California Department of Transportation (Caltrans) performed traffic counts for the State Highway System in 2017. The results determined that the largest nearby intersection, at Linda Mar Boulevard and SR 1, experiences traffic volumes ranging from 2,000 to 3,300 trips per peak hour, which is far below BAAQMD's threshold of 44,000 vehicles per hour.[6] Thus, the minimal number of trips generated by the proposed project would not increase traffic volumes at an affected intersection to more than 44,000 vehicles per hour. Furthermore, areas where vertical and/or horizontal mixing is limited due to tunnels, underpasses, or similar features do not exist in the project area. As such, the proposed project would not be expected to expose sensitive receptors to substantial concentrations of localized CO.

TAC Emissions

Another category of environmental concern is TACs. The CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards. The CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk.

The proposed project would not involve any land uses or operations that would be considered major sources of TACs, including DPM. As such, the proposed project would not generate any substantial pollutant concentrations during operations. However, short-term, construction-related activities could result in the generation of TACs, primarily DPM, from off-road equipment exhaust emissions. Consequently, the operation of off-road equipment within the project site during project construction could result in exposure of nearby students and residents to DPM.

BAAQMD has established thresholds for local community risk and hazard impacts that may be used when siting new sources of pollution. The BAAQMD's thresholds for analyzing health risks from new sources of emissions are presented below:

- Non-compliance with a qualified risk reduction plan;
- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 would be a cumulatively considerable contribution; or
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ would be a cumulatively considerable contribution.

---

5 City/County Association of Governments. *San Mateo County Congestion Management Program*. April 9, 2020.
6 California Department of Transportation. *2017 Traffic Volumes: Route 1.* Available at: https://dot.ca.gov/programs/traffic-operations/census/traffic-volumes/2017/route-1. Accessed June 2021.

Although the proposed project would not involve the siting or operation of any permanent sources of TACs, in the absence of specific thresholds for use when analyzing health risks from short-term projects, the foregoing BAAQMD thresholds are applied to the project, for construction specifically.

To analyze potential health risks to nearby students and residents that could result from DPM emissions from off-road equipment at the project site, total DPM emissions from project construction were estimated. DPM is considered a subset of $PM_{2.5}$ and, thus, the CalEEMod estimated $PM_{2.5}$ emissions from exhaust during construction of the proposed structures as well as the off-site improvements was conservatively assumed to represent all DPM emitted on-site. The CalEEMod estimated $PM_{2.5}$ exhaust emissions were then used to calculate the concentration of DPM at the maximally exposed sensitive receptor near the project site. DPM concentrations resulting from project implementation were estimated using the American Meteorological Society/Environmental Protection Agency (AMS/EPA) Regulatory Model (AERMOD). The associated cancer risk and non-cancer hazard index were calculated using the CARB's Hotspot Analysis Reporting Program Version 2 (HARP 2) Risk Assessment Standalone Tool (RAST), which calculates the cancer and non-cancer health impacts using the risk assessment guidelines of the 2015 Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual for Preparation of Health Risk Assessments.[7] The modeling was performed in accordance with the USEPA's User's Guide for the AERMOD and the 2015 OEHHA Guidance Manual.[8,9] The results of the air dispersion modeling are presented in Figure 17. As shown therein, the maximally exposed receptor, depicted by a white X, would be located immediately northeast of the project site.

Based on the foregoing methodology, and the methodology presented in response to questions 'a' and 'b' regarding the estimation of construction emissions, the cancer risk and non-cancer hazard indices at the maximally exposed receptor were estimated and are presented in Table 4.

Table 4
Maximum Unmitigated Cancer Risk and Hazard Index Associated with Project Construction DPM

	Cancer Risk (per million persons)	Acute Hazard Index	Chronic Hazard Index
Construction DPM Health Risks	8.67	0.00	0.01
Thresholds of Significance	10.00	1.00	1.00
Exceed Thresholds?	**NO**	**NO**	**NO**

Source: AERMOD and HARP 2 RAST, June 2021 (see Appendix A).

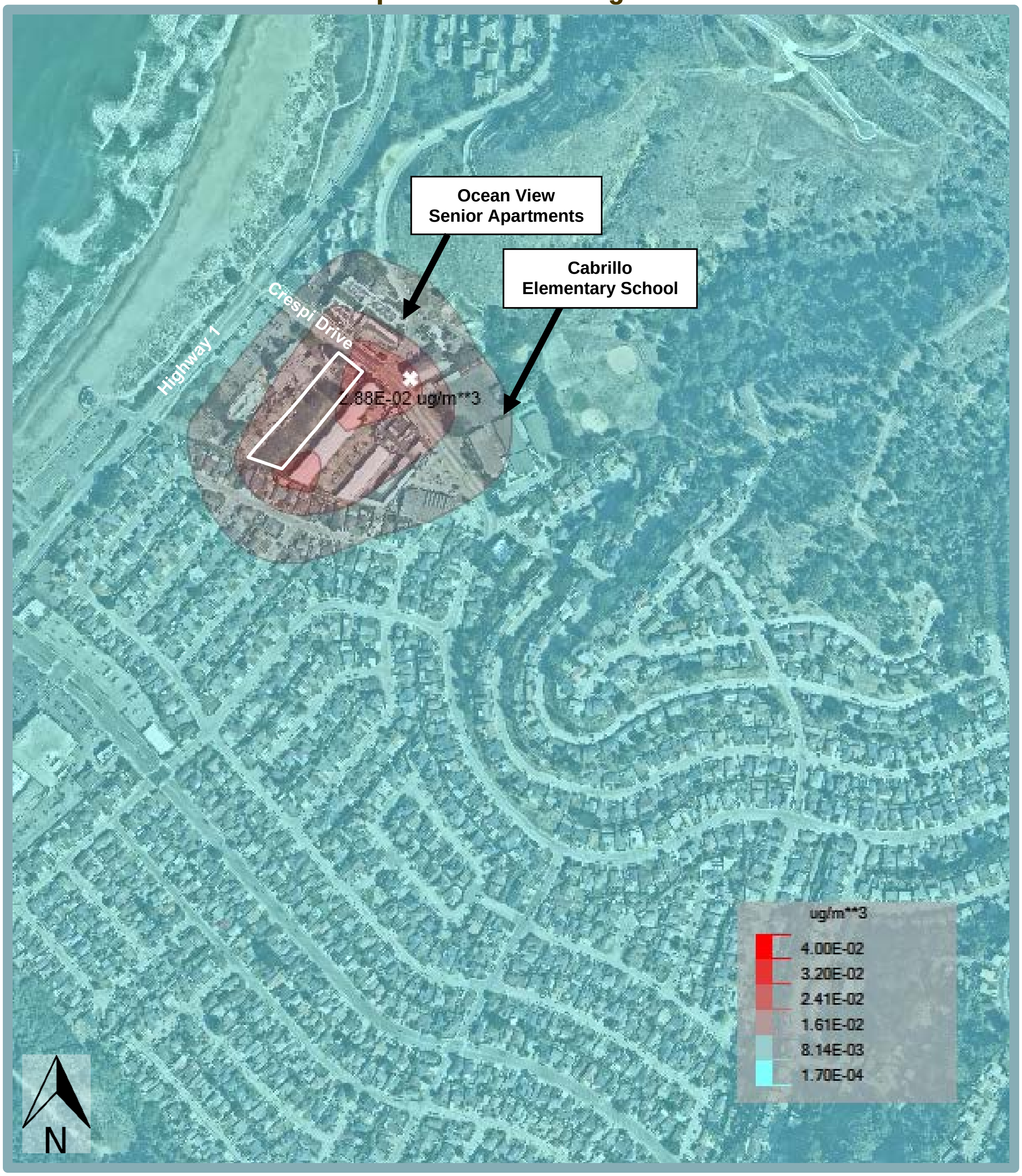
As shown in Table 4, construction of the proposed project would not result in cancer risk, acute hazards, or chronic hazards in excess of BAAQMD's standards.

7 Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments* [pg. 8-18]. February 2015.

8 U.S. Environmental Protection Agency. *User's Guide for the AMS/EPA Regulatory Model (AERMOD)*. December 2016.

9 Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program: Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments*. February 2015.

Figure 17
Air Dispersion Modeling Results



Source: AERMOD, June 2021 (see Appendix A).

In addition, the maximum annual concentration of DPM at the maximally-exposed sensitive receptor from construction of the proposed project would be 0.028 $\mu g/m^3$, which is well below the BAAQMD's 0.3 $\mu g/m^3$ threshold for a cumulatively considerable impact. Thus, construction of the proposed project would not result in exposure of nearby receptors to substantial pollutant concentrations.

Criteria Pollutants

The BAAQMD thresholds of significance were established with consideration given to the health-based air quality standards established by the federal and State AAQS, and are designed to aid the BAAQMD in achieving attainment of the AAQS.[10] Although the BAAQMD's thresholds of significance are intended to aid achievement of the AAQS for which the SFBAAB is in nonattainment, the thresholds of significance do not represent a level above which individual project-level emissions would directly result in public health impacts. Nevertheless, a project's compliance with BAAQMD's thresholds of significance provides an indication that criteria pollutants released as a result of project implementation would not inhibit attainment of the health-based regional AAQS. Because project-related emissions would not exceed the BAAQMD's thresholds, and, thus, would not inhibit attainment of regional AAQS, the criteria pollutants emitted during project implementation would not be anticipated to result in measurable health impacts to sensitive receptors. Accordingly, the proposed project would not expose sensitive receptors to excess concentrations of criteria pollutants.

Conclusion

Based on the above discussion, the proposed project would not expose any sensitive receptors to excess concentrations of localized CO or criteria pollutants during construction or operation. In addition, construction of the project would not result in exposure of nearby receptors to cancer risks in excess of the BAAQMD's standards. Consequently, the proposed project would result in a ***less-than-significant*** impact related to the exposure of sensitive receptors to substantial pollutant concentrations.

d. Emissions such as those leading to odors have the potential to adversely affect sensitive receptors within the project area. Pollutants of principal concern include emissions leading to odors, emission of dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in section "a" through "c" above. Therefore, the following discussion focuses on emissions of odors and dust.

Per the BAAQMD CEQA Guidelines, odors are generally regarded as an annoyance rather than a health hazard.[11] Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The presence of an odor impact is dependent on a number of variables including: the nature of the odor source; the frequency of odor generation; the intensity of odor; the distance of odor source to sensitive receptors; wind direction; and sensitivity of the receptor.

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative analysis to determine the presence of a significant odor impact is difficult. Typical odor-generating

---

10 Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. May 2017.

11 Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines* [pg. 7-1]. May 2017.

land uses include, but are not limited to, wastewater treatment plants, landfills, and composting facilities. The proposed project would not introduce any such land uses and is not located in the vicinity of any such existing or planned land uses.

Construction activities often include diesel-fueled equipment and heavy-duty trucks, which could create odors associated with diesel fumes that may be considered objectionable. However, as discussed above, construction activities would be temporary, and hours of operation for construction equipment would be restricted per Section 8-7.5.07 of the Pacifica Municipal Code. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources. The aforementioned regulations would help to minimize emissions, including emissions leading to odors. Accordingly, substantial objectionable odors would not be expected to occur during construction activities.

It should be noted that BAAQMD regulates objectionable odors through Regulation 7, Odorous Substances, which does not become applicable until the Air Pollution Control Officer (APCO) receives odor complaints from ten or more complainants within a 90-day period. Once effective, Regulation 7 places general limitation on odorous substances and specific emission limitations on certain odorous compounds, which remain effective until such time that citizen complaints have been received by the APCO for one year. The limits of Regulation 7 become applicable again when the APCO receives odor complaints from five or more complainants within a 90-day period. Thus, although not anticipated, if odor complaints are made after the proposed project is developed, the BAAQMD would ensure that such odors are addressed and any potential odor effects reduced to less than significant.

As noted previously, all projects under the jurisdiction of BAAQMD are required to implement the BAAQMD's Basic Construction Mitigation Measures. The aforementioned measures would act to reduce construction related dust, such as the watering of exposed surfaces, covering of haul trucks, and reduction of truck speed on unpaved roads, which would ensure that construction of the proposed project does not result in substantial emissions of dust. Following project construction, the project site would not include any exposed topsoil. Thus, project operations would not include any substantial sources of dust.

For the aforementioned reasons, construction and operation of the proposed project would not result in emissions (such as those leading to odors) adversely affecting a substantial number of people, and a ***less-than-significant*** impact would result.

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

Discussion

a. It is noted that the off-site improvements would occur on landscaped areas of the Pacifica Community Center property that currently consist of maintained turf/grass. The landscape grass is subjected to regular mowing and standard maintenance. Landscape grass does not provide habitat for special-status wildlife species. Thus, implementation of the proposed off-site improvements was assumed to not impact any special-status wildlife species, and the following discussion focuses exclusively on the project site.

The following discussion is based on a Biological Constraints Analysis prepared for the proposed project by Monk and Associates,[12] as well as the associated Biological Constraints Analysis Update prepared by Wood Biological Consulting (see Appendix B).[13]

The project site is situated within a residential and commercial neighborhood of Linda Mar, and ranges from approximately 15 feet of elevation (relative to a City benchmark in Crespi Drive) at the northeastern end of the parcel to approximately nine feet at the southwestern end. The climate is cool and temperate, characteristic of the San Francisco Peninsula coastal region. Currently, the northern portion of the project site supports several large Monterey cypress trees with a groundcover of predominantly non-native herbaceous vegetation. The southern portion of the project site gradually becomes dominated by perennial wetland vegetation, such as willows, cattails and sedges.

---

12 Monk and Associates Environmental Consultants. *Biological Constraints Analysis 570 Crespi Drive, City of Pacifica*. October 8, 2014.

13 Wood Biological Consulting. *Biological Constraints Analysis – Update 540 and 570 Crespi Drive, Pacifica CA.* August 17, 2020.

According to the Biological Constraints Analysis Update, the following vegetation types occur on the project site (see Figure 18 for on-site vegetation and habitat types):

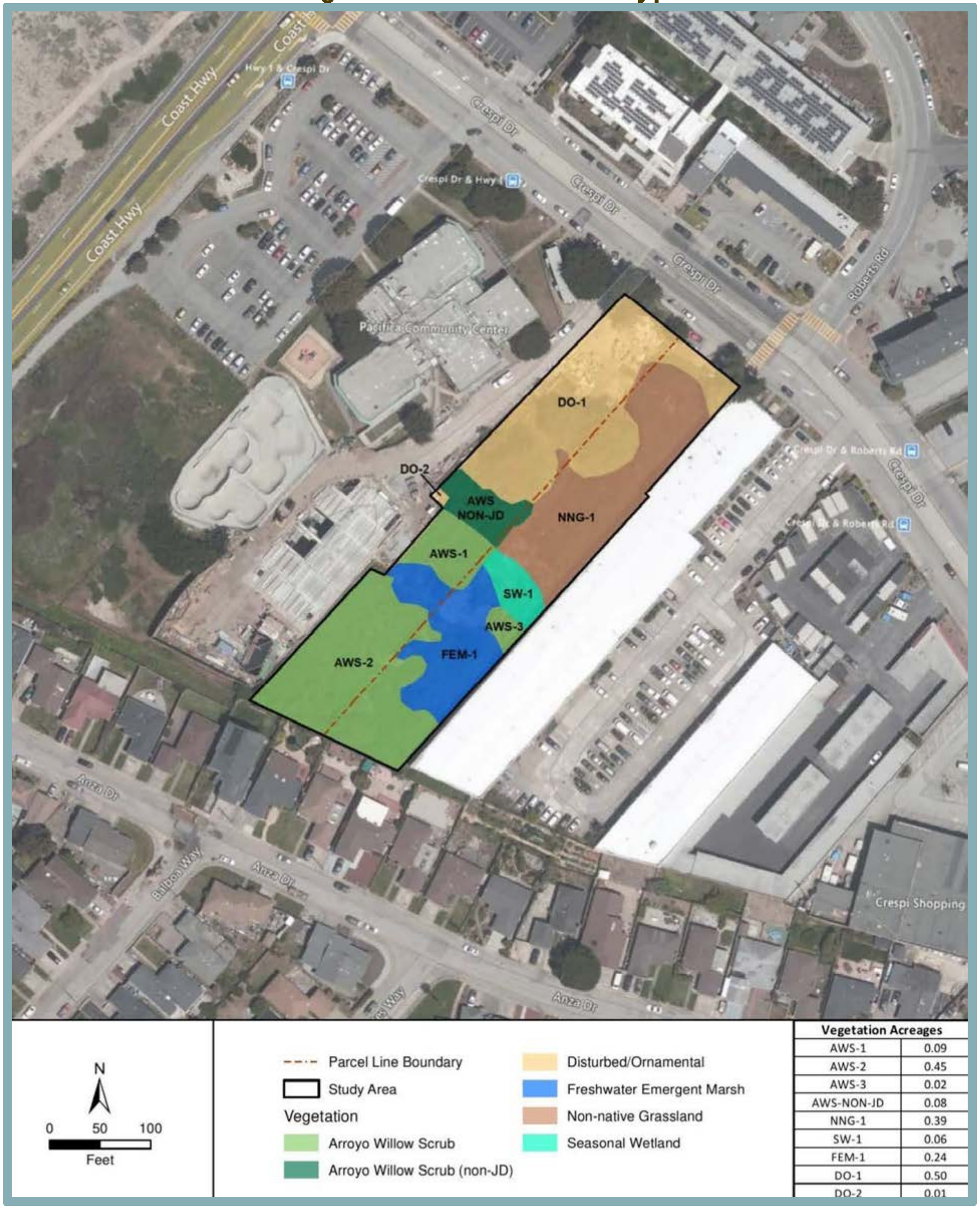
1. **Arroyo Willow Scrub**: Willow scrub, dominated by arroyo willow (*Salix lasiolepis*), covers the majority of the southern portion of the project site. The willows form a dense and impenetrable thicket with few associated plant species.
2. **Emergent Marsh**: Emergent marsh occupies a shallow topographic depression in the middle part of the project site, corresponding with the small area that previously had shallow ponded water in the winter. Seasonally high groundwater presumably persists, resulting in a predominance of emergent marsh plant species, such as Baltic rush (*Juncus balticus*), broadleaf cattail (*Typha angustifolia*), Pacific silverweed (*Potentilla anserina ssp. pacifica*), and dotted smartweed (*Persicaria punctata*), among others.
3. **Non-native Annual Grassland**: Non-native grassland vegetation is present on the majority of the northern part of the project site. Dominant plant species are annual grasses, such as bromes (*Bromus diandrus, B. hordeaceus*), slender oats (*Avena barbata*), hare barley (*Hordeum murinum ssp. leporinum*), and Italian ryegrass (*Festuca perennis*), with various non-native broad-leaf herbaceous species.
4. **Disturbed and Ornamental**: Disturbed habitat includes land cleared of vegetation or lands that have undergone frequent or extensive alteration to the extent that the site is dominated by non-native plant species. This habitat type also includes areas subject to periodic vegetation management, such as mowing or brush clearing, which preclude the re-establishment of native vegetation communities. Within the project vicinity, a parking area adjacent to Crespi Drive and a gravel staging area are disturbed habitat. Ornamental vegetation consists of maintained and unmaintained landscaping using native and non-native plants.

As part of the biological report prepared for the proposed project, a search of published records of special-status plant and wildlife species for the project site and a five-mile radius was conducted using the California Natural Diversity Data Base (CNDDB) Rarefind 5 application. The intent of the database review was to identify documented occurrences of special-status species in the vicinity of the project area, to determine their locations relative to the project site, and for use in the field assessment of habitats suitable for special-status species within the site. In addition, site visits were conducted in September 2014 and in July of 2020. Based on the aforementioned sources, the Biological Constraints Analysis Update identified 29 special-status plant and 16 special-status wildlife species as having been documented within a five-mile radius of the project site. None of the species were recorded on the project site.

Special-status species include the following:

- Plant and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal and State Endangered Species Acts. Both acts afford protection to listed and proposed species;
- California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue;
- U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern;
- Sensitive species included in USFWS Recovery Plans; and
- CDFW special-status invertebrates.

Figure 18
Vegetation and Habitat Types



Vegetation Acreages	
AWS-1	0.09
AWS-2	0.45
AWS-3	0.02
AWS-NON-JD	0.08
NNG-1	0.39
SW-1	0.06
FEM-1	0.24
DO-1	0.50
DO-2	0.01

Source: Wood Biological Consulting, 2020.

Although CDFW Species of Special Concern generally do not have special legal status, they are given special consideration under CEQA. In addition to regulations for special-status species, most birds in the U.S., including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under the MBTA, destroying active nests, eggs, and young is illegal. In addition, plant species on California Native Plant Society (CNPS) Lists 1 and 2 are considered special-status plant species and are protected under CEQA.

Special-status Plant Species

Based on review of the project site and surrounding area, 29 special-status plant species have been documented within five miles of the project site. However, the project site has low potential to support any special-status plant species documented in the area due to the absence of suitable habitat (i.e., chaparral, coastal bluffs, woodland, etc.). In addition, none of the species were identified during either field survey. Thus, the proposed project would not adversely impact special-status plant species.

Special-status Wildlife Species

Of the 16 special-status wildlife species that have been documented within the five-mile radius of the project site, only one was identified to have the potential to occur on the project site: a bird protected under the MBTA, the Saltmarsh common yellowthroat (SCY). The remaining species are considered to be unlikely or not possible to occur on the project site based on habitat features, such as the location of the site outside of the species' historical range, the lack of suitable aquatic habitat, lack of suitable foraging or nesting habitat, and lack of a den or cave development area.

Nesting and Migratory Birds

Nesting birds, including raptors, are protected by California Fish and Game Code Section 3503. Raptors, passerines, non-passerine land birds, and waterfowl are further protected under the Federal MBTA of 1918. The MBTA prohibits the take, possession, purchase, sale, or bartering of any migratory bird, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations. All migratory bird species are protected by the MBTA. Any disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds, is restricted under the MBTA. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a 'take' of the species under federal law.

In addition to the special-status birds identified within five miles of the study area in the CNDDB search, the USFWS IPaC database also identified 19 species of birds protected under the Migratory Bird Treaty act and Bald Eagle Protection Act, and are considered Bird Species of Conservation Concern. Six of the identified species (Allen's hummingbird, rufous hummingbird, song sparrow, spotted towhee, wren-tit, and SCY) have low probability of nesting in the project site, but cannot be entirely ruled out. Disturbance from construction activities could result in direct and indirect impacts to nesting or migratory birds. As a result, adverse impacts to nesting and migratory birds and raptors could occur as a result of the proposed project.

Conclusion

Per the Biological Constraints Analysis and Biological Constraints Analysis Update, special-status plant species are not expected to occur on-site, and, thus, would not be impacted by the proposed project. In addition, 15 of the 16 wildlife species that have been documented within five miles of the project site do not have the potential to occur on-site based on habitat requirements. However, nesting and migratory birds, including the SCY, have the potential to occupy the project site. Therefore, a ***potentially significant*** impact regarding a substantial adverse effect on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or the USFWS could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

Special-Status and Migratory Birds

IV-1. To ensure compliance with protections for migratory birds under the Migratory Bird Treaty Act and the California Fish and Game Code, the measures outlined below shall be implemented prior to the commencement of construction activities. Evidence of compliance shall be submitted to the City's Planning Department for review and approval.

1. *If construction activities are scheduled to occur outside of the breeding season (i.e., September 1 through January 31), no pre-construction surveys or other mitigation measures are necessary.*

2. *If construction activities are scheduled to occur during the breeding season (i.e., February 1 through August 31), a preconstruction nesting bird survey shall be conducted on the identified work area and a buffer zone (see #3, below). The survey shall be performed by a qualified biologist no more than two weeks prior to the initiation of work. If no nesting or breeding activity is observed, work may proceed without restrictions. To the extent allowed by access, all active nests identified within 76 meters (m) (250 feet [ft]) for raptors and 33 m (100 ft) for other protected bird species shall be mapped.*

3. *For any active nests found near the construction limits (76 m [250 ft] for raptors and 33 m [100 ft] for other protected bird species), the project biologist shall make a determination as to whether or not construction activities are likely to disrupt reproductive behavior. If it is determined that construction is unlikely to disrupt breeding behavior, construction may proceed. If it is determined that construction may disrupt breeding, the no-construction buffer zone shall be expanded; avoidance is the only mitigation available. The ultimate size of the no-construction buffer zone may be adjusted by the project biologist based on the species involved, topography, lines of site between the work area and the nest, physical barriers, and the ambient level of human activity. For raptors, the project biologist shall contact CDFW and/or the USFWS Division of Migratory Bird Management for guidance regarding site evaluations and buffer adjustments.*

   If it is determined that construction activities are likely to disrupt raptor breeding, construction activities within the no-construction buffer zone may not proceed until the project biologist determines that the nest is long longer occupied.

4. *If maintenance of a no-construction buffer zone is not practicable, active nests shall be monitored by a qualified biologist to document*

breeding and rearing behavior of the adult birds. If it is determined that construction activities might cause nest abandonment, work should cease until the project biologist determines that the nest is no longer occupied. For raptors, the CDFW and/or the USFWS Division of Migratory Bird Management should be contacted for guidance.

b,c. Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. The habitats are protected under federal regulations, such as the Clean Water Act (CWA), and State regulations, such as the Porter-Cologne Act and the CDFW Streambed Alteration Act.

The off-site improvement area consists primarily of maintained landscape turf and does not include any aquatic features. The project site, however, was surveyed as part the Biological Constraints Analysis prepared for the proposed project by Monk and Associates, as well as an Aquatic Resources Delineation Summary prepared by Wood Biological Consulting.[14]

Wetlands or other surface waters are not identified in the National Wetlands Inventory as occurring on the project site. In addition, the project site is not located on a stream or near other surface waters. However, per the Biological Constraints Analysis, the southern one-half or more of the project site would likely be regarded by the U.S. Army Corps of Engineers (USACE) as subject to their jurisdiction pursuant to Section 404 of the CWA. Any proposed fill of the mapped wetland area would require a permit from the USACE. Additionally, because the Regional Water Quality Control Board (RWQCB) does not have a formal method for technically defining what constitutes waters of the state, the RWQCB typically rely on the USACE's methods for delineation of CWA-regulated waters of the State. As a result, the southern portion of the site could be considered waters of the State.

The wetlands located in the southern portion of the project site are considered waters of the U.S. under Section 404 of the CWA. The proposed project is anticipated to disturb and, possibly, fill, up to 0.77-acre of wetlands. As such, without the implementation of mitigation, a ***potentially significant*** impact related to riparian habitat and protected wetlands could occur as a result of the proposed project.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

IV-2(a). *Prior to the start of any construction activities, a temporary sediment and debris barrier shall be installed on the southern limit of the construction area that slopes toward the arroyo willow and emergent wetland habitat. The fence also will double as a wildlife exclusion fence during construction. The fence shall consist of standard construction silt fence material with a height of 36 inches. The lower six inches of fence material shall either be folded toward the construction side of the fence and weighted down with soil or sandbags, or backfilled in a trench; with both methods, the purpose is to completely contact the surface so that water and sediment will not flow under it, and wildlife will not enter the work area from the wetland. The barrier shall be maintained throughout the duration of the construction*

14 Wood Biological Consulting. *Aquatic Resources Delineation 570 Crespi Avenue, Pacifica CA*. August 20, 2020.

period. Evidence of compliance with this measure shall be submitted to the City's Planning Department prior to the start of any construction activities.

IV-2(b). *A qualified biologist, or a designated representative who has been trained by a qualified biologist, shall inspect the area inside of the sediment and debris barrier for special-status species every day before construction activities commence. If any special-status species are found, the qualified biologist shall be immediately contacted [if the survey was conducted by the designated representative], construction activities shall not be allowed to start, and the USFWS and CDFW shall be consulted on an appropriate course of action. Such action could include leaving the animal alone to move away on its own or the relocation of the animal to an area outside of the construction area. Evidence of compliance with this measure shall be submitted to the City's Planning Department.*

IV-3. *Prior to initiation of grading, excavation, or other construction activities, the applicant shall obtain permit authorization, as determined by USACE, to fill waters of the U.S. under Section 404 of the federal Clean Water Act (Section 404 Permit) from USACE. The Section 404 Permit application shall include an assessment of directly impacted, avoided, and preserved acreages of waters of the U.S. Mitigation measures may be developed as part of the Section 404 Permit to ensure no net loss of wetland function and values, although the USACE may not require compensatory mitigation for the loss of less than 1/10 acre of wetlands, or for the loss of streams or other open waters. Final mitigation requirements shall be developed in consultation with USACE. A copy of the Section 404 Permit issued for the project shall be submitted to the City's Planning Department prior to commencement of grading, excavation, or other construction activities.*

IV-4. *If required and prior to initiation of grading, excavation or other construction activities, the project applicant shall submit to the San Francisco Bay Regional Water Quality Control Board an application for Clean Water Act Section 401 Water Quality Certification and/or Waste Discharge Requirements for Projects Involving Discharge of Dredged and/or Fill Material to Waters of the State. The project applicant shall be responsible for conducting all project activities in accordance with the permit provisions outlined in the applicable permit. A copy of the Water Quality Certification or waiver issued for the project shall be submitted to the City's Planning Department prior to commencement of grading, excavation, or other construction activities.*

d. Environmental corridors are segments of land that provide a link between different habitats while also providing cover. Habitat loss, fragmentation, and degradation have the potential to alter the use and viability of wildlife movement corridors (i.e., linear habitats that naturally connect and provide passage between two or more otherwise distinct larger habitats or habitat fragments). The suitability of a habitat as a wildlife movement corridor is related to, among other factors, the habitat corridor's dimensions (length and width), topography, vegetation, exposure to human influence, and the species in question.

The project site is not considered a wildlife corridor, though local wildlife may move through the site occasionally. Habitat in the surrounding area is largely fragmented due to the presence of existing residential and commercial development as well as roadways. The project site is surrounded by existing development and does not connect to any existing habitat areas, which eliminates the possibility that the site could act as a wildlife movement corridor. Furthermore, the proposed project would leave the southern portion of the site undisturbed, which would allow any wildlife species to inhabit the undeveloped area. Therefore, the proposed project would not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors and a ***less-than-significant*** impact would occur.

e. Title 4, Chapter 12 of the Pacifica Municipal Code (Preservation of Heritage Trees) stipulates regulations designed to preserve and protect heritage trees on private or City-owned property. In general, heritage trees are defined as any trees within the City, exclusive of eucalyptus, which have a trunk with a circumference of fifty inches (approximately sixteen inches in diameter) or more, measured at twenty-four inches above the natural grade. Sections 4-12.02 and 4-12.03 of the Municipal Code provide a complete definition of a heritage tree. Per Sections 4-12.07 and 4-12.08 of the Municipal Code, tree protection plans are required when engaging in new construction within the drip-line of a heritage tree. The plan must be prepared by a qualified arborist, horticulturist, landscape architect or other qualified person.

Removal of vegetation or any tree which is not a heritage tree does not require a City tree removal permit. Logging in Pacifica is regulated by Ordinance Nos. 636-C.S. and 673-C.S. Logging operations within the City are defined as any removal, destruction, or harvesting of 20 or more trees within one year from any parcel or contiguous parcel in the same ownership.

At least eight trees are planned for removal in order to facilitate construction of the proposed project. Per the Biological Constraints Analysis, the northern portion of the project site supports at least two Monterey cypress trees that are considered heritage trees. Further evaluation is required in order to identify if any other individual trees are protected under the City's Preservation of Heritage Trees ordinance. Furthermore, because some trees would remain on-site, a tree protection plan would be required in accordance with Sections 4-12.07 and 4-12.08 of the City's Municipal Code.

Without compliance with the foregoing regulations, a ***potentially significant*** impact could occur related to conflicting with local policies or ordinances protecting biological resources.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

IV-5. *Prior to issuance of a grading or building permit, a qualified arborist shall survey the on-site trees and evaluate which trees are protected under Title 4, Chapter 12 of the City's Municipal Code, and the project applicant shall obtain Heritage Tree Removal Authorization from the City of Pacifica Planning Commission for any heritage trees to be removed, work within the dripline of any heritage tree, or substantial trimming of any heritage tree. Prior to issuance of a certificate of occupancy, the project applicant shall complete planting of any replacement trees required as part of the Planning Commission's heritage tree removal authorization or other authorizations. In addition, the project applicant shall prepare and submit a tree protection plan prior to the approval of heritage tree removal authorizations or other* *authorizations in accordance with the City Municipal Code, Sections 4-12.02 through 4-12.11, and prior to commencement of any construction activity shall implement any tree protection measures identified to protect trees which will not be removed during construction.*

f. Adopted Habitat Conservation Plans or Natural Conservation Community Plans covering the project site do not exist. Therefore, the proposed project would not conflict with the provisions of such a plan, and ***no impact*** would occur.

V. CULTURAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	✖	☐	☐
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	☐	✖	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries.	☐	✖	☐	☐

Discussion

a-c. Historical resources are typically features that are associated with the lives of historically important persons and/or historically significant events, that embody the distinctive characteristics of a type, period, region or method of construction, or that have yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation. Examples of typical historical resources include, but are not limited to, buildings, farmsteads, rail lines, bridges, and trash scatters containing objects such as colored glass and ceramics.

Currently, the project site is vacant. Thus, the site does not contain any permanent structures which could be considered historical resources pursuant to Section 15064.5 of the CEQA Guidelines. Additionally, portions of the project site that would be developed as part of the project have been subject to previous disturbance. According to the Pacifica General Plan, the only federal and State listed historic resource within the area is the Historic Sanchez Adobe, which is located 0.75-miles southeast of the project site. Thus, the project site does not contain any existing structures or other above-ground resources that could be considered historic. However, the potential exists for previously unknown historic-era subsurface resources to occur on the project site. If present, such resources could be adversely affected by ground-disturbing activities associated with project construction.

A records search of the California Historic Resources Information System (CHRIS) was performed on March 10, 2020 by the Northwest Information Center (NWIC) for cultural resource site records and survey reports within the project area. According to the records search, the project site does not contain any documented archaeological resources. However, the NWIC also stated that the California Inventory of Historic Resources lists one of the Portola Expedition camps in close proximity to the project site. In addition, Portola's San Francisco Bay Discovery site is in close proximity to the project site. Based on such, the NWIC concluded that the project site has a moderate potential for unrecorded archaeological resources to occur.[15]

The off-site improvement area is already developed with turf landscaping, and the minor paving that is proposed would be constructed near the surface of the ground which would not result in substantial ground disturbance. Nonetheless, in the unlikely chance that cultural resources are encountered during construction, a potential impact could occur.

---

[15] Northwest Information Center. *Re: Record search results for the proposed project located at 570 Crespi Drive, Pacifica, San Mateo County, California.* March 10, 2020.

Based on the above, the possibility exists that previously undiscovered historical or archaeological resources, including human remains, could be uncovered during ground-disturbing activities associated with construction of the proposed project. Therefore, the project could result in a ***potentially significant*** impact with respect to causing a substantial adverse change in the significance of a unique historical or archaeological resource pursuant to Section 15064.5 and/or disturbing human remains.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

V-1. *If any potentially historic resources, prehistoric or historic artifacts, or other indications of cultural deposits, such as historic privy pits or trash deposits, are found once ground disturbing activities are underway, all work within the vicinity of the find(s) shall cease, the find(s) shall be immediately evaluated by a qualified archaeologist, and the City's Planning Department shall be notified of the find(s). If the find is determined to be a historical or unique archaeological resource, as determined by the qualified archeologist, contingency funding and a time allotment to allow for implementation of avoidance measures or appropriate mitigation shall be made available (CEQA Guidelines Section 15064.5). Work may continue on other parts of the project site while historical or unique archaeological resource mitigation takes place (Public Resources Code Sections 21083 and 21087).*

The requirements of this mitigation measure shall be included via notation on all project improvement plans and building permit plans for review and approval by the City of Pacifica Planning Department.

V-2. *In the event of the accidental discovery or recognition of any human remains, further excavation or disturbance of the find or any nearby area reasonably suspected to overlie adjacent human remains shall not occur until compliance with the provisions of CEQA Guidelines Section 15064.5(e)(1) and (2) has occurred. The Guidelines specify that in the event of the discovery of human remains other than in a dedicated cemetery, no further excavation at the site or any nearby area suspected to contain human remains shall occur until the County Coroner has been notified to determine if an investigation into the cause of death is required. If the Coroner determines that the remains are Native American, then, within 24 hours, the Coroner must notify the Native American Heritage Commission, which in turn will notify the most likely descendants who may recommend treatment of the remains and any grave goods. If the Native American Heritage Commission is unable to identify a most likely descendant or most likely descendant fails to make a recommendation within 48 hours after notification by the Native American Heritage Commission, or the landowner or his authorized agent rejects the recommendation by the most likely descendant and mediation by the Native American Heritage Commission fails to provide a measure acceptable to the landowner, then the landowner or his authorized representative shall rebury the human remains and grave goods with appropriate dignity at a location on the property not subject to further* *disturbances. If human remains are encountered, a copy of the resulting County Coroner report noting any written consultation with the Native American Heritage Commission shall be submitted as proof of compliance to the City of Pacifica Planning Department.*

The requirements of this mitigation measure shall be included via notation on all project improvement plans and building permit plans for review and approval by the City of Pacifica Planning Department.

VI. ENERGY. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	✖	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	✖	☐

Discussion

a,b. The main forms of available energy supply are electricity, natural gas, and oil. A description of the 2019 California Green Building Standards Code (CALGreen Code) and the Building Energy Efficiency Standards, with which the proposed project would be required to comply, as well as discussions regarding the proposed project's potential effects related to energy demand during construction and operations are provided below.

California Green Building Standards Code

The 2019 CALGreen Code is a portion of the CBSC which became effective on January 1, 2020.[16] 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 reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The CALGreen standards regulate the method of use, properties, performance, types of materials used in construction, alteration repair, improvement and rehabilitation of a structure or improvement to property. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California. Requirements of the CALGreen Code include, but are not limited to, the following measures:

- Compliance with relevant regulations related to future installation of Electric Vehicle charging infrastructure in residential and non-residential structures;
- Indoor water use consumption is reduced through the establishment of maximum fixture water use rates;
- Outdoor landscaping must comply with the California Department of Water Resources' MWELO, or a local ordinance, whichever is more stringent, to reduce outdoor water use;
- Diversion of 65 percent of construction and demolition waste from landfills; and
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board.

On November 25, 2019, the City of Pacifica adopted "Reach Codes" which are applicable to new construction projects. New residential buildings, including single-family and multi-family structures three stories or less, are subject to the following requirements and standards:[17]

---

16 California Building Standards Commission. *California Green Building Standards Code*. 2019.
17 City of Pacifica. *Notice of Building Code Updates*. Available at: https://www.cityofpacifica.org/civicax/filebank/blobdload.aspx?t=54723.13&BlobID=16261. Accessed August 2021.

- Space heating, water heating and clothes dryers must be electric.
- Natural gas may be used for cooking appliances and fireplaces, if desired. If natural gas appliances are used, locations must also be electrically pre-wired for future electric appliance installation.

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC, which expands upon energy efficiency measures from the 2016 Building Energy Efficiency Standards resulting in a seven percent reduction in energy consumption from the 2016 standards for residential structures and a 30 percent reduction for commercial structures. Energy reductions relative to previous Building Energy Efficiency Standards would be achieved through various regulations including requirements for the use of high efficacy lighting, improved water heating system efficiency, and high-performance attics and walls. In addition, the Building Energy Efficiency standards require residential buildings that are three stories or less be developed with the solar panels.

Construction Energy Use

Construction of the proposed project would involve on-site energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the site where energy supply cannot be met via a hookup to the existing electricity grid. Project construction would not involve the use of natural gas appliances or equipment.

All construction equipment and operation thereof would be regulated per the CARB In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation is intended to reduce emissions from in-use, off-road, heavy-duty diesel vehicles in California by imposing limits on idling, requiring all vehicles to be reported to CARB, restricting the addition of older vehicles into fleets, and requiring fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. The In-Use Off-Road Diesel Vehicle Regulation would subsequently help to improve fuel efficiency. Technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid equipment, or other design changes, which could help to reduce demand on oil and emissions associated with construction.

The CARB has prepared the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan),[18] which builds upon previous efforts to reduce GHG emissions and is designed to continue to shift the California economy away from dependence on fossil fuels. Appendix B of the 2017 Scoping Plan includes examples of local actions (municipal code changes, zoning changes, policy directions, and mitigation measures) that would support the State's climate goals. The examples provided include, but are not limited to, enforcing idling time restrictions for construction vehicles, utilizing existing grid power for electric energy rather than operating temporary gasoline/diesel-powered generators, and increasing use of electric and renewable fuel-powered construction equipment. The regulation described above, with which the proposed project must comply, would be consistent with the

---

18 California Air Resources Board. *The 2017 Climate Change Scoping Plan Update.* January 20, 2017.

intention of the 2017 Scoping Plan and the recommended actions included in Appendix B of the 2017 Scoping Plan.

Based on the above, the temporary increase in energy use occurring during construction of the proposed project would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies. In addition, the proposed project would be required to comply with all applicable regulations related to energy conservation and fuel efficiency, which would help to reduce the temporary increase in demand.

Operational Energy Use

Following implementation of the proposed project, PG&E would provide electricity to the project site. Pacifica also has partnered with Peninsula Clean Energy (PCE), a Community Choice Aggregation, which allows the purchase of electricity from renewable sources through PG&E infrastructure.[19] Energy use associated with operation of the proposed project would be typical of residential and commercial uses, requiring electricity for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, refrigeration, appliances, security systems, and more. Maintenance activities during operations, such as landscape maintenance, would involve the use of electric or gas-powered equipment. In addition to on-site energy use, the proposed project would result in transportation energy use associated with vehicle trips generated by future tenants of the proposed residences as well as employees and customers of the proposed commercial component.

The proposed project would be subject to all relevant provisions of the most recent update of the CBSC, including the CALGreen Code Building Energy Efficiency Standards. Adherence to the most recent CALGreen Code and the Building Energy Efficiency Standards would ensure that the proposed structures would consume energy efficiently through the incorporation of such features as efficient water heating systems, high performance attics and walls, and high efficacy lighting. Required compliance with the CBSC would ensure that the building energy use associated with the proposed project would not be wasteful, inefficient, or unnecessary. In addition, electricity supplied to the project by PG&E would comply with the State's Renewables Portfolio Standard (RPS), which requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020 and to 60 percent by 2030. Thus, a portion of the energy consumed during project operations would originate from renewable sources.

In addition, future residents/commercial tenants would have access to electricity generated from renewable sources through PCE. Even if customers choose to opt out of PCE, the electricity supplied by PG&E would comply with the State's RPS. Furthermore, the proposed project would include the use of solar panels, as required by the Building Energy Efficiency Standards. Based on applicant provided information, the project would produce approximately 46 kilowatt-hours (kWh) of on-site renewable energy per day. Thus, a portion of the energy consumed during project operations would originate from renewable sources.

---

19 City of South San Francisco. *Community Choice Energy*. Available at: https://www.ssf.net/departments/city-manager/sustainability/community-choice-energy#:~:text=South%20San%20Francisco%20has%20joined,instead%20of%20going%20through%20PG%26E. Accessed June 2021.

With regard to transportation energy use, the proposed project would comply with all applicable regulations associated with vehicle efficiency and fuel economy. In addition, as discussed in Section XVII, Transportation, of this IS/MND, the project site is located in an urban area with access to several public transit lines. Transit would provide access to several grocery stores, restaurants, banks, and schools within close proximity to the project site. The site's access to public transit and proximity to such uses would reduce project-related vehicle miles traveled (VMT) and, consequently, fuel consumption associated with the proposed project, thereby providing for increased pedestrian connectivity with the surrounding area and resulting in reduced vehicle use.

Conclusion

Based on the above, construction and operations of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Thus, a ***less-than-significant*** impact would occur.

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

Discussion

The following discussion is based on a Geotechnical Investigation prepared for the proposed project by GeoForensics, Inc.,[20] a Geotechnical Peer Review performed by ENGEO, Inc.,[21] and GeoForensics, Inc.'s Response to Geotechnical Peer Review, dated April 30, 2020[22] (see Appendix C). The Geotechnical Investigation focused in the northern portion of the project site, because development would not occur in the southern portion of the site, and the proposed off-site improvements are located in an area which has been previously deemed acceptable for development to enable construction of the Pacifica Community Center.[23]

a.i-ii. According to the Geotechnical Investigation, the greater San Francisco Bay Area is recognized by geologists and seismologists as one of the most active seismic regions in the United States. Several major fault zones pass through the Bay Area in a northwest direction which have produced approximately 12 earthquakes per century strong enough to cause structural damage. The faults causing such earthquakes are part of the San Andreas Fault System, a major rift in the earth's crust that extends for at least 700 miles

20 GeoForensics, Inc. *Geotechnical Investigation for Proposed New Townhouse Complex and Commercial Building.* January 5, 2016.

21 ENGEO, Inc. *570 Crespi Drive Pacifica, California Geotechnical Peer Review*. March 2, 2020.

22 GeoForensics, Inc. *Crespi Drive Property, 570 Crespi Drive, Pacifica, California, Response to Geotechnical Peer Review*. April 30, 2020.

23 U.S. Department of Agriculture Natural Resources Conservation Service. *Web Soil Survey*. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed June 2021.

along western California. The San Andreas Fault System includes the San Andreas, Hayward, and Calaveras Fault Zones.

The Geotechnical Investigation determined that the lack of mapped active fault traces through the site suggest that a low potential for primary rupture due to fault offset on the property. Nonetheless, given the vicinity of the project site to the San Andreas Fault System, the project site could be subject to strong ground shaking due to a major earthquake in one of the above-listed fault zones.

However, the proposed project would be designed in accordance with the adopted edition of the CBSC requirements in place at the time of building permit application. Structures built according to the seismic design provisions of current building codes should be able to: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage, but with some non-structural damage; and 3) resist major earthquakes without collapse, but with some structural, as well as non-structural damage. Given the project's adherence to the CBSC requirements, the proposed project would not expose people or structures to substantial adverse effects including the risk of loss, injury, or death involving the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zone Map, or strong seismic ground shaking. Therefore, the proposed project would have a ***less-than-significant*** impact.

a.iii-iv.
c. The proposed project's potential effects related to liquefaction, landslides, lateral spreading, and subsidence/settlement are discussed in detail below.

Liquefaction

Liquefaction most commonly occurs during earthquake shaking in loose, fine sands and silty sands associated with a high ground water table. Based on liquefaction susceptibility mapping by U.S. Geological Survey, the project site is mapped in an area of moderate susceptibility. In addition, the State of California maps the site within a liquefaction zone (Montara Mountain Quadrangle, 2019).[24] However, per the Geotechnical Investigation, loose, fine, and/or silty sands were not identified in the upper 11 feet of on-site soils. Although some loose sand deposits exist on the site, such deposits are not water-saturated, and are therefore unlikely to be subject to liquefaction.

Although liquefaction is unlikely to have a significant effect on the subject property, a rigid foundation is required to minimize any potential movements. Therefore, without implementation of mitigation, a potentially significant impact could occur related to damages or collapse due to liquefaction.

Landslides

Seismically-induced landslides are triggered by earthquake ground shaking. The risk of landslide hazard is greatest in areas with steep, unstable slopes. The project site and the surrounding area are generally level. Therefore, according to the Geotechnical Investigation, the hazard due to large-scale seismically-induced land sliding is relatively low.

[24] ENGEO, Inc. *570 Crespi Drive Pacifica, California Geotechnical Peer Review*. March 2, 2020.

Lateral Spreading

Lateral spreading is associated with terrain near free faces such as excavations, channels, or open bodies of water. Spreading may occur when a weak layer of material, such as a sensitive silt or clay, loses shear strength as a result of ground shaking. Such conditions were not encountered on the proposed building site. Therefore, the hazard due to lateral spreading is considered very low based on the Geotechnical Investigation.

Subsidence/Settlement

Ground subsidence may occur when poorly consolidated soils densify as a result of earthquake shaking. Because the project site is underlain at shallow depths by resistant materials, the hazard due to ground subsidence is considered to be low. According to GeoForensics, based on preliminary civil plans, up to six feet of fill is proposed at the site, which is likely to result in approximately 9.5 inches of total settlement. However, due to the seismicity of the area, the potential exists for subsidence and settlement to occur within the project site.

Conclusion

Based on the above discussion, the proposed project would not result in potential hazards or risks related to landslides or lateral spreading. However, the project would be subject to potential adverse effects related to liquefaction and/or subsidence/settlement. Without implementation of the recommendations included in the Geotechnical Investigation, the project could directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project. Thus, a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

VII-1. All grading and foundation plans for the development shall be designed by a Civil and Structural Engineer and reviewed and approved by the Director of Public Works/City Engineer, Chief Building Official, and a qualified Geotechnical Engineer prior to issuance of a grading or building permit to ensure that all geotechnical recommendations specified in the Geotechnical Investigation, dated January 2016, and the Response to Geotechnical Peer Review, dated April 30, 2020, prepared for the proposed project by GeoForensics, Inc. are properly incorporated and utilized in the project design.

b. Issues related to erosion and degradation of water quality during construction are discussed in Section X, Hydrology and Water Quality, of this Initial Study, under question ‘a’. As noted therein, the proposed project would not result in substantial soil erosion or the loss of topsoil. Thus, a ***less-than-significant*** impact would occur.

d. The Geotechnical Investigation included the testing of soil samples to measure moisture content plasticity, and consolidation. Plasticity Index testing performed on a sample of the site near surface materials, which consisted of organic soils, produced a Plasticity Index result of 210. Typically, a plasticity index of greater than about 30 correlates to a highly expansive soil. However, the testing of highly organic soils has a tendency to produce unusual test results. Nonetheless, the project site could still consist of potentially expansive soils. Therefore, a ***potentially significant*** impact could occur related to being located on expansive soil, as defined in Table 18-1B of the Uniform Building Code, thereby creating substantial direct or indirect risks to life or property.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

VII-2. *Implement Mitigation Measure VII-1.*

e. Sewer service for the proposed project would be provided by the City. The construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the project. Therefore, ***no impact*** regarding the capability of soil to adequately support the use of septic tanks or alternative wastewater disposal systems would occur.

f. The City's General Plan does not identify the presence of any paleontological or unique geological resources within the City limits. As determined by the NWIC, areas surrounding the project site have been disturbed in the past, and the likelihood of discovering paleontological resources is low. Nonetheless, the potential exists that excavation and construction on the project site could encounter previously unknown paleontological resources. Thus, if discovered during ground disturbing activities, the project could directly or indirectly destroy a unique paleontological resource or unique geologic feature and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

VII-3. *In the event that paleontological resources, including individual fossils or assemblages of fossils, are encountered during construction activities all ground disturbing activities shall immediately halt and a qualified paleontologist shall be procured to evaluate the discovery for the purpose of recording, protecting, or curating the discovery as appropriate. The qualified paleontologist shall provide the City of Pacifica Planning Department with a report detailing the findings and method of curation or protection of the resources for review and approval by City Planning staff prior to recommencing construction.*

VIII. GREENHOUSE GAS EMISSIONS. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	✖	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	☐	☐	✖	☐

Discussion

a,b. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

Implementation of the proposed project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to future development would be primarily associated with increases of carbon dioxide (CO_2) and, to a lesser extent, other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O) associated with area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the project would be mobile source emissions. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO_2 equivalents ($MTCO_2e$/yr).

The proposed project is located within the jurisdictional boundaries of BAAQMD. The BAAQMD developed a threshold of significance for project-level GHG emissions in 2009. The BAAQMD's approach to developing the threshold was to identify a threshold level of GHG emissions for which a project would not be expected to substantially conflict with existing California legislation. At the time that the thresholds were developed, the foremost legislation regarding GHG emissions was AB 32, which established an emissions reduction goal of reducing statewide emissions to 1990 levels by 2020.[25] The GHG emissions threshold of significance recommended by BAAQMD to determine compliance with AB 32 is 1,100 $MTCO_2e$/yr or 4.6 $MTCO_2e$ per service population per year ($MTCO_2e$/SP/yr). If a project generates GHG emissions above the BAAQMD's adopted threshold level, the project is considered to generate significant GHG emissions and conflict with AB 32.

Since the adoption of BAAQMD's GHG thresholds of significance, the State legislature has passed AB 197 and Senate Bill (SB) 32, which builds off of AB 32 and establishes a statewide GHG reduction target of 40 percent below 1990 levels by 2030. Considering the legislative progress that has occurred regarding statewide reduction goals since the

[25] Bay Area Air Quality Management District. *California Environmental Quality Act Guidelines Update: Proposed Thresholds of Significance*. May 2017.

adoption of BAAQMD's standards, the emissions thresholds presented above would determine whether a proposed project would be in compliance with the 2020 emissions reductions goals of AB 32, but would not necessarily demonstrate whether a project would be in compliance with SB 32. In accordance with the changing legislative environment, the BAAQMD has begun the process of updating the District's CEQA Guidelines; however, updated thresholds of significance have not yet been adopted. In the absence of BAAQMD-adopted thresholds to assess a project's compliance with SB 32, this IS/MND considers additional GHG emissions thresholds.

SB 32 requires that by 2030 statewide emissions be reduced by 40 percent beyond the 2020 reduction target set by AB 32. In the absence of adopted thresholds from BAAQMD, the CARB, or the City of Pacifica, this analysis assumes that in order to meet the reduction targets of SB 32, a proposed project would be required to reduce emissions by an additional 40 percent beyond the emissions reductions currently required by BAAQMD for compliance with AB 32. Assuming a 40 percent reduction from current BAAQMD targets, a proposed project would be in compliance with SB 32 if the project's emissions did not exceed the following thresholds by the year 2030: 660 $MTCO_2e$/yr or 2.6 $MTCO_2e$/SP/yr. The BAAQMD has informally endorsed this approach to analysis in other recent projects throughout the Bay Area.[26]

GHG emissions resulting from construction and operation of the proposed project were modeled with CalEEMod using the same assumptions as discussed in Section III, Air Quality, of this IS/MND. All modeling outputs are included in the Appendix A to this IS/MND.

According to the CalEEMod results, operations of the proposed project would result in total annual GHG emissions of 163.29 $MTCO_2e$/yr, as shown in Table 5.

Table 5
Unmitigated GHG Emissions ($MTCO_2e$/yr)

Emission Source	GHG Emissions
Area	*1.51*
Energy	*36.40*
Mobile	*101.15*
Solid Waste	*21.56*
Water	*2.66*
TOTAL ANNUAL GHG EMISSIONS	163.29
BAAQMD Threshold for AB 32	**1,100.00**
Adjusted Threshold for SB 32	**660.00**
Exceeds Threshold?	**NO**

Note: Rounding may result in small differences in summation.

Source: CalEEMod, June 2020 (see Appendix A).

Although not presented in the table, based on the modeling results, construction of the proposed project would generate total emissions of 479.35 $MTCO_2e$ over the entire construction period. Even if project operational and construction emissions were considered together (163.29 $MTCO_2e$/yr from operations + 479.35 $MTCO_2e$ from

26 See, for example, the Creekside/Vineyards at Sand Creek Project EIR, prepared for the City of Antioch. Available at: https://www.antiochca.gov/community-development-department/planning-division/environmental-documents/.

construction), the total GHG emissions of 642.64 $MTCO_2e$/yr would be below the thresholds used to represent compliance with AB 32 and SB 32. Therefore, neither construction nor operation of the proposed project would be anticipated to result in significant emissions of GHGs.

In July of 2014, the City of Pacifica adopted a Climate Action Plan (CAP) that is intended to guide reduction of GHG emissions associated with existing operations and future development in the City.[27] The GHG inventory contained in the City's CAP was derived based on the land use designations and associated densities defined in the City's General Plan. Additionally, the CAP establishes a number of reduction measures, including the use of renewable energy, safe routes to school, and water conservation incentives.

As discussed in Section VI, Energy, of this IS/MND, 46 kWh of energy per day used by the project would be generated by on-site renewable sources, the site is located adjacent to the Crespi Drive & Highway 1 SamTrans bus stop, and indoor water conservation strategies would be applied. Because the proposed project would be consistent with the CAP's reduction measures and with the project site's existing General Plan land use designation, the project would be consistent with the GHG inventory contained in the CAP.

Based on the above, the proposed project would not be considered to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs; and impacts would be considered ***less than significant***.

[27] City of Pacifica. *Climate Action Plan*. July 14, 2014.

IX. HAZARDS AND HAZARDOUS MATERIALS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	✖	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	☐	✖	☐	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	✖	☐	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	✖
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	✖	☐
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	✖	☐	☐
g. Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires?	☐	☐	✖	☐

Discussion

a. Due to the limited timeline, construction activities associated with the proposed project are not considered a "routine" use. Nonetheless, hazards related to construction activities and construction materials are discussed further under question 'b'.

Future operations on the project site could involve the use of common household cleaning products, fertilizers, and herbicides on-site, any of which could contain potentially hazardous chemicals; however, such products would be expected to be used in accordance with label instructions. Due to the regulations governing use of such products and the amount that could reasonably be used on the site, routine use of such products would not represent a substantial risk to public health or the environment. Therefore, the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and a ***less-than-significant*** impact would occur.

b. The following discussion provides an analysis of potential hazards related to the proposed construction activities and existing on-site conditions.

Construction Activities

Construction activities associated with the proposed project would involve the use of heavy equipment, which would contain fuels and oils, and the use of other products such as concrete, paints, and adhesives. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used at the project site and transported to and from the site during construction.

However, the project contractor would be required to comply with all California Health and Safety Codes and local City ordinances regulating the handling, storage, and transportation of hazardous and toxic materials. Thus, construction of the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.

Existing On-Site Conditions

The project site was previously developed with a single-family residence and a mechanic shop. Although not documented at the project site, activities within the project site may have included the use of fuels, coolants, or other chemicals associated with the mechanic shop. Operations associated with the mechanic shop could result in concentrations of residual chemicals being present in the near surface soil if use or storage of chemicals has occurred.

Upon development of the project, the northern portion of the site would primarily be covered by pavement and other impervious surfaces, as well as by up to six feet of fill, thereby limiting future upset of on-site soils. As a result, exposure to hazardous materials associated with potentially contaminated soils during project operations are not a concern.

Although not anticipated, issues related to contaminated soils could pose a risk to construction workers during ground disturbing activities. Therefore, in an abundance of caution, analysis of on-site soils would be required in order to ensure that any existing soil contaminant concentrations are below the direct exposure Environmental Screening Levels for residential developments, which measures potential hazards to human health. If hazardous materials/contaminated soils are identified on-site, such soils would be removed from the site and hauled to an appropriate disposal facility. The proposed project would be required to comply with the regulations set forth by 22 CCR Section 66263, Standards Applicable to Transporters of Hazardous Waste, which requires transporters of hazardous materials to ensure that releases of hazardous wastes into the environment would not occur, including the discharge of hazardous wastes into soils, drainage systems, and surface and ground water systems. 22 CCR Section 66263.16 requires that each truck, trailer, semitrailer, vacuum tank, cargo tank, or container used for shipping hazardous waste be designed and constructed, and their contents so limited, that under conditions normally incident to transportation, releases of hazardous wastes to the environment would not occur. Hazardous waste containers are required to be free from leaks and all discharge openings are required to be securely closed during operation. In addition, Section 66263.31 requires transporters of hazardous materials to clean up any hazardous waste discharge that occurs during transportation to the extent that hazardous waste discharge no longer presents a hazard to human health or the environment. Compliance with the aforementioned State regulations would ensure that, should contaminated soils be identified on-site, the removal of such soils would not result in a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials.

Conclusion

Based on the above, although evidence of contamination does not exist, past activities on-site associated with the mechanic shop could have resulted in soil contamination within the project site. Therefore, the proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

IX-1. *Prior to initiation of grading, excavation, or other ground-disturbing activities on the northern portion of the project site, the project applicant shall complete an analysis of on-site soils to determine whether substantial concentrations of soil contaminants are present above the applicable direct exposure Environmental Screening Levels (ESLs) set by the Regional Water Quality Control Board. If contaminants are not detected above applicable ESLs, then further mitigation is not required. If contaminants are detected above the applicable ESLs, then the soils shall be remediated by off-hauling to a licensed landfill facility. Such remediation activities shall be performed by a licensed hazardous waste contractor (Class A) and contractor personnel that have completed 40-hour OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) training, and overseen by the San Mateo County Environmental Health Services Division. The results of soil sampling and analysis, as well as verification of proper remediation and disposal, shall be submitted to the City of Pacifica Planning Department for review and approval.*

c. The project site is located approximately 600 feet, or 0.12-mile, northwest of Cabrillo Elementary School. As discussed above, the proposed operations would not include the use, disposal, or generation of substantial amounts of hazardous materials. Any hazardous materials associated with cleaning supplies or household materials would be regulated, used, and disposed of according to direction. However, as noted above, previous activities within the project site may have included the use of fuels, coolants, or other chemicals associated with the mechanic shop. Residual chemicals have the potential to be present in the near surface soil. Thus, the project site is located within one-quarter mile of a school and, as a result, the project could create hazardous emissions or handle hazardous materials, substances, or waste and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

IX-2. *Implement Mitigation Measure IX-1.*

d. According to the Department of Toxic Substance Control's Hazardous Waste and Substances Site List, the project site is not located on or near a site that is included a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.[28] Therefore, the proposed project would have ***no impact*** with respect to being located on a hazardous materials site.

---

[28] California Department of Toxic Substances Control. *Hazardous Waste and Substances Site List*. Available at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=570+Crespi+Drive%2C+Pacifica%2C+CA. Accessed June 2021.

e. The nearest airport relative to the project site, San Francisco International Airport, is located approximately five miles east of the site. In addition, the project site is located approximately nine miles north of Half Moon Bay Airport. Per the Comprehensive Airport Land Use Plan for the Environs of San Francisco International Airport (SFO Plan), the project site does not lie within designated Safety Compatibility Zones or forecasted noise contours for the airport.[29] According to the San Mateo County Comprehensive Airport Land Use Compatibility Plan (ALUCP), the site is not located within an Airport Safety Zone for Half Moon Bay Airport, and, thus, would not be significantly affected by the airport.[30] Therefore, the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area, and a ***less-than-significant*** impact would occur.

f. During operation, the proposed project would provide adequate access for emergency vehicles consistent with California Fire Code requirements and would not interfere with potential evacuation or response routes used by emergency response teams. During construction of the proposed project, all construction equipment would be staged on-site so as to prevent obstruction of local and regional travel routes in the City that could be used as evacuation routes during emergency events. The California Fire Code also requires that all fire service features be installed on the site, including but not limited to fire lanes, before building construction can begin. In addition, the proposed project would not substantially alter the existing circulation system in the surrounding area. As noted in Section XVII, Transportation, of this IS/MND, the proposed project would provide adequate sight distance at the proposed access points at Crespi Drive and would generate minimal traffic. However, according to the North Country Fire Authority (NCFA), the required access of 26-feet would not be met with the proposed site plan. As a result, the proposed project could have a ***potentially significant*** impact with respect to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

IX-3. Prior to the issuance of a building permit, the project shall demonstrate compliance with the 26-foot access road width, or obtain Fire Marshall approval of an Alternative Methods and Materials request by the NCFA to deviate from the 26-foot access road width requirement for the Project.

g. Issues related to wildfire hazards are discussed in Section XX, Wildfire, of this IS/MND. As noted therein, the project site is not located within or near a Very High Fire Hazard Severity Zone.[31] The project site is located within an urbanized area of the City of Pacifica, is surrounded by existing development, and is not located in or near a State Responsibility Area. While the project site is located among a few trees present on the site, some trees and shrubs would be removed entirely, and the remaining would be maintained according to City procedures. In addition, the project is consistent with the site's current General

---

29 City/County Association of Governments of San Mateo County, California. *Comprehensive Airport Land Use Plan for the Environs of San Francisco International Airport.* July 2012.
30 San Mateo County*. Comprehensive Airport Land Use Compatibility Plan.* December 1996.
31 California Department of Forestry and Fire Protection. *San Mateo County, Very High Fire Hazard Severity Zones in LRA*. November 24, 2008.

Plan land use designation; thus, buildout of the site with residential and commercial uses and associated wildfire risk has been considered by the City. Therefore, the proposed project would not expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands, and a ***less-than-significant*** impact would occur.

X. HYDROLOGY AND WATER QUALITY. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	✖	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	✖	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or 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 offsite;	☐	☐	✖	☐
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?	☐	☐	✖	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	✖	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	✖	☐

Discussion

a,e. During the early stages of construction activities, topsoil would be exposed due to grading of the site. After grading and prior to overlaying the ground surface with impervious surfaces and structures or new landscaping, the potential exists for wind and water erosion to discharge sediment and/or urban pollutants into stormwater runoff, which could adversely affect water quality. The State Water Resources Control Board (SWRCB) regulates stormwater discharges associated with construction activities where clearing, grading, or excavation results in a land disturbance of one or more acres per the General Construction Permit. Because construction activities on the northern portion of the project site and the off-site improvement area would disturb greater than one acre of land, construction activities would be subject to San Mateo County Municipal Regional Stormwater Permit requirements. The San Mateo Countywide Pollution Prevention Program provides a list of construction BMPs with which all projects involving construction within the County are required to comply.[32] Should the project applicant fail to implement best management practices (BMPs), pollutants from construction activities could runoff into local waterways and degrade downstream water quality, particularly during heavy winter rain events.

Following completion of project buildout, the site would be largely covered with impervious surfaces and landscaped areas, and topsoil would no longer be exposed. As such, the

32 City/County Association of Governments of San Mateo County, San Mateo Countywide Water Pollution Prevention Program. *Construction Best Management Practices.* Available at: http://www.cityofpacifica.org/depts/planning/stormwater_compliance/default.asp. Accessed January 4, 2019.

potential for impacts to water quality would be reduced. In addition, as discussed in further detail below, the proposed project would include a series of bioswales on the western and eastern boundaries of the site that would treat stormwater from all on-site impervious areas prior to discharge into the vacant land to the south or into the City's stormwater drainage system.

While implementation of the above would reduce impacts to water quality standards or waste discharge requirements, if the project applicant fails to implement appropriate construction BMPs or implement stormwater requirements, the proposed project could violate water quality standards or waste discharge requirements, substantially degrade water quality, or result in a conflict with a water quality control plan. As such, a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

X-1. *During construction, the contractor shall implement BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable, which may include but are not necessarily limited to the following practices, or other BMPs identified in the California Stormwater Quality Association (CASQA) Construction BMP Handbook and in the City's Municipal Regional Permit for stormwater discharges:*

- *Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) shall be employed to control erosion from disturbed areas;*
- *Inactive construction areas (previously graded areas inactive for 10 days or more) that could contribute sediment to waterways shall be covered or treated with nontoxic soil stabilizers;*
- *Exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways shall be enclosed or covered;*
- *The contractor shall ensure that no earth or organic material will be deposited or placed where such materials may be directly carried into a stream, marsh, slough, lagoon, or body of standing water;*
- *The following types of materials shall not be rinsed or washed into the streets, shoulder areas, or gutters: concrete, solvents and adhesives, thinners, paints, fuels, sawdust, dirt, gasoline, asphalt and concrete saw slurry, and heavily chlorinated water; and*
- *Grass or other vegetative cover shall be established on the construction site as soon as possible after disturbance.*

The applicable BMPs shall be included via notation on the project Improvement Plans for review and approval by the City Engineer prior to issuance of a grading, excavation, or building permit.

X-2. *Prior to issuance of a certificate of occupancy for any component of the proposed project, the project applicant shall execute and record a Maintenance Agreement addressing future maintenance of the stormwater* *treatment measures required to comply with Provision C.3 of the Municipal Regional Permit. The Maintenance Agreement shall be subject to review and approval by the City Engineer and the City Attorney's Office.*

X-3 *Prior to issuance of a certificate of occupancy for any component of the proposed project, the project applicant shall install all required stormwater treatment measures, and demonstrate full compliance with the stormwater treatment plans prepared for the proposed project. Evidence of such shall be submitted to the City Engineer for review and approval.*

b. The proposed project would receive water service from the NCCWD. The NCCWD does not currently rely on groundwater wells for water supply.[33] As such, groundwater supplies would not be used to serve the proposed project. Given that only the northern portion of the 1.68-acre project site would be developed, the impervious surfaces created by the project would not substantially interfere with infiltration of stormwater into local groundwater. Furthermore, the project would limit hardscape and use pervious pavement treatments, which would allow for natural infiltration of stormwater. Therefore, the proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level, and impacts would be ***less than significant***.

c.i-iii. All municipalities within San Mateo County (and the County itself) are required to develop surface water control standards for new development projects to comply with Provision C.3 of the RWQCB Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit order No. R2-2015-0049. The San Mateo Countywide Water Pollution Prevention Program developed a C.3 Stormwater Technical Guidance document for implementing the RWQCB Municipal Regional Stormwater NPDES Permit C.3 requirements, known as the C.3 Standards.[34] The City of Pacifica has adopted the County C.3 Standards as part of the City's NPDES General Permit requirements, which require new development and redevelopment projects that create or alter 10,000 or more sf of impervious area to contain and treat the design volume of stormwater runoff from the project site. Given that the proposed project would create more than 10,000 sf of impervious area, the project would be considered a C.3-regulated project.

In accordance with storm water control and water quality standards, the proposed impervious surfaces would drain to vegetated areas and then be conveyed to the rear of the property. In addition to vegetated swales, the site design measures include, bioretention swales, pervious pavements and vegetated swales. It has been determined that the rear open space has a storage capacity of approximately 23,962.8 cubic feet (to elevation 10.0), which exceeds the required 100-year event storage capacity for the proposed improvement.

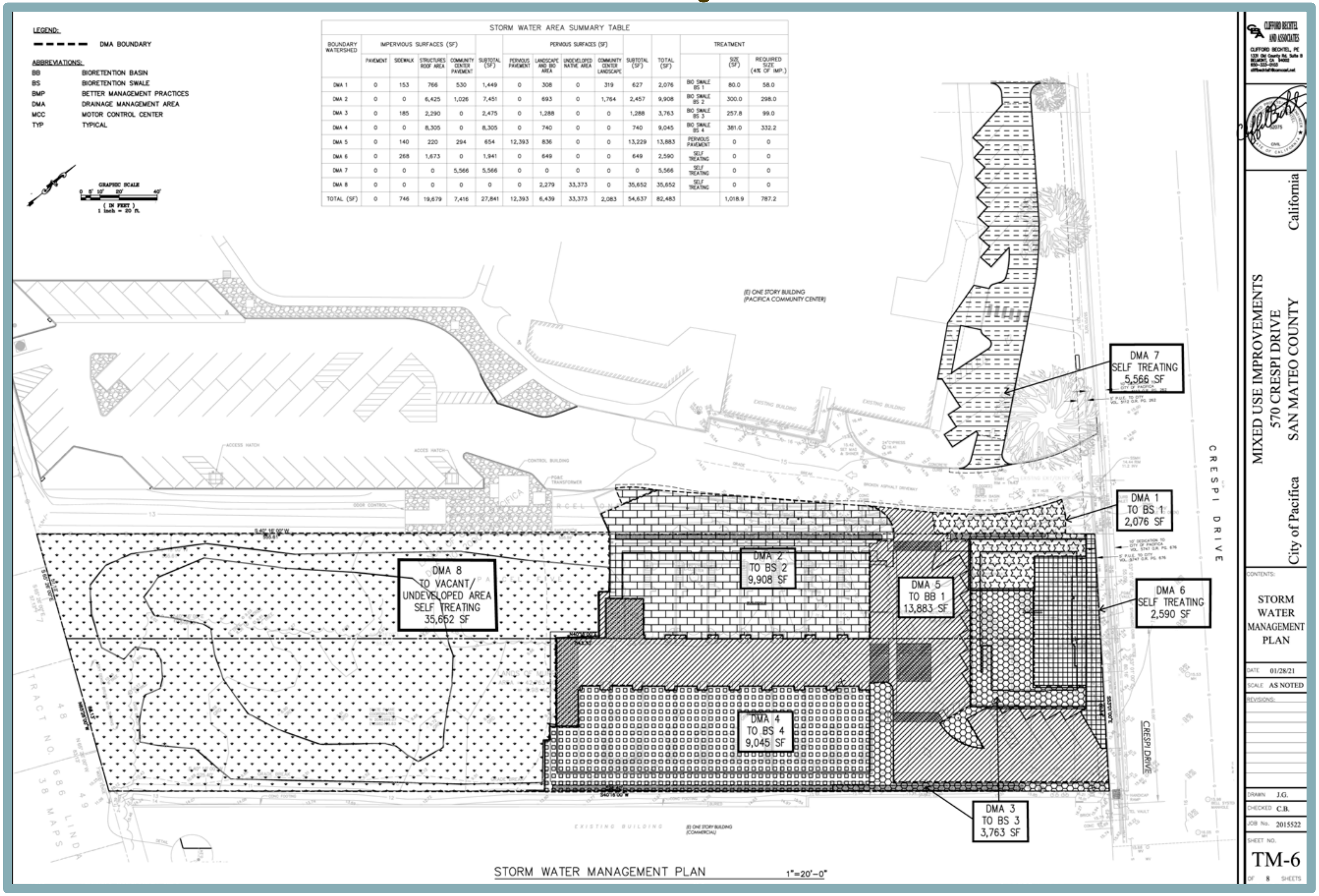
A Stormwater Management Plan (SWMP) has been prepared for the proposed project (see Figure 19). Per the SWMP, the project site and off-site improvement area would be divided into eight drainage management areas (DMAs). Four of the DMAs would direct runoff to a series of bioswales, one would direct runoff to a bioretention basin, and three would be self-treating areas.

---

33 North Coast County Water District. *20-Year Long-Term Water Master Plan.* February 2016.

34 City/County Association of Governments of San Mateo County, San Mateo Countywide Water Pollution Prevention Program. *C.3 Stormwater Technical Guidance.* June 2016.

Figure 19
Stormwater Management Plan



STORM WATER AREA SUMMARY TABLE

BOUNDARY WATERSHED	IMPERVIOUS SURFACES (SF)					PERVIOUS SURFACES (SF)						TREATMENT		
	PAVEMENT	SIDEWALK	STRUCTURES ROOF AREA	COMMUNITY CENTER PAVEMENT	SUBTOTAL (SF)	PERVIOUS PAVEMENT	LANDSCAPE AND BIO AREA	UNDEVELOPED NATIVE AREA	COMMUNITY CENTER LANDSCAPE	SUBTOTAL (SF)	TOTAL (SF)		SIZE (SF)	REQUIRED SIZE (4% OF IMP.)
DMA 1	0	153	766	530	1,449	0	308	0	319	627	2,076	BIO SWALE BS 1	80.0	58.0
DMA 2	0	0	6,425	1,026	7,451	0	693	0	1,764	2,457	9,908	BIO SWALE BS 2	300.0	298.0
DMA 3	0	185	2,290	0	2,475	0	1,288	0	0	1,288	3,763	BIO SWALE BS 3	257.8	99.0
DMA 4	0	0	8,305	0	8,305	0	740	0	0	740	9,045	BIO SWALE BS 4	381.0	332.2
DMA 5	0	140	220	294	654	12,393	836	0	0	13,229	13,883	PERVIOUS PAVEMENT	0	0
DMA 6	0	268	1,673	0	1,941	0	649	0	0	649	2,590	SELF TREATING	0	0
DMA 7	0	0	0	5,566	5,566	0	0	0	0	0	5,566	SELF TREATING	0	0
DMA 8	0	0	0	0	0	0	2,279	33,373	0	35,652	35,652	SELF TREATING	0	0
TOTAL (SF)	0	746	19,679	7,416	27,841	12,393	6,439	33,373	2,083	54,637	82,483		1,018.9	787.2

Per Section 6-12.207 of the Municipal Code, prior to issuance of a building permit, the City of Pacifica requires the applicant submit a complete checklist provided by the City to the City Engineer to ensure compliance with the requirements of NPDES Permit No. CAS612008. The design, construction, operation, and maintenance of the proposed stormwater system would need to be addressed in a final SWMP to be submitted to the City of Pacifica in accordance with the stormwater management requirements set forth in the City's Municipal Code. The final design of the proposed drainage system would be reviewed and approved by the City of Pacifica, which would ensure that the proposed drainage system complies with all applicable regional and local standards and requirements with respect to incorporating sufficient permanent stormwater treatment control BMPs.

Therefore, the proposed project would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion, siltation, or flooding on- or off-site, 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. Thus, a ***less-than-significant*** impact would occur.

c.iv. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map number 06081C0126F, the project site is located within the Special Flood Hazard Zone AH, which is considered a 100-year flood plain.

The City of Pacifica has established a flood plain elevation of 14.0 feet above mean sea level. Accordingly, all living space within the City must be designed a minimum of one foot above the flood plain elevation (i.e., 15 feet). Per the Boundary and Topographic Survey conducted for the project site, the development area currently has an elevation ranging from 10.69 to 16.55 feet above mean sea level. During the grading process, approximately 2,400 cubic yards of soil would be imported to ensure that all proposed structures have a living space no lower than 15 feet above mean sea level.

In addition, as discussed above, all runoff flowing through the storm drains within the site would divert runoff into bioswales proposed on the western and eastern boundaries of the site, or be directed to a bioretention area in the southeast corner of the project site. As a result, runoff would not accumulate and/or flood on-site or off-site.

Therefore, development of the proposed project would not impede or redirect flood flows, and a ***less-than-significant*** impact would occur.

d. Tsunamis are defined as sea waves created by undersea fault movement as a result of an earthquake beneath the sea floor. The California Department of Conservation maintains Tsunami Inundation Maps for most populated areas along the California coastline. The maps are created by combining inundation results for a variety of different seismic source events. As such, the maps represent a worse-case scenario. According to the Tsunami Inundation Map for the Montara Mountain Quadrangle, the project site is located in a Tsunami Inundation Area.[35] However, the proposed project would not increase exposure of the project site or neighboring sites to impacts from a tsunami. Additionally, the built portion of the project site would be constructed above the base flood elevation. The project site and surrounding area do not provide storage for hazardous

35 California Department of Conservation. *Tsunami Inundation Map for Emergency Planning, Montara Mountain Quadrangle.* June 15, 2009.

materials. Furthermore, residential and commercial land uses, such as the proposed project, are not typically associated with the routine use of hazardous materials. As a result, even though the project site is located within a Tsunami Inundation Area, implementation of the proposed project would not result in the release of pollutants and/or hazardous materials due to project inundation.

A seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir, whose destructive capacity is not as great as that of tsunamis. Seiches are known to have occurred during earthquakes, but none have been recorded in the Bay Area. The project site is located approximately 3.2 miles east of the nearest closed body of water, San Andreas Lake, and, thus, would not be expected to be at risk of inundation from seiche.

Based on the discussion above, the proposed project would not pose a risk related to the release of pollutants due to project inundation caused by flooding, tsunami or seiche, and a ***less-than-significant*** impact would occur.

XI. LAND USE AND PLANNING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	✖	☐
b. 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?	☐	☐	✖	☐

Discussion

a. A project risks dividing an established community if the project would introduce infrastructure or alter land use so as to change the land use conditions in the surrounding community, or isolate an existing land use. Currently, the project site is bordered by existing single-family residential development to the south, the Pacifica Community Center to the west, Ocean View Senior Apartments and commercial businesses to the north, and an elementary school and commercial businesses to the east. The proposed residences and commercial space would be consistent with the scale, type, and intensity of the existing development in the project area. In addition, the project would not isolate an existing land use. Furthermore, the proposed off-site improvements would consist of minor upgrades that are consistent with the development type and scale of the existing Pacifica Community Center. As such, the proposed project would not physically divide an established community, and a ***less-than-significant*** impact would occur.

b. The project site is currently designated Commercial per the City's General Plan and is zoned M-1. Per the General Plan, mixed residential and commercial uses are allowed when the dwelling units are located above the ground floor in the same building as a commercial use. In addition, the maximum allowable density for the Commercial land use designation is 2,000 sf per unit. Thus, the proposed project would be consistent with the existing land use designation. The proposed project would adhere to all requirements set forth in the City of Pacifica Municipal Code Section 9-4.1101 which regulates development in the C-2 zoning area. San Mateo County CMP LOS consistency is addressed in the Transportation section of this IS/MND. Thus, the design and intended use of the proposed structures would conform with the type and intensity of uses anticipated for the site in the General Plan.

The project would include a Rezoning from M-1 to C-2 and a Zoning Text Amendment to allow residential uses on the ground level and in buildings that do not contain commercial uses in areas zoned C-2. However, the Rezoning and Zoning Text Amendment would not result in any significant environmental impacts on the project site or surrounding area, or conflict with any plans or policies adopted for the purpose of avoiding an environmental effect because the types of uses and building forms allowed would remain consistent with the existing C-2 zoning standards.

Because the proposed project is consistent with the City's General Plan land use designation, development of the site with the type and intensity of uses currently proposed has been anticipated by the City. In addition, the General Plan contains several policies with the goal of protecting rare and endangered species, significant trees, and riparian habitats. Mitigation Measures IV-1 through IV-5 would also serve to protect biological resources. In addition, the General Plan promotes the conservation of water and energy resources. Compliance with the City's water quality standards, as well as implementation of energy reduction strategies, on-site renewable energy production, and water conservation strategies would ensure that the project would not conflict with City policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect. Furthermore, as discussed throughout this IS/MND, the proposed project would not result in any significant environmental effects that cannot be mitigated to a less-than-significant level by the mitigation measures provided herein. Therefore, a ***less-than-significant*** impact would occur.

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

Discussion

a,b. The State Division of Mines and Geology indicates that the project site does not contain any identified mineral resources of regional or Statewide significance (Mineral Resource Zone 2).[36] The adopted General Plan recognizes the existence of mineral resources at the Pacifica Quarry, but does not address mineral resources elsewhere in the City. Furthermore, the proposed project would be consistent with the adopted General Plan land use designation for the site. Therefore, construction of the proposed project would not result in the loss of any known mineral resources or result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan, and ***no impact*** would occur.

[36] State of California. Division of Mines and Geology. *Generalized Mineral Land Classification Map of the South San Francisco Bay Production—Consumption Region*. Published 1996.

XIII. NOISE. *Would the project result in:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. 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?	☐	☐	✖	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	✖	☐	☐
c. 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, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	✖	☐

Discussion

a. The following discussion is based on an Environmental Noise Assessment prepared for the proposed project by Saxelby Acoustics (see Appendix D).[37] The report analyzed construction noise and traffic noise level increases at the project site in comparison to the City's exterior and interior noise level standards.

Sensitive Noise Receptors

Some land uses are considered more sensitive to noise than others, and, thus, are referred to as sensitive noise receptors. Land uses often associated with sensitive noise receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. In the vicinity of the project site, the nearest sensitive receptors include the existing single-family residences to the south, Pacifica Community Center to the west, and Ocean View Senior Apartments to the north. Additionally, the Cabrillo Elementary School is located 0.12-mile east of the site.

Existing Noise Environment

Per the Environmental Noise Assessment, the existing noise environment in the project area is primarily defined by traffic on SR 1 and Crespi Drive. To determine the existing noise environment at the site, Saxelby Acoustics conducted continuous 24-hour recordings of the sound levels at one location and short-term measurements at two locations in the project vicinity (see Figure 20).

Table 6 below provides summary of the noise measurement results. The results of the measurements summarized in Table 6, are presented in terms of average hourly noise levels (L_{eq}). The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day. The maximum value, denoted L_{max}, represents the highest noise level measured. The median value, denoted L_{50}, represents the sound level exceeded 50 percent of the time during the monitoring period. All noise level values are in decibels (dB).

---

37 Saxelby Acoustics LLC. *Environmental Noise Assessment, 570 Crespi Drive.* September 22, 2021.

Figure 20
Noise Measurement Sites

Source: Saxelby Acoustics LLC, 2021.

Table 6
Summary of Existing Background Noise Measurement Data

Site	Date	Average Measures Hourly Noise Levels, dBA						
			Daytime (7:00AM-10:00PM)			Nighttime (10:00PM–7:00AM)		
		L_{dn}	L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
LT-1	4/09/20 – 4/10/20	58	54	51	73	51	45	67
ST-1	4/09/20 – 1:05 PM	N/A	55	44	93	N/A	N/A	N/A
ST-2	4/10/20 – 1:21 PM	N/A	48	47	58	N/A	N/A	N/A

Source: Saxelby Acoustics LLC, 2021.

City Noise Standards

While the City of Pacifica General Plan does not explicitly establish a noise threshold for sensitive receptors, the City staff have historically used the 60 dB threshold as the test of significance when evaluating projects. The City of Pacifica is in the process of updating the General Plan; however, the General Plan Update and associated EIR have not yet been adopted.

Criteria for Short-Term Project-Related Noise Level Increases

Because the City has not established a threshold of significance for short-term construction or traffic noise, the City has chosen to use the Caltrans standard of a temporary increase of 12 dBA from existing conditions at the project site to determine whether a significant impact would occur during construction.

Criteria for Long-Term Project-Related Noise Level Increases

The Federal Interagency Committee on Noise (FICON) provides guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. Based on the FICON standards, the project would result in a significant impact under the following circumstances:

- Where existing ambient noise levels at sensitive receptors are less than 60 dB L_{dn}, a +5 dB L_{dn} increase is considered significant;
- Where existing ambient noise levels at sensitive receptors range from 60 to 65 dB L_{dn}, a +3 dB L_{dn} increase is considered significant; and
- Where existing ambient noise levels at sensitive receptors are greater than 65 dB L_{dn}, a +1.5 dB L_{dn} increase is considered significant.

Construction Noise

During the construction of the proposed project, heavy equipment would be used for grading, excavation, paving, and building construction, which would temporarily increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well the equipment is maintained. In addition, noise exposure at any single point outside the project site would vary depending on the proximity of construction activities to that point. Standard construction equipment, such as graders, backhoes, loaders, and trucks, would be used on-site.

As one increases the distance between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources. The noise levels from a source decrease at a rate of approximately 6 dB per every doubling of distance from the noise source.

Based on the analysis included in the Environmental Noise Analysis, the loudest phase of construction would occur during pile driving activities, and would generate an average noise exposure level of 94 dBA L_{eq} at 50 feet. However, as discussed in further detail under question 'b' and as required by Mitigation Measure XIII-2, pile driving shall be prohibited during project construction. The next loudest phase would be site preparation and grading activities, which typically make use of compactors, dozers, and pneumatic tools, are anticipated to be the loudest phases of construction, with an average noise exposure of 83 dBA at a distance of 50 feet. Saxelby Acoustics modeled the noise levels at nearby sensitive receptors using the SoundPLAN noise model. The results of the construction noise analysis are depicted in Figure 21 without pile driving.

Table 7 shows a summary of the noise prediction results for each phase of project construction as measured from Site LT-1. As shown in Table 7, the proposed project would generate construction noise levels ranging between 31 and 66 dBA L_{eq} at the nearest sensitive receptors. Existing ambient noise levels were found to be between 52 and 58 dBA L_{dn} in the vicinity of the project site. Therefore, project construction could result in a maximum increase in noise of up to 9 dBA above existing ambient noise levels. The increase of 9 dBA would not exceed the Caltrans 12 dBA increase criteria.

Additionally, noise associated with construction activities would occur intermittently, and would be limited to the hours of 7:00 AM to 7:00 PM, Monday through Friday, and 9:00 AM to 5:00 PM on Saturdays and Sundays per Section 8-1.08 of the City's Municipal Code. The City of Pacifica would ensure that project construction complies with Section 8-1.08 of the Municipal Code as a condition of project approval. Furthermore, the City of Pacifica Noise Ordinance exempts construction activities from the noise standards, provided they take place between the specified hours. As a result, a less-than-significant impact would occur during project construction.

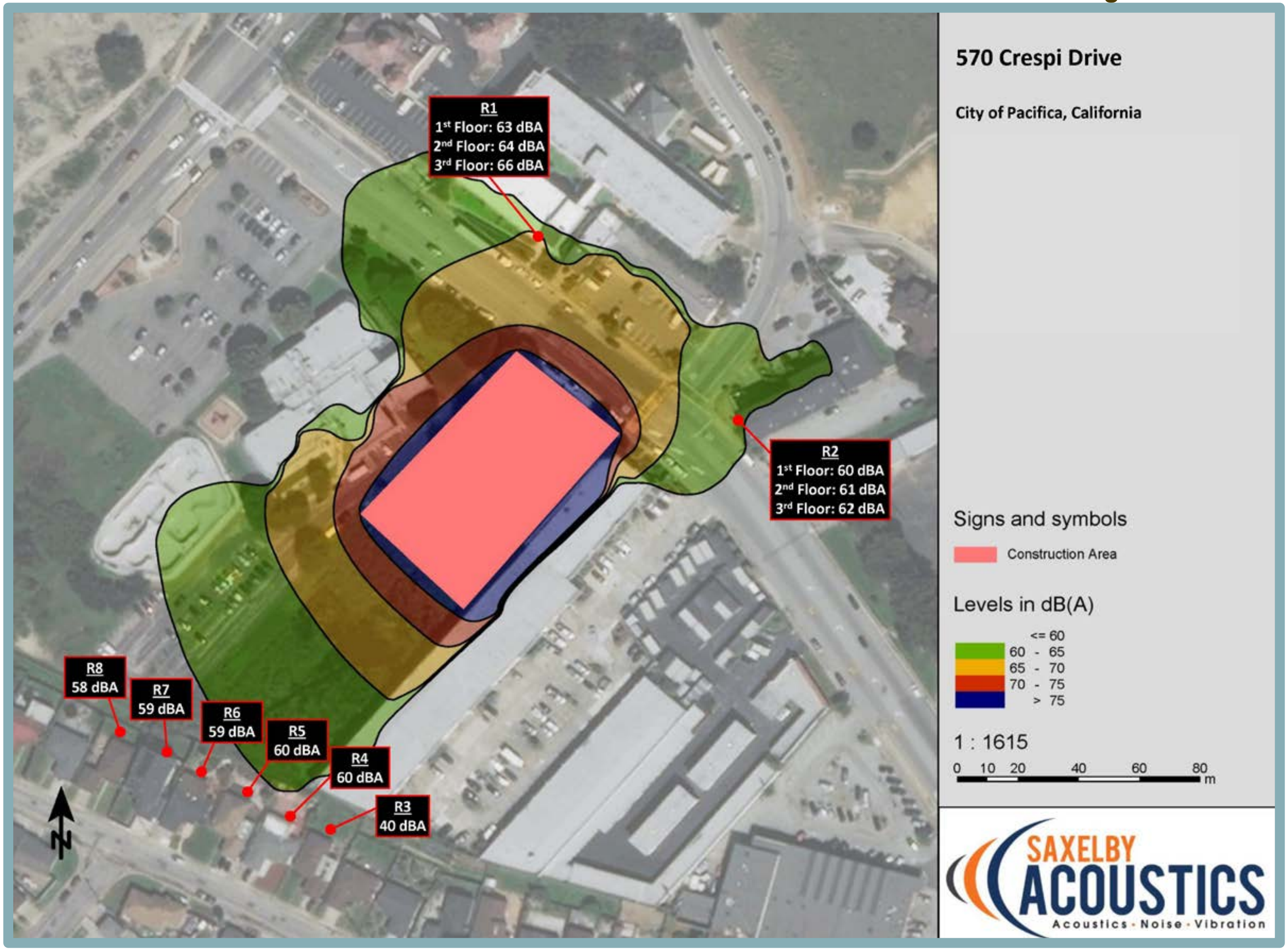
Operational Noise

The primary source of operational noise associated with the proposed project would be vehicle traffic on the project site and on the local roadway network.

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels were calculated at sensitive receptors for Baseline, Baseline Plus Project, Cumulative, and Cumulative Plus Project conditions using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108). Traffic noise levels were predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. In some locations sensitive receptors may not receive full shielding from noise barriers, or may be located at distances which vary from the assumed calculation distance. Project trip generation volumes were provided by the project traffic engineer (RKH Civil and Transportation Engineering, 2021), truck usage and vehicle speeds on the local area roadways were estimated from field observations.

Table 8 and Table 9 summarize traffic noise levels at the nearest sensitive receptors along each roadway segment in the project area under the aforementioned scenarios.

Figure 21
Predicted Construction Noise Levels – Without Pile Driving



Source: Saxelby Acoustics LLC, 2021.

Table 7
Construction Noise Levels (dBA)

Equipment	Measured Daytime Noise Level, L_{dn}	Predicted Construction Noise Level, L_{dn}	Change
Site Preparation			
R1 (Residential)	58	66	+8
R2 (Residential)	58	62	+4
R3 (Residential)	52-58	40	+0
R4 (Residential)	52-58	60	+8
R5 (Residential)	52-58	60	+8
R6 (Residential)	52-58	59	+7
R7 (Residential)	52-58	59	+7
R8 (Residential)	52-58	58	+6
Grading			
R1 (Residential)	58	66	+8
R2 (Residential)	58	62	+4
R3 (Residential)	52-58	40	+0
R4 (Residential)	52-58	60	+8
R5 (Residential)	52-58	60	+8
R6 (Residential)	52-58	59	+7
R7 (Residential)	52-58	59	+7
R8 (Residential)	52-58	58	+6
Building Construction			
R1 (Residential)	58	65	+7
R2 (Residential)	58	61	+3
R3 (Residential)	52-58	39	+0
R4 (Residential)	52-58	59	+7
R5 (Residential)	52-58	59	+7
R6 (Residential)	52-58	58	+6
R7 (Residential)	52-58	58	+6
R8 (Residential)	52-58	57	+5
Paving			
R1 (Residential)	58	64	+6
R2 (Residential)	58	60	+2
R3 (Residential)	52-58	38	+0
R4 (Residential)	52-58	58	+6
R5 (Residential)	52-58	58	+6
R6 (Residential)	52-58	57	+5
R7 (Residential)	52-58	57	+5
R8 (Residential)	52-58	56	+4
Architectural Coating			
R1 (Residential)	58	57	+0
R2 (Residential)	58	53	+0
R3 (Residential)	52-58	31	+0
R4 (Residential)	52-58	51	+0
R5 (Residential)	52-58	51	+0
R6 (Residential)	52-58	50	+0
R7 (Residential)	52-58	50	+0
R8 (Residential)	52-58	49	+0

Note: Measurements recorded from Site LT-1.

Source: Saxelby Acoustics LLC, 2021.

Table 8
Baseline* Traffic Noise Level and Traffic Noise Level Increases

Roadway	Segment	Predicted Exterior Noise Level		
		Baseline Conditions	Baseline Plus Project	Change
SR 1	SR 1 North to Reina Del Mar Avenue	69.8	69.9	0.0
SR 1	Reina Del Mar Avenue to Fassler Avenue	72.4	72.5	0.0
SR 1	Fassler Avenue to Crespi Drive	70.2	70.2	0.0
SR 1	Crespi Drive to Linda Mar Boulevard	66.3	66.3	0.0
SR 1	Linda Mar Boulevard to SR 1 South	66.6	66.6	0.0
Reina Del Mar Avenue	SR 1 to Reina Del Mar Avenue East	62.3	62.3	0.0
Fassler Avenue	SR 1 to Fassler Avenue East	61.2	61.3	0.1
Crespi Drive	East of SR 1	62.8	62.9	0.1

* Refer to Section XVII, Transportation, of this IS/MND for additional information regarding the Baseline traffic conditions.

Source: Saxelby Acoustics LLC, 2021.

Table 9
Cumulative Traffic Noise Level and Traffic Noise Level Increases

Roadway	Segment	Predicted Exterior Noise Level		
		Cumulative Conditions	Cumulative Plus Project	Change
SR 1	SR 1 North to Reina Del Mar Avenue	69.9	69.9	0.0
SR 1	Reina Del Mar Avenue to Fassler Avenue	72.5	72.5	0.0
SR 1	Fassler Avenue to Crespi Drive	70.2	70.3	0.0
SR 1	Crespi Drive to Linda Mar Boulevard	66.4	66.4	0.0
SR 1	Linda Mar Boulevard to SR 1 South	66.6	66.6	0.0
Reina Del Mar Avenue	SR 1 to Reina Del Mar Avenue East	62.3	62.3	0.0
Fassler Avenue	SR 1 to Fassler Avenue East	61.3	61.3	0.0
Crespi Drive	East of SR 1	62.7	62.8	0.1

Source: Saxelby Acoustics LLC, 2021.

Per the FICON's criteria for long-term project-related noise level increases, where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise sensitive uses, a +1.5 dBA L_{dn} increase in roadway noise levels would be considered significant. As shown in the tables above, the maximum increases in traffic noise at the nearest sensitive receptor is predicted to be 0.1 dBA. Therefore, the proposed project would not result in the generation of a substantial permanent increase in traffic noise levels in the vicinity of the project in excess of standards.

Conclusion

Based on the above, construction and operations of the proposed project would not result in the 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 City's General Plan and the Municipal Code. Thus, a ***less-than-significant*** impact would occur.

b. Similar to noise, vibration involves a source, a transmission path, and a receiver. However, noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception of the vibration depends on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration is measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of peak particle velocities (PPV) in inches per second (in/sec). Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of PPV.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 10, which was developed by Caltrans, shows the vibration levels that would normally be required to result in damage to structures. As shown in the table, the threshold for architectural damage to structures is 0.20 in/sec PPV and continuous vibrations of 0.10 in/sec PPV, or greater, would likely cause annoyance to sensitive receptors.

The proposed project would only cause elevated vibration levels during construction, as the proposed project would not involve any uses or operations that would generate substantial groundborne vibration. Although noise and vibration associated with the construction phases of the project would add to the noise environment in the immediate project vicinity, construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours. The primary vibration-generating activities associated with the proposed project would occur during grading, placement of utilities, and construction of foundations. Table 11 shows the typical vibration levels produced by construction equipment at various distances.

The most substantial source of groundborne vibrations associated with project construction would be the use of pile drivers. If pile driving is not required for project construction, next highest source of groundborne vibration would be the use of vibratory compactors. For the purpose of this analysis, the use of pile drivers and vibratory compactors/rollers are conservatively assumed to be used during construction of the proposed project.

Table 10
Effects of Vibration on People and Buildings

PPV		Human Reaction	Effect on Buildings
mm/sec	in/sec		
0.15 to 0.30	0.006 to 0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10 to 15	0.4 to 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: Caltrans. Transportation Related Earthborne Vibrations. TAV-02-01-R9601. February 20, 2002.

Table 11
Vibration Levels for Various Construction Equipment

Type of Equipment	PPV at 25 feet (in/sec)	PPV at 50 feet (in/sec)	PPV at 100 feet (in/sec)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Pile Driving (impact)	0.644	0.228	0.081
Pile Driving (sonic)	0.170	0.060	0.023
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/Roller	0.210 (Less than 0.20 at 26 feet)	0.074	0.026

Source: Saxelby Acoustics LLC, 2021.

Sensitive receptors which could be impacted by construction related vibrations, especially pile driving and vibratory compactors/rollers, are located approximately 50 feet, or further, from typical construction activities. Thus, per the vibration levels shown in Table 11, construction vibrations associated with pile driving could exceed the 0.20 in/sec PPV threshold.

Based on the above, construction of the proposed project could expose people to or generate excessive groundborne vibration or groundborne noise levels associated with the use of pile drivers, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

XIII-1. *Pile driving shall be prohibited during construction of the proposed project. Compliance with such shall be ensured by the City of Pacific Planning Division.*

c. The nearest airport relative to the project site, San Francisco International Airport, is located approximately five miles east of the site. In addition, the project site is located approximately nine miles north of Half Moon Bay Airport. Per the SFO Plan, the project site does not lie within designated Safety Compatibility Zones or forecasted noise contours for the airport.[38] According to the San Mateo County Comprehensive ALUCP, the site is not located within an Airport Safety Zone for Half Moon Bay Airport, and, thus, would not be significantly affected by the airport.[39] Given that the project site is not located within two miles of a public or private airport, the proposed project would not experience elevated noise levels associated with either airport, and a ***less-than-significant*** impact would occur related to exposing people residing or working in the project area to excessive noise levels associated with airports.

[38] City/County Association of Governments of San Mateo County, California. *Comprehensive Airport Land Use Plan for the Environs of San Francisco International Airport.* July 2012.

[39] San Mateo County. *Comprehensive Airport Land Use Compatibility Plan.* December 1996.

XIV. POPULATION AND HOUSING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	☐	☐	✖	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	✖	☐

Discussion

a. The proposed project would include the development of 19 residential units. Using the City of Pacifica average persons per household value of 2.77, the proposed project's direct population growth from the addition of 19 residences would result in approximately 53 new residents.[40] The Department of Finance estimates the 2021 population of Pacifica to be approximately 37,890.[41] The increase in population associated with the proposed project would constitute a 0.14 percent increase in the City's population. A 0.14 percent increase in population would not be considered substantial growth. The project would not result in any indirect population growth from extension of major infrastructure because, as discussed in Section XIX, Utilities and Service Systems, of this IS/MND, adequate utility infrastructure already exists in the project area to be available to support the proposed project. Finally, considering the proposed project would be consistent with the General Plan land use designation for the site, the population growth that would occur as a result of the project has been previously anticipated by the City and evaluated in the General Plan EIR. Additionally, the potential growth induced by the proposed commercial components of the project is not likely to be significant, given that the project is consistent with what has been anticipated in the General Plan EIR. As a result, the project would have a ***less-than-significant*** impact with respect to substantial unplanned population growth in an area, either directly or indirectly.

b. The project site is currently undeveloped and, thus, would not result in the displacement of any people or housing. In addition, the proposed project would introduce 19 new residential units to the City. Therefore, the proposed project would not be considered to displace substantial numbers of existing people or housing, necessitating the construction of replacement housing, and a ***less-than-significant*** impact would occur.

---

40 City of Pacifica. *Pacifica Demographics: 2018.* Available at: https://www.cityofpacifica.org/about/eco_dev/census_facts_2000.asp. Accessed June 2021.

41 California Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2021 with 2010 Census Benchmark*. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/. Accessed June 2021.

XV. PUBLIC SERVICES.

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

Discussion

a. In 2003, the cities of Daly City, Brisbane, and Pacifica collaborated to form the NCFA through a Joint Powers Authority agreement. The NCFA provides fire protection and medical emergency services in the City of Pacifica as well as the other two communities. Under the NCFA, fire stations and fire companies are strategically located throughout the three communities, which provide rapid assistance for medical, fire or other hazardous situations. The nearest fire station relative to the project site is the Pacifica Fire Department located at 1100 Linda Mar Boulevard, which is located approximately one mile southeast of the project site. According to the NCFA, each station staffs approximately three personnel with several response vehicles.[42] The target response time for emergencies and non-emergencies within City limits is approximately 6 minutes, 59 seconds. However, the NCFA has an actual response time of approximately four minutes. Due to the close proximity of the station to the project site, response times at the site are expected to be within the targeted response time. In addition, the project would be required to comply with all NCFA standard conditions of approval related to compliance with the California Fire Code and the associated fire prevention and suppression systems including but not limited to fire sprinklers within all buildings.

Because the NCFA would provide adequate fire protection services to proposed project, and because the proposed project would be required to include adequate fire safety design elements, the project would result in a ***less-than-significant*** impact with respect to the provision of new or physically altered governmental facilities, or the 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 fire protection services.

b. The Pacifica Police Department provides police protection services throughout the City, and the station is located at 2075 Coast Highway. The Pacifica Police Department has 39 sworn officer positions, which equates to approximately one officer per 1,000 residents.[43] Using the City of Pacifica average persons per household value of 2.77, the proposed project's direct population growth from the addition of 19 residences would result in approximately 53 new residents, which is substantially below the threshold of 1,000 new

---

42 Barry Biermann, Deputy Fire Chief, North County Fire Authority. Personal communication [email] with Clay Gallagher, Associate, Raney Planning and Management, Inc. June 4, 2020.

43 City of Pacifica. *Pacifica General Plan Draft Environmental Impact Report* [pg. 3.12-2]. March 2014.

residents which would require the hiring of a new officer.[44] Thus, the minor population growth associated with the proposed project would not necessitate the hiring of new officers and/or construction of new or expanded facilities. Additionally, the commercial component of the proposed project is located within existing police patrol routes and service areas and would not necessitate the hiring of additional officers or the construction of new police facilities.

Furthermore, the proposed project would be subject to the payment of development impact fees per Chapter 14 of the City's Municipal Code. Development impact fees are used to finance the acquisition, construction and improvement of public facilities needed as a result of new development. Should any new police facilities or staffing be required as a result of the proposed project, the required payment of development impact fees would ensure that such needs are met.

Based on the above, the project would result in a ***less-than-significant*** impact with respect to the provision of new or physically altered governmental facilities, or the 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 police protection services.

c. The project site is located within the Pacifica School District and the Jefferson Union High School District (JUHSD). The Pacifica School District addresses increased demand for school services within the District through the use of Bond Funds and school district impact fees charged to new development, and implementation of the Facilities Master Plan. Because the proposed project would include 19 residential units, the project applicant would be required to pay the appropriate school district impact fees. Specifically, the project would be required to pay $3.79 per square foot, which is split between the Pacifica School District ($2.27 per square foot) and JUHSD ($1.52 per square foot). It should be noted that Proposition 1A/Senate Bill No. 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "[…] legislative or adjudicative act…involving …the planning, use, or development of real property" (Government Code 65996(b)). Satisfaction of the Proposition 1A/Senate Bill No. 50 statutory requirements by a developer is deemed to be "full and complete mitigation."

According to the Pacifica School District, the district currently has a capacity of approximately 3,250 students with a current enrollment of 3,142 students. Development of the proposed project would be limited to a total of 19 residences and, thus, would not generate a substantial number of new students to area schools.[45] For example, the estimated student yield factor for the Pacifica Union School District is 0.5 students/unit.[46] Thus, development of the 19 units would add approximately ten students to the Pacifica School District, which can be accommodated by the current available capacity.

Based on the above, increased demand for school facilities associated with construction of the proposed project would be accommodated by existing schools within the City. Furthermore, the proposed project and would comply with Proposition 1A/Senate Bill No. 50 through the payment of school impact fees. As such, the proposed project would not

---

[44] City of Pacifica. *Pacifica Demographics: 2018.* Available at: https://www.cityofpacifica.org/about/eco_dev/census_facts_2000.asp. Accessed June 2021.

[45] Heather Olsen, Superintendent, Pacifica School District. Personal Communication [email] with Clay Gallagher, Associate, Raney Planning and Management, Inc. May 27, 2020.

[46] Pacifica School District. *Level I Developer Fee Study for Pacifica School District.* June 14, 2018.

result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities and a ***less-than-significant*** impact would occur with respect to schools in the project area.

d. The proposed project would involve the development of 19 residential dwelling units on 1.68 acres of land. The project would not include any dedicated park areas. The project would be subject to Chapter 19, Park Facilities Impact Fee, of the City's Municipal Code, which states the following:

> This chapter is enacted to require the dedication of such funds and/or lands to offset the impact on the need for parks, recreational facilities, and open space created by new residential development which does not require a tentative subdivision or parcel map…
>
> The fees due under this chapter are collected for the acquisition of lands and the construction of improvements and facilities for which the City has established an account, appropriated funds and adopted a proposed acquisition and construction schedule, and shall be determined and become due and payable to the City at the time of the issuance of a building permit for a residential dwelling unit, single-family residence or mobile home space, or for the addition to such of one or more bedrooms.

Therefore, given that the proposed project would be required to pay the applicable park in-lieu fees in order to ensure that sufficient funding is available for Citywide park development, the project would result in a ***less-than-significant*** impact on parks.

e. The City contains two public libraries: the Pacifica-Sharp Park Library and the Pacifica-Sanchez Library. The libraries constitute two branches of the San Mateo County Library system. Per a 1999 Joint Powers Authority agreement, the City is responsible for funding maintenance of the two libraries. The proposed project includes a total of 19 residential dwelling units. Due to the relatively small project size, implementation of the proposed project would not result in a substantial increase in demand for library services, and a ***less-than-significant*** impact would occur in regard to libraries or other public facilities.

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

Discussion

a,b. The proposed project would include development of 19 residential units and commercial space. Recreational or park facilities are not proposed as part of the proposed project. As discussed in Section XV, Public Services, of this IS/MND, the project would be subject to payment of a Park Facilities Impact Fee pursuant to Chapter 19 of the City's Municipal Code. Payment of the Park Facilities Impact Fee would provide funding for future parkland or recreational facilities. Park development in the future would be subject to project-specific review under CEQA. Furthermore, due to the relatively small project size, and the proximity to existing recreational facilities in the City, implementation of the proposed project is not expected to substantially increase the use of existing parks or recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. Thus, a ***less-than-significant*** impact would occur.

XVII. TRANSPORTATION.
Would the project:

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a.	Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	✖	☐
b.	Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	✖	☐
c.	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	✖	☐
d.	Result in inadequate emergency access?	☐	✖	☐	☐

Discussion

a. The law has changed with respect to how transportation-related impacts may be addressed under CEQA. Traditionally, lead agencies used level of service (LOS) to assess the significance of such impacts, with greater levels of congestion considered to be more significant than lesser levels. Mitigation measures typically took the form of capacity-increasing improvements, which often had their own environmental impacts (e.g., to biological resources). Depending on circumstances, and an agency's tolerance for congestion (e.g., as reflected in its general plan), LOS D, E, or F often represented significant environmental effects. In 2013, however, the State Legislature passed legislation with the intention of replacing LOS in most instances as a basis for environmental analysis under CEQA. Enacted as part of SB 743 (2013), PRC Section 21099, subdivision (b)(1), directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing "criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section."

Subdivision (b)(2) of Section 21099 further provides that "[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion *shall not be considered a significant impact on the environment* pursuant to [CEQA], except in locations specifically identified in the guidelines, if any." (Italics added.)

Pursuant to SB 743, the Natural Resources Agency promulgated CEQA Guidelines Section 15064.3 in late 2018. It became effective in early 2019. Subdivision (a) of that section provides that "[g]enerally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel.

Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact."[47]

Please refer to question 'b' for a discussion of VMT.

Consistency with San Mateo County Congestion Management Program (CMP) LOS Policies

Although intersection LOS can no longer be used for identifying significant transportation impacts under CEQA (see CEQA Guidelines Section 15064.3), as of July 1, 2020, LOS is still used to determine conformity with an adopted general plan or congestion management plan if that General Plan has adopted LOS policies. To measure and describe the operation of the roadway network, a grading system called LOS is commonly used. The LOS grading system qualitatively characterizes motor vehicle traffic conditions during the AM and PM peak hours associated with varying levels of traffic, generally referred to as congestion. These levels range from LOS A, which indicates free-flow vehicular traffic conditions with little or no delay experienced by motorists, to LOS F which indicates congested conditions where vehicle flow exceeds the designed vehicular capacity of the roadway. When LOS falls below a particular level (the grade lowers, i.e., from LOS D to LOS F), a road segment or intersection can be considered deficient and in need of expansion to increase capacity or other improvement(s) to increase or improve traffic flow, such as adjustments to intersection signalization.

The San Mateo County CMP has set LOS standards for major roadways and intersections within the County. SR 1 through Pacifica is a designated CMP roadway, and the designated standard for SR 1 through Pacifica is LOS E. While none of the four study intersections is a designated CMP intersection, the CMP standards for intersections on designated CMP roadways is appropriate. As a result, any signalized study intersection operating worse than LOS E would be considered inconsistent with the CMP standard.

Study Intersections

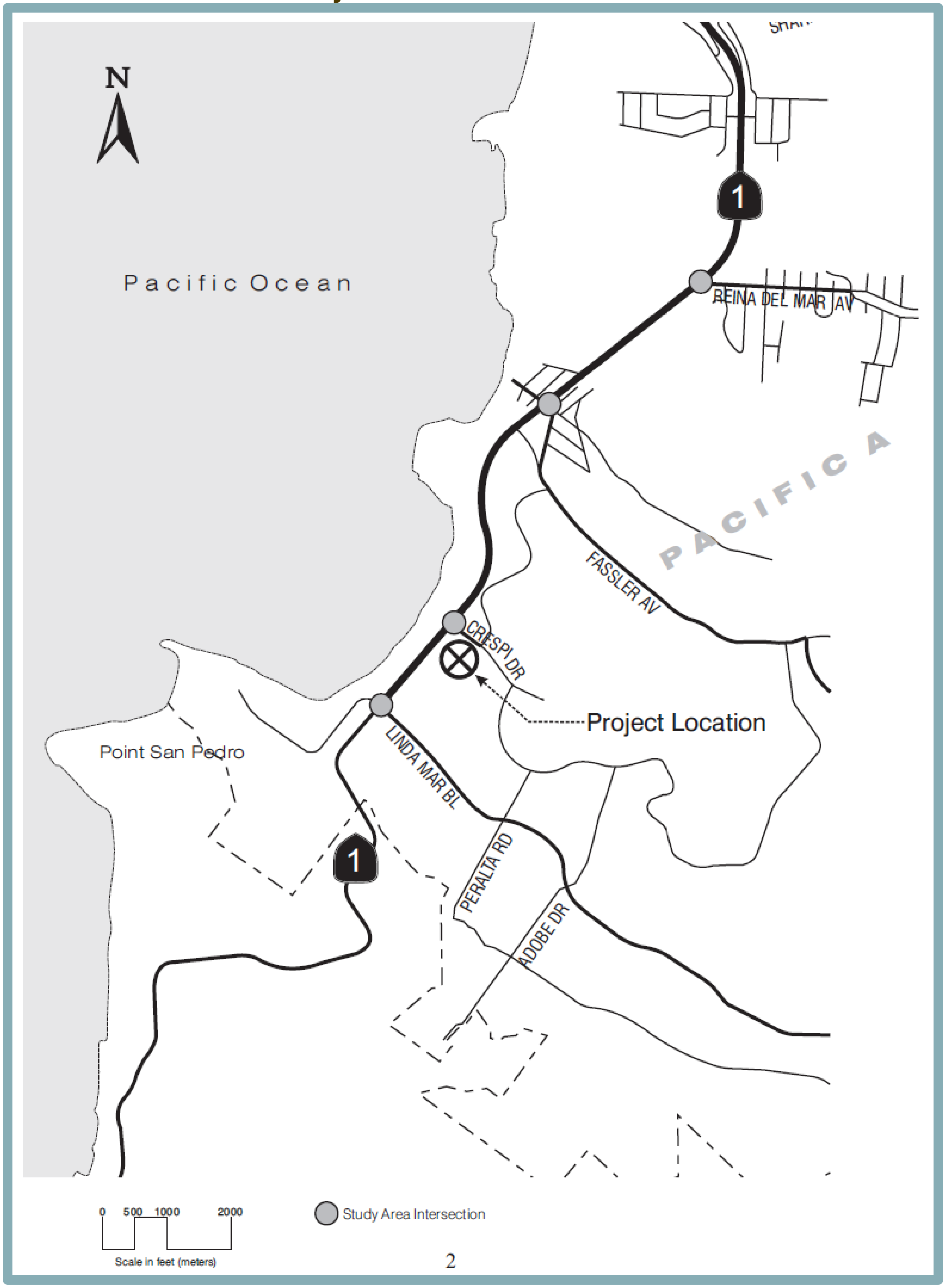
The following discussion is based primarily on a Traffic Impact Analysis (TIA) prepared for the proposed project by RKH Civil and Transportation Engineering (RKH) (see Appendix E).[48] The TIA evaluated the potential transportation impacts that could result from the proposed project, short- and long-term multi-modal circulation needs where relevant to site access and/or project impacts. As part of the TIA, RKH evaluated transportation conditions at the following four study intersections (see Figure 22):

1. SR 1 and Linda Mar Boulevard/San Pedro Avenue;
2. SR 1 and Crespi Drive;
3. SR 1 and Fassler Avenue/Rockaway Beach Avenue; and
4. SR 1 and Reina Del Mar Avenue.

[47] Subdivision (b)(2) of Section 15064.3 ("transportation projects") provides that "[t]ransportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152."

[48] RKH Civil and Transportation, Inc. *Traffic Impact Analysis, 570 Crespi Drive, Pacifica, California.* November 8, 2021.

Figure 22
Study Intersection Locations



Source: RKH Civil and Transportation Engineering, November 2021.

RKH evaluated transportation conditions at all four of the study intersections using methodologies contained in the 2010 edition of the Highway Capacity Manual. Using the PTV VISTRO 7.00-06 network modeling program, a traffic network model was created to analyze the streets and intersections in the project area.

Study Scenarios

Conditions at each intersection were analyzed under the following scenarios:

- **Background Conditions (Existing Plus Approved Projects)** –The Background Conditions scenario consists of existing traffic plus traffic to be generated by those developments that are anticipated to be built and occupied by the time the project is ready for occupancy. The approved projects that were assumed to be completed prior to occupancy of the proposed project include the following:

    1. A seven-unit residential condominium development at 1335 Adobe Drive; and
    2. A 24-unit residential condominium development at 801 Fassler Avenue.

- **Project Conditions (Existing Plus Approved Projects Plus Proposed Project)** – The Project Conditions scenario consists of project trips estimated based on the proposed land use and are then added to Background Conditions traffic.
- **Cumulative Conditions (Existing Plus Approved Plus Future Development)** – Cumulative traffic is traffic that is expected to be present within five years of completion of the proposed project. The Cumulative Conditions scenario consists of existing traffic plus trips from approved projects plus trips from future potential development projects within the study area. The following eight projects have been identified that could occur subsequent to the development of the proposed project within the near-term cumulative scenario:

    1. Hillside Meadows, up to 18 units of multifamily housing development on a new street off of Higgins Way in the Linda Mar area, plus 18 Accessory Dwelling Units;
    2. Harmony @ One, up to four unit of single family homes in a detached development;
    3. Oddstad Way, up to three single family detached dwelling units on;
    4. Up to 125 units residential development at the end of Higgins Way;
    5. 1300 Danmann Avenue, up to six residential units plus 3,050 sf of commercial space;
    6. Pacifica Highlands, up to 54 units of single family detached homes off of Cabrillo Highway;
    7. Cabrillo Highway, a mixed-use development with up to 89 multifamily dwelling units and 1,760 sf of commercial space; and
    8. 930 Oddstad Blvd, up to 70 units of workforce housing development

- **Cumulative Plus Project Conditions** – Similar to Cumulative Conditions, but with the net new trips that would be generated by the proposed project.

Project Trip Generation and Distribution

Project vehicle trip generation rates were obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition). The AM peak hour is generally between 7:00 AM and 9:00 AM and the PM peak hour is generally between 4:00 PM and 6:00 PM. Based on the ITE rates, the proposed project is estimated to generate 20 AM peak hour and 26 PM peak hour trips (see Table 12). It is noted that implementation of the proposed off-site improvements would not affect vehicle trip generation.

Table 12
Project Vehicle Trip Generation

Land Use (ITE Code)	Size	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Multi-Family Housing	19 units	2	8	10	8	5	13
Medical/Dental Office[1]	3.165 ksf	8	2	10	4	9	13
Total		**10**	**10**	**20**	**12**	**14**	**26**

[1] Highest probable use given size and location.

Source: RKH Civil and Transportation Engineering, November 2021.

Project Conditions

Table 13 summarizes the peak hour LOS at study intersections under Background Conditions (Existing Plus Approved Projects) and Project Conditions (Existing Plus Approved Projects Plus Proposed Project). As shown in the table, all four of the study intersections would operate at an acceptable LOS under Project Conditions. Thus, implementation of the proposed project would not exceed the County's CMP thresholds for intersection operations.

Table 13
Project Conditions Intersection LOS

Intersection	Peak Hour	Background Conditions			Project Conditions		
		V/C[1]	Delay[2]	LOS	V/C[1]	Delay[2]	LOS
1. SR 1 and Linda Mar Boulevard/ San Pedro Road	AM	0.662	29.1	C	0.663	29.1	C
	PM	0.670	28.4	C	0.671	28.4	C
2. SR 1 and Crespi Drive	AM	0.441	16.1	B	0.442	16.5	B
	PM	0.640	11.9	B	0.645	12.0	B
3. SR 1 and Fassler Avenue/ Rockaway Beach Avenue	AM	0.939	68.4	E	0.941	69.5	E
	PM	0.890	48.7	D	0.890	49.2	D
4. SR 1 and Reina Del Mar Avenue	AM	0.914	39.7	D	0.917	40.1	D
	PM	0.836	23.4	C	0.837	23.6	C

[1] V/C is the volume to capacity ratio.
[2] Delay: Average control delay in seconds per vehicle.

Source: RKH Civil and Transportation Engineering, November 2021.

As shown in the table, all four of the study intersections would operate at an acceptable LOS under Project Conditions. Thus, implementation of the proposed project would not conflict with the County CMP for intersection operations and, thus, would not create a conflict with an adopted plan related to the City's circulation system.

Cumulative Conditions

The Cumulative Conditions scenario for purposes of this study are projects that are expected to be completed within five years of development of the proposed project. Table

14 summarizes the peak hour LOS at study intersections under Cumulative Conditions and Cumulative Plus Project Conditions.

Table 14
Cumulative Conditions Intersection LOS

Intersection	Peak Hour	Cumulative Conditions			Cumulative Plus Project Conditions		
		V/C[1]	Delay[2]	LOS	V/C[1]	Delay[2]	LOS
1. SR 1 and Linda Mar Boulevard/ San Pedro Road	AM	0.686	30.5	C	0.687	30.6	C
	PM	0.710	30.3	C	0.711	30.4	C
2. SR 1 and Crespi Drive	AM	0.649	17.0	B	0.651	17.3	B
	PM	0.667	12.2	B	0.673	12.2	B
3. SR 1 and Fassler Avenue/ Rockaway Beach Avenue	AM	0.960	78.0	E	0.962	78.7	E
	PM	0.906	55.3	E	0.907	55.9	E
4. SR 1 and Reina Del Mar Avenue	AM	0.943	46.4	D	0.945	46.8	D
	PM	0.855	26.2	C	0.856	26.4	C

1 V/C is the volume to capacity ratio.
2 Delay: Average control delay in seconds per vehicle.

Source: RKH Civil and Transportation Engineering, November 2021.

As shown in the table, all four of the study intersections would operate at an acceptable LOS under Cumulative Plus Project Conditions. Thus, implementation of the proposed project would not conflict with the City's standards for intersection operations and, thus, would not create a conflict with an adopted plan related to the City's circulation system.

Consistency with Pedestrian, Bicycle, and Transit Facility Plans

The proposed project's potential impacts related to pedestrian, bicycle, and transit facilities are discussed below.

Pedestrian Facilities

Within the vicinity of the project site, continuous sidewalks are provided on both sides of Crespi Drive and Roberts Road. In addition, a pedestrian crosswalk is provided at the intersection of Crespi Drive and Roberts Road, near the northeast corner of the project site. With implementation of the proposed project, sidewalks along the project site frontage would be retained.

Considering the above, the proposed project would not result in the creation of a conflict with any adopted programs, plans, ordinances, or policies addressing pedestrian facilities and a less-than-significant impact would occur related to pedestrian facilities.

Bicycle Facilities

Currently, an existing Class I bike lane runs parallel to SR 1, west of the project site. An existing Class II bike lane is also provided along Linda Mar Boulevard, south of the project site. The City of Pacifica Draft General Plan and the City of Pacifica Bicycle and Pedestrian Master Plan propose that several new bicycle facilities be constructed in the future. Future residents of the proposed project would have convenient access to the existing bicycle facilities in the project area, including the bike lane near SR 1. The project would not conflict with any existing or planned bicycle facilities.

Considering the above, the proposed project would not result in the creation of a conflict with any adopted programs, plans, ordinances, or policies addressing bicycle facilities and a less-than-significant impact would occur related to bicycle facilities.

Transit Facilities

Regional access is provided by SamTrans, which runs lines 110, 112, and 118 with a stop on Crespi Drive, west of the project site frontage, a stop further east near the intersection of Crespi Drive and Roberts Road, and another stop near the intersection of SR 1 and Crespi Drive. Regional access to the Bay Area is provided by SamTrans as well as BART, with several connections in the vicinity of the project site. Additionally, the proposed project would include connection of the driveway and access points to the pedestrian sidewalk along Crespi Drive.

Therefore, future residents, workers, and patrons at the proposed project would have access to transit services. The project would not conflict with any existing or planned transit facilities. Thus, the proposed project would not conflict with a program, plan, ordinance, or policy addressing transit service and a less-than-significant impact would occur.

Conclusion

Based on the above, the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Thus, a ***less-than-significant*** impact would occur.

b. Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Pursuant to Section 15064.3, analysis of VMT attributable to a project is the most appropriate measure of transportation impacts. While changes to driving conditions that increase intersection delay are an important consideration for traffic operations and management, the method of analysis does not fully describe environmental effects associated with fuel consumption, emissions, and public health. Section 15064.3(3) changes the focus of transportation impact analysis in CEQA from measuring impact to drivers to measuring the impact of driving.

The County of San Mateo has released an interdepartmental memorandum regarding the *Interim Change to Vehicle Miles Traveled as Metric to Determine Transportation Impacts under CEQA Analysis.* As noted therein, local-serving retail projects under 50,000 sf, such as the commercial portion of the proposed project, are considered to result in a less-than-significant impact related to VMT. The threshold of significance for residential projects is 15 percent below the County baseline, or 11.56 VMT per capita. The VMT anticipated for the residential component of the project is presented in Table 15 below.

Table 15
Proposed Project Residential VMT

Project Component	Total Annual VMT[1]	VMT per Capita per day[2]
Residential	194,425	10.05
	Countywide Threshold	11.56
	Exceeds Threshold?	**NO**

1 CalEEMod, 2021 (Appendix A).
2 Using the City of Pacifica average persons per household value of 2.77, the proposed project would introduce approximately 53 new residents (City of Pacifica, 2021). 194,425 annual VMT / 365 days / 53 residents = 10.05 VMT per capita per day.

As shown in the table, the project is expected to generate VMT per capita below the County's threshold.

Furthermore, the project site is located near to existing transit stops on Crespi Drive and SR 1 and is serviced by SamTrans, which circulates the entire San Francisco Peninsula including service to BART and Caltrain stations. Additionally, the site is located within close proximity to Cabrillo Elementary School and a variety of commercial uses, including a supermarket, bank, mail center, restaurants, located approximately 0.5-miles south of the site. The site's proximity to such uses would reduce VMT associated with the proposed residences. In addition, the implementation of mixed-use projects, such as the proposed project, has been shown to reduce VMT due to internal trip capture.

Based on the above, the proposed project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b), and a ***less-than-significant*** impact would occur.

c. Per the TIA, oncoming traffic travelling in both directions on Crespi Drive would have a clear line of sight to vehicles exiting the driveway well beyond the minimum stopping distance. Similarly, vehicles exiting the driveway would have a clear line of sight to vehicles travelling on Crespi Drive well beyond the minimum stopping distance. Therefore, the project would not substantially increase hazards due to design features or incompatible uses, and the project would result in a ***less-than-significant*** impact.

d. Sufficient emergency access is determined by factors such as number of access points, roadway width, and proximity to fire stations. Vehicles would have access to and from the project site by way of a proposed driveway off of Crespi Drive. In addition, a new west to east driveway off Crespi Drive would be constructed along the northern boundary of the Pacifica Community Center. Egress from the site would be provided by way of a connection to the existing driveway from the Pacifica Community Center and then back onto Crespi Drive. However, according to the NCFA, the required access of 26-feet would not be met with the proposed site plan. Therefore, without adjustments to the existing driveway or approval of Alternative Methods and Materials request, emergency access to the project site would not be considered adequate, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

XVII-1. Implement Mitigation Measure IX-3.

XVIII. TRIBAL CULTURAL RESOURCES.

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

Discussion

a,b. Based on a search of the NAHC Sacred Lands File, the project site could contain Tribal Cultural Resources.[49] As a result, information request letters were sent to the Amah Mutsun Tribal Band of Mission San Juan Batista and the Ohlone Indian Tribe; however, responses from the tribes have not been received.

Furthermore, the City of Pacifica has not received requests to be notified of development projects (pursuant to AB 52) from any Native American tribes in the project region and, thus, AB 52 project notification letters were not distributed by the City. The City, as a lead agency, has not identified any tribal resources on the site. However, because the proposed project includes a request for a GPA, in compliance with SB 18, the City of Pacifica sent SB 18 notification letters to all the tribes included on the NAHC's tribal consultation list for San Mateo County. The letters were distributed on November 19, 2021. The City will continue to engage in discussions with local tribes as necessary throughout the CEQA process.

Considering the construction activity associated with the Pacifica Community Center and the demolition of the previously existing on-site structure, portions of the project site that would be developed as part of the project, including the off-site improvement area, has been previously and recently disturbed. Additionally, recent construction of an equalization basin in the southern portion of 540 Crespi Drive included substantial excavation, and tribal cultural resources were not identified during such ground disturbance. Due to the previous disturbance of the site, the probability of finding tribal cultural resources on the surface of the site is unlikely.

However, the possibility exists that previously undiscovered tribal cultural resources could be uncovered during ground-disturbing activities associated with construction of the proposed project. Therefore, the proposed project could result in a substantial adverse change in the significance of a tribal cultural resource, and a ***potentially significant*** impact could occur.

---

49 Native American Heritage Commission. *570 Crespi Drive Project, San Mateo County.* February 28, 2020.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

XVIII-1. *Implement Mitigation Measures V-1 and V-2.*

XIX. UTILITIES AND SERVICE SYSTEMS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	✖	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	✖	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	✖	☐
d. 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?	☐	☐	✖	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	✖	☐

Discussion

a-c. Electricity, natural gas, telecommunications, water, and sanitary sewer services would be provided by way of new connections to existing infrastructure in the immediate project area. Electricity and natural gas services for the proposed project would be provided by PG&E. Brief discussions of water, sewer service, stormwater drainage, electrical, natural gas, and telecommunications that would serve the proposed project are included below. Implementation of the proposed off-site improvements would not affect utility demand.

Water

As noted in Section IX, Hydrology and Water Quality, of this IS/MND, the proposed project would receive water service from the NCCWD. According to the 2020 Urban Water Management Plan (UWMP), the NCCWD is estimated to have sufficient water supplies to serve the City through the year 2045 to accommodate buildout of the General Plan.[50] Considering the proposed project would be consistent with the General Plan land use designation for the site, the increase in water demand associated with buildout of the project site was accounted

Furthermore, the UWMP estimates a daily usage of 65 gallons per capita per day (GPCD). As such, the residential component of the proposed project is anticipated to generate a demand of approximately 3,069 gallons per day, or 1.12 million gallons per year (MGY) (53 residents X 57.9 GPCD = 3,069 GPD). Because the tenants of the commercial component of the proposed project are unknown, the number of daily staff and customers which would generate increased demand for potable water is unknown at this time. Nonetheless, for the purposes of this analysis, an average of 20 employees is conservatively assumed. Thus, the commercial component of the proposed project is

50 North Coast County Water District. *2020 Urban Water Management Plan.* June 2021.

anticipated to generate a demand of approximately 1,158 gallons per day, or 0.42 million MGY (20 staff X 57.9 GPCD = 1,158 GPD). In total, the proposed project is anticipated to generate a water demand of approximately 1.54 MGY.

Per Table 7-4 of the UWMP, in the year 2045, the NCCWD anticipates an excess water supply of 583 MGY, which is enough to accommodate the 1.54 MGY increase associated with development of the proposed project. Accordingly, the proposed project would not require or result in the construction of new water facilities or the expansion of existing facilities, as sufficient water supplies are available to adequately serve the proposed project.

Wastewater

Sewer utilities for the proposed project would be provided by the City of Pacifica. The City's wastewater is treated at the Calera Creek Water Recycling Plant (CCWRP), located approximately 1.28 miles north of the project site. The CCWRP's average discharge is 1.9 million gallons per day (mgd) to Calera Creek, which flows about 0.5-miles through constructed wetlands and ultimately to the Pacific Ocean.[51] The CCWRP was designed to handle an annual average daily wastewater flow of 4.0 mgd, and is anticipated to have enough capacity to accommodate buildout of the General Plan. Considering the proposed project is consistent with the land use designation for the site, the wastewater generation associated with the proposed project has been generally anticipated for the project site and considered in wastewater infrastructure planning efforts.

Furthermore, residents throughout the City are required to pay an annual sewer charge based on water consumption rates for each unit, per Chapter 6 of the City Municipal Code. Such charges would help to ensure that adequate capacity is available to serve the project's demand for services.

Given the remaining available capacity within the wastewater facility, the proposed project would not result in inadequate capacity to serve the project's projected demand in addition to the existing commitments.

Stormwater

As discussed above in Section X, Hydrology, of this IS/MND, stormwater runoff from impervious surfaces associated with the proposed project would be treated on-site prior to discharge into the vacant land to the south or into the City's stormwater drainage system. Implementation of Mitigation Measure X-1 would ensure that BMPs are implemented during construction activities to reduce pollutants in stormwater discharges to the maximum extent practicable. Additionally, because the site has been anticipated for development by the City's General Plan, impacts to stormwater systems resulting from development of the site have been anticipated by the City and analyzed in the General Plan EIR.

Other Utilities

Electricity, natural gas, and telecommunications utilities would be provided by way of connections to existing infrastructure located within the immediate project vicinity. PG&E would provide electricity and natural gas services to the project site. The proposed project

[51] Regional Water Quality Control Board San Francisco Bay Region. *City of Pacifica, Calera Creek Water Recycling Plant and Wastewater Collection System, Pacifica, San Mateo County.* Available at: https://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2017/April/7_ssr.pdf. April 12, 2017.

would not require major upgrades to, or extension of, existing infrastructure. Thus, impacts to electricity, natural gas, and telecommunications infrastructure would be less than significant.

Conclusion

Therefore, the proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater, electric power, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Sufficient water supplies would be available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Furthermore, adequate wastewater capacity would be available to serve the project's projected demand in addition to the CCWRP's existing commitments. Thus, a ***less-than-significant*** impact would occur.

d,e. Solid waste collection services for the City are provided by Recology of the Coast, a Division of Recology. Services provided to the City by Recology include curbside pick-up of garbage, recyclables, and green waste. Solid waste from within the City of Pacific is disposed of at the Ox Mountain Landfill. Per CalRecycle, the Ox Mountain Landfill has 22,180,000 cubic yards of remaining available capacity, or approximately 36.7 percent of the facility's maximum permitted capacity of 60,500,000 cubic yards.[52] The Ox Mountain Landfill is planned for closure in 2034. After the Ox Mountain Landfill ceases operations, either the Los Trancos Canyon Landfill will undergo expansion, or the Apanolio Canyon Landfill will be opened for fill.[53]

The proposed project would generate solid waste associated with construction activities and project operations. Construction debris would be disposed of in accordance with applicable federal, State, and local regulations and standards. All material exported during site preparation and grading activities would be off-hauled to the Ox Mountain Landfill. Considering the relatively small size of the proposed project, as compared to the development of the entire Ox Mountain Landfill service area, sufficient capacity would exist to accommodate the solid waste disposal needs generate by the proposed project.

Based on the above, the proposed project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs and would comply with federal, state, and local statutes and regulations related to solid waste. Thus, a ***less-than-significant*** impact would occur.

[52] CalRecycle. *SWIS Facility/Site Activity Details: Corinda Los Trancos Landfill (Ox Mtn) (41-AA-0002)*. Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223. Accessed June 2021.

[53] City of San Mateo. *General Plan Update Environmental Impact Report* [pg 4.11-38]. July 2009.

XX. WILDFIRE. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	✖	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	✖	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	✖	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	✖	☐

Discussion

a-d. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the project site is not located within or near a Very High Fire Hazard Severity Zone.[54] The project site is located within an urbanized area of the City of Pacifica, is surrounded by existing development, and is not located in or near a State Responsibility Area. While the project site is located among a few trees present on the site, some trees and shrubs would be removed entirely, and the remaining would be maintained according to City procedures. In addition, the project is consistent with the site's current General Plan land use designation; thus, buildout of the site with residential and commercial uses and associated wildfire risk has been previously considered by the City. Thus, the proposed project would not be expected to be subject to or result in substantial adverse effects related to wildfires, and a ***less-than-significant*** impact would occur.

[54] California Department of Forestry and Fire Protection. *San Mateo County, Very High Fire Hazard Severity Zones in LRA*. November 24, 2008.

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

Discussion

a. As discussed in Section IV, Biological Resources, of this IS/MND, while the potential exists for nesting and migratory birds protected by the MBTA to occur on-site, Mitigation Measures IV-1 would ensure that impacts to special-status species would be less-than-significant. While unlikely, the project could result in the uncovering of previously undiscovered archeological and/or paleontological resources during project construction. However, the proposed project would comply with applicable State and local regulations related to unintentional discovery, as discussed in Section V, Cultural Resources, of this IS/MND. Given compliance with Mitigation Measures V-1 and V-2, impacts to cultural resources would be less-than-significant. Therefore, the proposed project would not result in impacts associated with the potential to: 1) substantially degrade the quality of the environment; 2) substantially reduce or impact the habitat of fish or wildlife species; 3) cause fish or wildlife populations to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) substantially reduce the number or restrict the range of a rare or endangered plant or animal; or 6) eliminate important examples of the major periods of California history or prehistory. While the project could result a potentially significant impact related to degradation of the quality of the environment or reduction of a special-status species, implementation of the mitigation discussed throughout this IS/MND would ensure that the project would result in a ***less-than-significant*** impact.

b. The proposed project involves the development of an undeveloped lot in a developed area of the City of Pacifica. The proposed project would be consistent with the General Plan land use designation for the project site and, as such, the proposed project was included in the cumulative analysis of the City buildout per the City's General Plan. The project would not conflict with long-term environmental goals of the General Plan. Applicable policies from the General Plan would be implemented as part of the proposed project, as well as the project-specific mitigation measures included in this IS/MND, to ensure any potential impacts of the proposed project would be individually limited and not cumulatively considerable. As demonstrated in this IS/MND, all potential environmental impacts that could occur as a result of project implementation would be reduced to less-than-significant levels with implementation of project-specific mitigation measures and compliance with applicable General Plan policies and the City's Municipal Code. Therefore, the proposed project does not have the potential to achieve short-term, to the disadvantage of long-term, environmental goals. In addition, when viewed in conjunction with other closely related past, present, or reasonably foreseeable future projects, the project would not result in impacts that are individually limited, but cumulatively considerable. As such, a ***less-than-significant*** impact would occur.

c. The proposed project could expose humans to hazards relating to water quality during construction and operation. In addition, the project could potentially expose neighboring noise-sensitive receptors to excess noise levels during construction. However, this IS/MND includes mitigation measures that would reduce any potential impacts to less-than-significant levels. Furthermore, the proposed project would be designed in accordance with all applicable building standards and codes to ensure adequate safety is provided for the future residents of the proposed project. Therefore, impacts related to environmental effects that could cause adverse effects on human beings would be ***less than significant***.

Appendix A

Air Quality and Greenhouse Gas Modeling Results

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Crespi Drive Project

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Medical Office Building	3.16	1000sqft	0.07	3,162.00	0
Other Asphalt Surfaces	5.57	1000sqft	0.13	5,566.00	0
Parking Lot	15.00	Space	0.13	6,000.00	0
Apartments Low Rise	3.00	Dwelling Unit	0.00	3,692.00	9
Condo/Townhouse	16.00	Dwelling Unit	0.72	36.84	46

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.983	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on site plan.

Construction Phase - Phasing adjusted per applicant-provided information.

Grading -

Energy Use - Title 24 energy intensities adjusted to reflect compliance with the 2019 CBSC.

Mobile Land Use Mitigation - Project would improve pedestrian network connectivity, transit accessbility, and diversity of land uses.

Energy Mitigation -

Water Mitigation - Water conservation strategy applied to reflect compliance with MWELO and CalGreen Code.

Operational Off-Road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	4.00	40.00
tblConstructionPhase	NumDays	200.00	360.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	10.00	360.00
tblConstructionPhase	PhaseEndDate	10/8/2021	11/29/2021
tblConstructionPhase	PhaseEndDate	7/15/2022	5/15/2023
tblConstructionPhase	PhaseEndDate	7/29/2022	12/27/2021
tblConstructionPhase	PhaseEndDate	8/12/2022	5/30/2023
tblConstructionPhase	PhaseStartDate	10/9/2021	12/28/2021
tblConstructionPhase	PhaseStartDate	7/16/2022	11/30/2021
tblConstructionPhase	PhaseStartDate	7/30/2022	1/12/2022
tblGrading	MaterialImported	0.00	2,400.00
tblLandUse	LandUseSquareFeet	5,570.00	5,566.00
tblLandUse	LandUseSquareFeet	3,000.00	3,692.00
tblLandUse	LandUseSquareFeet	16,000.00	36.84
tblLandUse	LotAcreage	0.19	0.00
tblLandUse	LotAcreage	1.00	0.72
tblProjectCharacteristics	CO2IntensityFactor	203.98	203.983

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					
2021	0.0520	0.5575	0.3335	7.3000e-004	0.1536	0.0250	0.1787	0.0730	0.0231	0.0961	0.0000	65.3952	65.3952	0.0170	1.6300e-003	66.3048
2022	0.2816	1.8388	1.9666	3.5700e-003	0.0280	0.0873	0.1153	7.5200e-003	0.0847	0.0922	0.0000	298.7973	298.7973	0.0441	2.1600e-003	300.5417
2023	0.1000	0.6424	0.7309	1.3300e-003	0.0105	0.0286	0.0391	2.8300e-003	0.0277	0.0306	0.0000	111.8881	111.8881	0.0159	7.6000e-004	112.5122
Maximum	**0.2816**	**1.8388**	**1.9666**	**3.5700e-003**	**0.1536**	**0.0873**	**0.1787**	**0.0730**	**0.0847**	**0.0961**	**0.0000**	**298.7973**	**298.7973**	**0.0441**	**2.1600e-003**	**300.5417**

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					
2021	0.0520	0.5575	0.3335	7.3000e-004	0.1536	0.0250	0.1787	0.0730	0.0231	0.0961	0.0000	65.3951	65.3951	0.0170	1.6300e-003	66.3047
2022	0.2816	1.8388	1.9666	3.5700e-003	0.0280	0.0873	0.1153	7.5200e-003	0.0847	0.0922	0.0000	298.7969	298.7969	0.0441	2.1600e-003	300.5414
2023	0.1000	0.6424	0.7309	1.3300e-003	0.0105	0.0286	0.0391	2.8300e-003	0.0277	0.0306	0.0000	111.8879	111.8879	0.0159	7.6000e-004	112.5121
Maximum	**0.2816**	**1.8388**	**1.9666**	**3.5700e-003**	**0.1536**	**0.0873**	**0.1787**	**0.0730**	**0.0847**	**0.0961**	**0.0000**	**298.7969**	**298.7969**	**0.0441**	**2.1600e-003**	**300.5414**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-1-2021	12-31-2021	0.6093	0.6093
2	1-1-2022	3-31-2022	0.5189	0.5189
3	4-1-2022	6-30-2022	0.5314	0.5314
4	7-1-2022	9-30-2022	0.5373	0.5373
5	10-1-2022	12-31-2022	0.5380	0.5380
6	1-1-2023	3-31-2023	0.4911	0.4911
7	4-1-2023	6-30-2023	0.2546	0.2546
		Highest	0.6093	0.6093

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	0.0803	2.6400e-003	0.2017	1.3000e-004		9.4100e-003	9.4100e-003		9.4100e-003	9.4100e-003	0.8662	0.5867	1.4529	1.6100e-003	6.0000e-005	1.5102
Energy	2.4400e-003	0.0210	0.0102	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003	0.0000	36.1402	36.1402	2.4000e-003	6.8000e-004	36.4023
Mobile	0.0945	0.1050	0.8578	1.7100e-003	0.1778	1.2900e-003	0.1791	0.0475	1.2000e-003	0.0487	0.0000	159.7421	159.7421	0.0111	7.9700e-003	162.3966
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	8.7022	0.0000	8.7022	0.5143	0.0000	21.5594
Water						0.0000	0.0000		0.0000	0.0000	0.5185	1.0955	1.6140	0.0534	1.2800e-003	3.3311
Total	**0.1772**	**0.1287**	**1.0697**	**1.9700e-003**	**0.1778**	**0.0124**	**0.1902**	**0.0475**	**0.0123**	**0.0598**	**10.0870**	**197.5644**	**207.6514**	**0.5829**	**9.9900e-003**	**225.1995**

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	0.0803	2.6400e-003	0.2017	1.3000e-004		9.4100e-003	9.4100e-003		9.4100e-003	9.4100e-003	0.8662	0.5867	1.4529	1.6100e-003	6.0000e-005	1.5102
Energy	2.4400e-003	0.0210	0.0102	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003	0.0000	36.1359	36.1359	2.4000e-003	6.8000e-004	36.3980
Mobile	0.0788	0.0746	0.6132	1.0600e-003	0.1081	8.5000e-004	0.1090	0.0289	7.9000e-004	0.0297	0.0000	99.2271	99.2271	8.6900e-003	5.7300e-003	101.1528
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	8.7022	0.0000	8.7022	0.5143	0.0000	21.5594
Water						0.0000	0.0000		0.0000	0.0000	0.4148	0.8764	1.2912	0.0428	1.0200e-003	2.6649
Total	**0.1616**	**0.0983**	**0.8250**	**1.3200e-003**	**0.1081**	**0.0120**	**0.1201**	**0.0289**	**0.0119**	**0.0408**	**9.9833**	**136.8261**	**146.8093**	**0.5697**	**7.4900e-003**	**163.2851**

	ROG	**NOx**	**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	**8.81**	**23.62**	**22.87**	**32.99**	**39.21**	**3.55**	**36.89**	**39.21**	**3.33**	**31.83**	**1.03**	**30.74**	**29.30**	**2.25**	**25.03**	**27.49**

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	10/1/2021	10/4/2021	5	2	
2	Grading	Grading	10/5/2021	11/29/2021	5	40	

3	Building Construction	Building Construction	12/28/2021	5/15/2023	5	360	
4	Paving	Paving	11/30/2021	12/27/2021	5	20	
5	Architectural Coating	Architectural Coating	1/12/2022	5/30/2023	5	360	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 40

Acres of Paving: 0.26

Residential Indoor: 7,551; Residential Outdoor: 2,517; Non-Residential Indoor: 4,743; Non-Residential Outdoor: 1,581; Striped Parking Area: 694 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	300.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	20.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 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					
Fugitive Dust					6.2700e-003	0.0000	6.2700e-003	3.0000e-003	0.0000	3.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5600e-003	0.0174	7.5600e-003	2.0000e-005		7.7000e-004	7.7000e-004		7.0000e-004	7.0000e-004	0.0000	1.5118	1.5118	4.9000e-004	0.0000	1.5241
Total	**1.5600e-003**	**0.0174**	**7.5600e-003**	**2.0000e-005**	**6.2700e-003**	**7.7000e-004**	**7.0400e-003**	**3.0000e-003**	**7.0000e-004**	**3.7000e-003**	**0.0000**	**1.5118**	**1.5118**	**4.9000e-004**	**0.0000**	**1.5241**

3.2 Site Preparation - 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	2.0000e-005	2.0000e-005	2.1000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0522	0.0522	0.0000	0.0000	0.0527
Total	**2.0000e-005**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0522**	**0.0522**	**0.0000**	**0.0000**	**0.0527**

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					6.2700e-003	0.0000	6.2700e-003	3.0000e-003	0.0000	3.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5600e-003	0.0174	7.5600e-003	2.0000e-005		7.7000e-004	7.7000e-004		7.0000e-004	7.0000e-004	0.0000	1.5118	1.5118	4.9000e-004	0.0000	1.5241
Total	**1.5600e-003**	**0.0174**	**7.5600e-003**	**2.0000e-005**	**6.2700e-003**	**7.7000e-004**	**7.0400e-003**	**3.0000e-003**	**7.0000e-004**	**3.7000e-003**	**0.0000**	**1.5118**	**1.5118**	**4.9000e-004**	**0.0000**	**1.5241**

3.2 Site Preparation - 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	2.0000e-005	2.0000e-005	2.1000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0522	0.0522	0.0000	0.0000	0.0527
Total	**2.0000e-005**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0522**	**0.0522**	**0.0000**	**0.0000**	**0.0527**

3.3 Grading - 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					
Fugitive Dust					0.1418	0.0000	0.1418	0.0685	0.0000	0.0685	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0365	0.4043	0.1952	4.1000e-004		0.0183	0.0183		0.0169	0.0169	0.0000	36.2078	36.2078	0.0117	0.0000	36.5005
Total	**0.0365**	**0.4043**	**0.1952**	**4.1000e-004**	**0.1418**	**0.0183**	**0.1601**	**0.0685**	**0.0169**	**0.0854**	**0.0000**	**36.2078**	**36.2078**	**0.0117**	**0.0000**	**36.5005**

3.3 Grading - 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	1.0500e-003	0.0297	6.3800e-003	1.0000e-004	2.5400e-003	4.0000e-004	2.9400e-003	7.0000e-004	3.8000e-004	1.0800e-003	0.0000	9.6440	9.6440	3.2000e-004	1.5300e-003	10.1071
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	5.9000e-004	4.5000e-004	5.1900e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3052	1.3052	4.0000e-005	4.0000e-005	1.3181
Total	**1.6400e-003**	**0.0302**	**0.0116**	**1.1000e-004**	**4.1200e-003**	**4.1000e-004**	**4.5300e-003**	**1.1200e-003**	**3.9000e-004**	**1.5100e-003**	**0.0000**	**10.9491**	**10.9491**	**3.6000e-004**	**1.5700e-003**	**11.4252**

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					0.1418	0.0000	0.1418	0.0685	0.0000	0.0685	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0365	0.4043	0.1952	4.1000e-004		0.0183	0.0183		0.0169	0.0169	0.0000	36.2077	36.2077	0.0117	0.0000	36.5005
Total	**0.0365**	**0.4043**	**0.1952**	**4.1000e-004**	**0.1418**	**0.0183**	**0.1601**	**0.0685**	**0.0169**	**0.0854**	**0.0000**	**36.2077**	**36.2077**	**0.0117**	**0.0000**	**36.5005**

3.3 Grading - 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	1.0500e-003	0.0297	6.3800e-003	1.0000e-004	2.5400e-003	4.0000e-004	2.9400e-003	7.0000e-004	3.8000e-004	1.0800e-003	0.0000	9.6440	9.6440	3.2000e-004	1.5300e-003	10.1071
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	5.9000e-004	4.5000e-004	5.1900e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3052	1.3052	4.0000e-005	4.0000e-005	1.3181
Total	**1.6400e-003**	**0.0302**	**0.0116**	**1.1000e-004**	**4.1200e-003**	**4.1000e-004**	**4.5300e-003**	**1.1200e-003**	**3.9000e-004**	**1.5100e-003**	**0.0000**	**10.9491**	**10.9491**	**3.6000e-004**	**1.5700e-003**	**11.4252**

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	3.6200e-003	0.0273	0.0258	4.0000e-005		1.3700e-003	1.3700e-003		1.3200e-003	1.3200e-003	0.0000	3.6310	3.6310	6.5000e-004	0.0000	3.6472
Total	**3.6200e-003**	**0.0273**	**0.0258**	**4.0000e-005**		**1.3700e-003**	**1.3700e-003**		**1.3200e-003**	**1.3200e-003**	**0.0000**	**3.6310**	**3.6310**	**6.5000e-004**	**0.0000**	**3.6472**

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	3.0000e-005	5.3000e-004	1.5000e-004	0.0000	5.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1689	0.1689	0.0000	3.0000e-005	0.1765
Worker	1.2000e-004	9.0000e-005	1.0400e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2610	0.2610	1.0000e-005	1.0000e-005	0.2636
Total	**1.5000e-004**	**6.2000e-004**	**1.1900e-003**	**0.0000**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**1.0000e-004**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**0.4299**	**0.4299**	**1.0000e-005**	**4.0000e-005**	**0.4401**

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	3.6200e-003	0.0273	0.0258	4.0000e-005		1.3700e-003	1.3700e-003		1.3200e-003	1.3200e-003	0.0000	3.6310	3.6310	6.5000e-004	0.0000	3.6472
Total	**3.6200e-003**	**0.0273**	**0.0258**	**4.0000e-005**		**1.3700e-003**	**1.3700e-003**		**1.3200e-003**	**1.3200e-003**	**0.0000**	**3.6310**	**3.6310**	**6.5000e-004**	**0.0000**	**3.6472**

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	3.0000e-005	5.3000e-004	1.5000e-004	0.0000	5.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1689	0.1689	0.0000	3.0000e-005	0.1765
Worker	1.2000e-004	9.0000e-005	1.0400e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2610	0.2610	1.0000e-005	1.0000e-005	0.2636
Total	**1.5000e-004**	**6.2000e-004**	**1.1900e-003**	**0.0000**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**1.0000e-004**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**0.4299**	**0.4299**	**1.0000e-005**	**4.0000e-005**	**0.4401**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2143	1.6254	1.6544	2.8700e-003		0.0766	0.0766		0.0740	0.0740	0.0000	236.0500	236.0500	0.0411	0.0000	237.0778
Total	**0.2143**	**1.6254**	**1.6544**	**2.8700e-003**		**0.0766**	**0.0766**		**0.0740**	**0.0740**	**0.0000**	**236.0500**	**236.0500**	**0.0411**	**0.0000**	**237.0778**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1100e-003	0.0291	8.4600e-003	1.1000e-004	3.4100e-003	3.0000e-004	3.7100e-003	9.9000e-004	2.9000e-004	1.2700e-003	0.0000	10.7095	10.7095	2.3000e-004	1.5900e-003	11.1886
Worker	7.1400e-003	5.1400e-003	0.0622	1.8000e-004	0.0205	1.1000e-004	0.0207	5.4700e-003	1.0000e-004	5.5700e-003	0.0000	16.5234	16.5234	5.1000e-004	4.8000e-004	16.6783
Total	**8.2500e-003**	**0.0342**	**0.0706**	**2.9000e-004**	**0.0240**	**4.1000e-004**	**0.0244**	**6.4600e-003**	**3.9000e-004**	**6.8400e-003**	**0.0000**	**27.2329**	**27.2329**	**7.4000e-004**	**2.0700e-003**	**27.8668**

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	0.2143	1.6254	1.6544	2.8700e-003		0.0766	0.0766		0.0740	0.0740	0.0000	236.0497	236.0497	0.0411	0.0000	237.0775
Total	**0.2143**	**1.6254**	**1.6544**	**2.8700e-003**		**0.0766**	**0.0766**		**0.0740**	**0.0740**	**0.0000**	**236.0497**	**236.0497**	**0.0411**	**0.0000**	**237.0775**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1100e-003	0.0291	8.4600e-003	1.1000e-004	3.4100e-003	3.0000e-004	3.7100e-003	9.9000e-004	2.9000e-004	1.2700e-003	0.0000	10.7095	10.7095	2.3000e-004	1.5900e-003	11.1886
Worker	7.1400e-003	5.1400e-003	0.0622	1.8000e-004	0.0205	1.1000e-004	0.0207	5.4700e-003	1.0000e-004	5.5700e-003	0.0000	16.5234	16.5234	5.1000e-004	4.8000e-004	16.6783
Total	**8.2500e-003**	**0.0342**	**0.0706**	**2.9000e-004**	**0.0240**	**4.1000e-004**	**0.0244**	**6.4600e-003**	**3.9000e-004**	**6.8400e-003**	**0.0000**	**27.2329**	**27.2329**	**7.4000e-004**	**2.0700e-003**	**27.8668**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0731	0.5621	0.6053	1.0600e-003		0.0247	0.0247		0.0239	0.0239	0.0000	87.1676	87.1676	0.0148	0.0000	87.5376
Total	**0.0731**	**0.5621**	**0.6053**	**1.0600e-003**		**0.0247**	**0.0247**		**0.0239**	**0.0239**	**0.0000**	**87.1676**	**87.1676**	**0.0148**	**0.0000**	**87.5376**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	8.5400e-003	2.6700e-003	4.0000e-005	1.2600e-003	5.0000e-005	1.3100e-003	3.6000e-004	5.0000e-005	4.1000e-004	0.0000	3.7900	3.7900	8.0000e-005	5.6000e-004	3.9590
Worker	2.4600e-003	1.6800e-003	0.0213	6.0000e-005	7.5900e-003	4.0000e-005	7.6200e-003	2.0200e-003	4.0000e-005	2.0500e-003	0.0000	5.9453	5.9453	1.7000e-004	1.6000e-004	5.9982
Total	**2.6600e-003**	**0.0102**	**0.0240**	**1.0000e-004**	**8.8500e-003**	**9.0000e-005**	**8.9300e-003**	**2.3800e-003**	**9.0000e-005**	**2.4600e-003**	**0.0000**	**9.7353**	**9.7353**	**2.5000e-004**	**7.2000e-004**	**9.9572**

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	0.0731	0.5621	0.6053	1.0600e-003		0.0247	0.0247		0.0239	0.0239	0.0000	87.1675	87.1675	0.0148	0.0000	87.5375
Total	**0.0731**	**0.5621**	**0.6053**	**1.0600e-003**		**0.0247**	**0.0247**		**0.0239**	**0.0239**	**0.0000**	**87.1675**	**87.1675**	**0.0148**	**0.0000**	**87.5375**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	8.5400e-003	2.6700e-003	4.0000e-005	1.2600e-003	5.0000e-005	1.3100e-003	3.6000e-004	5.0000e-005	4.1000e-004	0.0000	3.7900	3.7900	8.0000e-005	5.6000e-004	3.9590
Worker	2.4600e-003	1.6800e-003	0.0213	6.0000e-005	7.5900e-003	4.0000e-005	7.6200e-003	2.0200e-003	4.0000e-005	2.0500e-003	0.0000	5.9453	5.9453	1.7000e-004	1.6000e-004	5.9982
Total	**2.6600e-003**	**0.0102**	**0.0240**	**1.0000e-004**	**8.8500e-003**	**9.0000e-005**	**8.9300e-003**	**2.3800e-003**	**9.0000e-005**	**2.4600e-003**	**0.0000**	**9.7353**	**9.7353**	**2.5000e-004**	**7.2000e-004**	**9.9572**

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	7.7400e-003	0.0774	0.0886	1.4000e-004		4.1500e-003	4.1500e-003		3.8300e-003	3.8300e-003	0.0000	11.7650	11.7650	3.7300e-003	0.0000	11.8582
Paving	3.4000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.0800e-003**	**0.0774**	**0.0886**	**1.4000e-004**		**4.1500e-003**	**4.1500e-003**		**3.8300e-003**	**3.8300e-003**	**0.0000**	**11.7650**	**11.7650**	**3.7300e-003**	**0.0000**	**11.8582**

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	3.8000e-004	2.9000e-004	3.3800e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.8484	0.8484	3.0000e-005	3.0000e-005	0.8568
Total	**3.8000e-004**	**2.9000e-004**	**3.3800e-003**	**1.0000e-005**	**1.0300e-003**	**1.0000e-005**	**1.0300e-003**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.8484**	**0.8484**	**3.0000e-005**	**3.0000e-005**	**0.8568**

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	7.7400e-003	0.0774	0.0886	1.4000e-004		4.1500e-003	4.1500e-003		3.8300e-003	3.8300e-003	0.0000	11.7650	11.7650	3.7300e-003	0.0000	11.8582
Paving	3.4000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.0800e-003**	**0.0774**	**0.0886**	**1.4000e-004**		**4.1500e-003**	**4.1500e-003**		**3.8300e-003**	**3.8300e-003**	**0.0000**	**11.7650**	**11.7650**	**3.7300e-003**	**0.0000**	**11.8582**

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	3.8000e-004	2.9000e-004	3.3800e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.8484	0.8484	3.0000e-005	3.0000e-005	0.8568
Total	**3.8000e-004**	**2.9000e-004**	**3.3800e-003**	**1.0000e-005**	**1.0300e-003**	**1.0000e-005**	**1.0300e-003**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.8484**	**0.8484**	**3.0000e-005**	**3.0000e-005**	**0.8568**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0317					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0259	0.1782	0.2294	3.8000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	32.2987	32.2987	2.1000e-003	0.0000	32.3512
Total	**0.0576**	**0.1782**	**0.2294**	**3.8000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**32.2987**	**32.2987**	**2.1000e-003**	**0.0000**	**32.3512**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3900e-003	1.0000e-003	0.0121	3.0000e-005	4.0000e-003	2.0000e-005	4.0200e-003	1.0600e-003	2.0000e-005	1.0800e-003	0.0000	3.2157	3.2157	1.0000e-004	9.0000e-005	3.2458
Total	**1.3900e-003**	**1.0000e-003**	**0.0121**	**3.0000e-005**	**4.0000e-003**	**2.0000e-005**	**4.0200e-003**	**1.0600e-003**	**2.0000e-005**	**1.0800e-003**	**0.0000**	**3.2157**	**3.2157**	**1.0000e-004**	**9.0000e-005**	**3.2458**

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	0.0317					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0259	0.1782	0.2294	3.8000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	32.2986	32.2986	2.1000e-003	0.0000	32.3512
Total	**0.0576**	**0.1782**	**0.2294**	**3.8000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**32.2986**	**32.2986**	**2.1000e-003**	**0.0000**	**32.3512**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3900e-003	1.0000e-003	0.0121	3.0000e-005	4.0000e-003	2.0000e-005	4.0200e-003	1.0600e-003	2.0000e-005	1.0800e-003	0.0000	3.2157	3.2157	1.0000e-004	9.0000e-005	3.2458
Total	**1.3900e-003**	**1.0000e-003**	**0.0121**	**3.0000e-005**	**4.0000e-003**	**2.0000e-005**	**4.0200e-003**	**1.0600e-003**	**2.0000e-005**	**1.0800e-003**	**0.0000**	**3.2157**	**3.2157**	**1.0000e-004**	**9.0000e-005**	**3.2458**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0134					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0103	0.0697	0.0969	1.6000e-004		3.7900e-003	3.7900e-003		3.7900e-003	3.7900e-003	0.0000	13.6599	13.6599	8.2000e-004	0.0000	13.6803
Total	**0.0237**	**0.0697**	**0.0969**	**1.6000e-004**		**3.7900e-003**	**3.7900e-003**		**3.7900e-003**	**3.7900e-003**	**0.0000**	**13.6599**	**13.6599**	**8.2000e-004**	**0.0000**	**13.6803**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.7000e-004	4.7500e-003	1.0000e-005	1.6900e-003	1.0000e-005	1.7000e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.3253	1.3253	4.0000e-005	4.0000e-005	1.3371
Total	**5.5000e-004**	**3.7000e-004**	**4.7500e-003**	**1.0000e-005**	**1.6900e-003**	**1.0000e-005**	**1.7000e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.3253**	**1.3253**	**4.0000e-005**	**4.0000e-005**	**1.3371**

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	0.0134					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0103	0.0697	0.0969	1.6000e-004		3.7900e-003	3.7900e-003		3.7900e-003	3.7900e-003	0.0000	13.6599	13.6599	8.2000e-004	0.0000	13.6803
Total	**0.0237**	**0.0697**	**0.0969**	**1.6000e-004**		**3.7900e-003**	**3.7900e-003**		**3.7900e-003**	**3.7900e-003**	**0.0000**	**13.6599**	**13.6599**	**8.2000e-004**	**0.0000**	**13.6803**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.7000e-004	4.7500e-003	1.0000e-005	1.6900e-003	1.0000e-005	1.7000e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.3253	1.3253	4.0000e-005	4.0000e-005	1.3371
Total	**5.5000e-004**	**3.7000e-004**	**4.7500e-003**	**1.0000e-005**	**1.6900e-003**	**1.0000e-005**	**1.7000e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.3253**	**1.3253**	**4.0000e-005**	**4.0000e-005**	**1.3371**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

Increase Transit Accessibility

Improve Pedestrian Network

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0788	0.0746	0.6132	1.0600e-003	0.1081	8.5000e-004	0.1090	0.0289	7.9000e-004	0.0297	0.0000	99.2271	99.2271	8.6900e-003	5.7300e-003	101.1528
Unmitigated	0.0945	0.1050	0.8578	1.7100e-003	0.1778	1.2900e-003	0.1791	0.0475	1.2000e-003	0.0487	0.0000	159.7421	159.7421	0.0111	7.9700e-003	162.3966

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	21.96	24.42	18.84	50,501	30,699
Condo/Townhouse	117.12	130.24	100.48	269,340	163,726
Medical Office Building	110.04	27.10	4.49	162,669	98,883
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	249.12	181.76	123.81	482,510	293,308

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Medical Office Building	9.50	7.30	7.30	29.60	51.40	19.00	60	30	10
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Condo/Townhouse	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Medical Office Building	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Other Asphalt Surfaces	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Parking Lot	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	11.9957	11.9957	1.9400e-003	2.4000e-004	12.1143
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	11.9999	11.9999	1.9400e-003	2.4000e-004	12.1186
NaturalGas Mitigated	2.4400e-003	0.0210	0.0102	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003	0.0000	24.1402	24.1402	4.6000e-004	4.4000e-004	24.2837
NaturalGas Unmitigated	2.4400e-003	0.0210	0.0102	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003	0.0000	24.1402	24.1402	4.6000e-004	4.4000e-004	24.2837

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	58547.9	3.2000e-004	2.7000e-003	1.1500e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.1243	3.1243	6.0000e-005	6.0000e-005	3.1429
Condo/Townhouse	333270	1.8000e-003	0.0154	6.5300e-003	1.0000e-004		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003	0.0000	17.7846	17.7846	3.4000e-004	3.3000e-004	17.8903
Medical Office Building	60552.3	3.3000e-004	2.9700e-003	2.4900e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.2313	3.2313	6.0000e-005	6.0000e-005	3.2505
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.4500e-003**	**0.0210**	**0.0102**	**1.4000e-004**		**1.6900e-003**	**1.6900e-003**		**1.6900e-003**	**1.6900e-003**	**0.0000**	**24.1402**	**24.1402**	**4.6000e-004**	**4.5000e-004**	**24.2837**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	58547.9	3.2000e-004	2.7000e-003	1.1500e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.1243	3.1243	6.0000e-005	6.0000e-005	3.1429
Condo/Townhouse	333270	1.8000e-003	0.0154	6.5300e-003	1.0000e-004		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003	0.0000	17.7846	17.7846	3.4000e-004	3.3000e-004	17.8903
Medical Office Building	60552.3	3.3000e-004	2.9700e-003	2.4900e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.2313	3.2313	6.0000e-005	6.0000e-005	3.2505
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.4500e-003**	**0.0210**	**0.0102**	**1.4000e-004**		**1.6900e-003**	**1.6900e-003**		**1.6900e-003**	**1.6900e-003**	**0.0000**	**24.1402**	**24.1402**	**4.6000e-004**	**4.5000e-004**	**24.2837**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	12098.3	1.1194	1.8000e-004	2.0000e-005	1.1305
Condo/Townhouse	77425	7.1638	1.1600e-003	1.4000e-004	7.2346
Medical Office Building	38070.5	3.5225	5.7000e-004	7.0000e-005	3.5573
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	2100	0.1943	3.0000e-005	0.0000	0.1962
Total		**11.9999**	**1.9400e-003**	**2.3000e-004**	**12.1186**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	12089.1	1.1185	1.8000e-004	2.0000e-005	1.1296
Condo/Townhouse	77415.8	7.1629	1.1600e-003	1.4000e-004	7.2337
Medical Office Building	38061.3	3.5216	5.7000e-004	7.0000e-005	3.5565
Other Asphalt Surfaces	-9.2	-0.0009	0.0000	0.0000	-0.0009
Parking Lot	2090.8	0.1935	3.0000e-005	0.0000	0.1954
Total		**11.9957**	**1.9400e-003**	**2.3000e-004**	**12.1143**

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	0.0803	2.6400e-003	0.2017	1.3000e-004		9.4100e-003	9.4100e-003		9.4100e-003	9.4100e-003	0.8662	0.5867	1.4529	1.6100e-003	6.0000e-005	1.5102
Unmitigated	0.0803	2.6400e-003	0.2017	1.3000e-004		9.4100e-003	9.4100e-003		9.4100e-003	9.4100e-003	0.8662	0.5867	1.4529	1.6100e-003	6.0000e-005	1.5102

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	4.5100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0438	1.0100e-003	0.0604	1.2000e-004		8.6300e-003	8.6300e-003		8.6300e-003	8.6300e-003	0.8662	0.3558	1.2220	1.3900e-003	6.0000e-005	1.2737
Landscaping	4.2700e-003	1.6300e-003	0.1413	1.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	0.2309	0.2309	2.2000e-004	0.0000	0.2364
Total	**0.0803**	**2.6400e-003**	**0.2017**	**1.3000e-004**		**9.4100e-003**	**9.4100e-003**		**9.4100e-003**	**9.4100e-003**	**0.8662**	**0.5867**	**1.4529**	**1.6100e-003**	**6.0000e-005**	**1.5102**

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	4.5100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0438	1.0100e-003	0.0604	1.2000e-004		8.6300e-003	8.6300e-003		8.6300e-003	8.6300e-003	0.8662	0.3558	1.2220	1.3900e-003	6.0000e-005	1.2737
Landscaping	4.2700e-003	1.6300e-003	0.1413	1.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	0.2309	0.2309	2.2000e-004	0.0000	0.2364
Total	**0.0803**	**2.6400e-003**	**0.2017**	**1.3000e-004**		**9.4100e-003**	**9.4100e-003**		**9.4100e-003**	**9.4100e-003**	**0.8662**	**0.5867**	**1.4529**	**1.6100e-003**	**6.0000e-005**	**1.5102**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.2912	0.0428	1.0200e-003	2.6649
Unmitigated	1.6140	0.0534	1.2800e-003	3.3311

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0.195462 / 0.123226	0.1998	6.3900e-003	1.5000e-004	0.4052
Condo/Townhouse	1.04246 / 0.657206	1.0655	0.0341	8.2000e-004	2.1610
Medical Office Building	0.396519 / 0.0755273	0.3488	0.0130	3.1000e-004	0.7649
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.6140**	**0.0534**	**1.2800e-003**	**3.3311**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0.15637 / 0.0985809	0.1598	5.1100e-003	1.2000e-004	0.3242
Condo/Townhouse	0.833972 / 0.525765	0.8524	0.0273	6.5000e-004	1.7288
Medical Office Building	0.317215 / 0.0604219	0.2790	0.0104	2.5000e-004	0.6119
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.2912**	**0.0428**	**1.0200e-003**	**2.6649**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	8.7022	0.5143	0.0000	21.5594
Unmitigated	8.7022	0.5143	0.0000	21.5594

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1.38	0.2801	0.0166	0.0000	0.6940
Condo/Townhouse	7.36	1.4940	0.0883	0.0000	3.7014
Medical Office Building	34.13	6.9281	0.4094	0.0000	17.1640
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**8.7022**	**0.5143**	**0.0000**	**21.5594**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1.38	0.2801	0.0166	0.0000	0.6940
Condo/Townhouse	7.36	1.4940	0.0883	0.0000	3.7014
Medical Office Building	34.13	6.9281	0.4094	0.0000	17.1640
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**8.7022**	**0.5143**	**0.0000**	**21.5594**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Excavators	0	8.00	260	158	0.38	Diesel

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					
Excavators	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Crespi Drive Project

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Medical Office Building	3.16	1000sqft	0.07	3,162.00	0
Other Asphalt Surfaces	5.57	1000sqft	0.13	5,566.00	0
Parking Lot	15.00	Space	0.13	6,000.00	0
Apartments Low Rise	3.00	Dwelling Unit	0.00	3,692.00	9
Condo/Townhouse	16.00	Dwelling Unit	0.72	36.84	46

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.983	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on site plan.

Construction Phase - Phasing adjusted per applicant-provided information.

Grading -

Energy Use - Title 24 energy intensities adjusted to reflect compliance with the 2019 CBSC.

Mobile Land Use Mitigation - Project would improve pedestrian network connectivity, transit accessbility, and diversity of land uses.

Energy Mitigation -

Water Mitigation - Water conservation strategy applied to reflect compliance with MWELO and CalGreen Code.

Operational Off-Road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	4.00	40.00
tblConstructionPhase	NumDays	200.00	360.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	10.00	360.00
tblConstructionPhase	PhaseEndDate	10/8/2021	11/29/2021
tblConstructionPhase	PhaseEndDate	7/15/2022	5/15/2023
tblConstructionPhase	PhaseEndDate	7/29/2022	12/27/2021
tblConstructionPhase	PhaseEndDate	8/12/2022	5/30/2023
tblConstructionPhase	PhaseStartDate	10/9/2021	12/28/2021
tblConstructionPhase	PhaseStartDate	7/16/2022	11/30/2021
tblConstructionPhase	PhaseStartDate	7/30/2022	1/12/2022
tblGrading	MaterialImported	0.00	2,400.00
tblLandUse	LandUseSquareFeet	5,570.00	5,566.00
tblLandUse	LandUseSquareFeet	3,000.00	3,692.00
tblLandUse	LandUseSquareFeet	16,000.00	36.84
tblLandUse	LotAcreage	0.19	0.00
tblLandUse	LotAcreage	1.00	0.72
tblProjectCharacteristics	CO2IntensityFactor	203.98	203.983

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.9113	21.6675	13.5387	0.0262	7.3027	0.9363	8.2389	3.4835	0.8621	4.3456	0.0000	2,603.9397	2,603.9397	0.6655	0.0862	2,646.2576
2022	2.1825	14.1694	15.2246	0.0276	0.2243	0.6739	0.8982	0.0601	0.6537	0.7138	0.0000	2,553.3204	2,553.3204	0.3738	0.0179	2,568.0086
2023	2.0350	13.2222	15.0507	0.0275	0.2243	0.5873	0.8116	0.0601	0.5695	0.6296	0.0000	2,545.1429	2,545.1429	0.3630	0.0170	2,559.2854
Maximum	**2.1825**	**21.6675**	**15.2246**	**0.0276**	**7.3027**	**0.9363**	**8.2389**	**3.4835**	**0.8621**	**4.3456**	**0.0000**	**2,603.9397**	**2,603.9397**	**0.6655**	**0.0862**	**2,646.2576**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.9113	21.6675	13.5387	0.0262	7.3027	0.9363	8.2389	3.4835	0.8621	4.3456	0.0000	2,603.9397	2,603.9397	0.6655	0.0862	2,646.2576
2022	2.1825	14.1694	15.2246	0.0276	0.2243	0.6739	0.8982	0.0601	0.6537	0.7138	0.0000	2,553.3204	2,553.3204	0.3738	0.0179	2,568.0086
2023	2.0350	13.2222	15.0507	0.0275	0.2243	0.5873	0.8116	0.0601	0.5695	0.6296	0.0000	2,545.1429	2,545.1429	0.3630	0.0170	2,559.2854
Maximum	**2.1825**	**21.6675**	**15.2246**	**0.0276**	**7.3027**	**0.9363**	**8.2389**	**3.4835**	**0.8621**	**4.3456**	**0.0000**	**2,603.9397**	**2,603.9397**	**0.6655**	**0.0862**	**2,646.2576**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.0377	0.1908	11.8941	0.0200		1.4743	1.4743		1.4743	1.4743	159.0461	73.2395	232.2855	0.2204	0.0112	241.1449
Energy	0.0134	0.1152	0.0558	7.3000e-004		9.2300e-003	9.2300e-003		9.2300e-003	9.2300e-003		145.8084	145.8084	2.7900e-003	2.6700e-003	146.6749
Mobile	0.6898	0.6300	5.5711	0.0118	1.2051	8.4400e-003	1.2135	0.3209	7.8600e-003	0.3288		1,210.5188	1,210.5188	0.0745	0.0544	1,228.5888
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**8.7409**	**0.9360**	**17.5209**	**0.0325**	**1.2051**	**1.4920**	**2.6970**	**0.3209**	**1.4914**	**1.8123**	**159.0461**	**1,429.5667**	**1,588.6128**	**0.2977**	**0.0683**	**1,616.4086**

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	lb/day										lb/day					
Area	8.0377	0.1908	11.8941	0.0200		1.4743	1.4743		1.4743	1.4743	159.0461	73.2395	232.2855	0.2204	0.0112	241.1449
Energy	0.0134	0.1152	0.0558	7.3000e-004		9.2300e-003	9.2300e-003		9.2300e-003	9.2300e-003		145.8084	145.8084	2.7900e-003	2.6700e-003	146.6749
Mobile	0.5900	0.4475	3.8628	7.3100e-003	0.7325	5.5500e-003	0.7381	0.1951	5.1600e-003	0.2003		750.9661	750.9661	0.0570	0.0390	764.0002
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**8.6410**	**0.7536**	**15.8126**	**0.0280**	**0.7325**	**1.4891**	**2.2216**	**0.1951**	**1.4887**	**1.6838**	**159.0461**	**970.0140**	**1,129.0601**	**0.2802**	**0.0529**	**1,151.8201**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.14**	**19.49**	**9.75**	**13.76**	**39.21**	**0.19**	**17.63**	**39.21**	**0.18**	**7.09**	**0.00**	**32.15**	**28.93**	**5.88**	**22.59**	**28.74**

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	10/1/2021	10/4/2021	5	2	
2	Grading	Grading	10/5/2021	11/29/2021	5	40	
3	Building Construction	Building Construction	12/28/2021	5/15/2023	5	360	
4	Paving	Paving	11/30/2021	12/27/2021	5	20	

5	Architectural Coating	Architectural Coating	1/12/2022	5/30/2023		5	360	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 40

Acres of Paving: 0.26

Residential Indoor: 7,551; Residential Outdoor: 2,517; Non-Residential Indoor: 4,743; Non-Residential Outdoor: 1,581; Striped Parking Area: 694 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	300.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	20.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041		1,666.517 4	1,666.517 4	0.5390		1,679.992 0
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**6.2662**	**0.7654**	**7.0316**	**3.0041**	**0.7041**	**3.7082**		**1,666.517 4**	**1,666.517 4**	**0.5390**		**1,679.992 0**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0251	0.0159	0.2253	6.1000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		61.4647	61.4647	1.8200e-003	1.6200e-003	61.9923
Total	**0.0251**	**0.0159**	**0.2253**	**6.1000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**61.4647**	**61.4647**	**1.8200e-003**	**1.6200e-003**	**61.9923**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041	0.0000	1,666.5174	1,666.5174	0.5390		1,679.9920
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**6.2662**	**0.7654**	**7.0316**	**3.0041**	**0.7041**	**3.7082**	**0.0000**	**1,666.5174**	**1,666.5174**	**0.5390**		**1,679.9920**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0251	0.0159	0.2253	6.1000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		61.4647	61.4647	1.8200e-003	1.6200e-003	61.9923
Total	**0.0251**	**0.0159**	**0.2253**	**6.1000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**61.4647**	**61.4647**	**1.8200e-003**	**1.6200e-003**	**61.9923**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0894	0.0000	7.0894	3.4258	0.0000	3.4258			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425		1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**7.0894**	**0.9158**	**8.0051**	**3.4258**	**0.8425**	**4.2683**		**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0528	1.4341	0.3170	4.8900e-003	0.1312	0.0201	0.1512	0.0360	0.0192	0.0551		531.4974	531.4974	0.0178	0.0842	557.0202
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
Worker	0.0314	0.0199	0.2817	7.6000e-004	0.0822	4.5000e-004	0.0826	0.0218	4.2000e-004	0.0222		76.8308	76.8308	2.2700e-003	2.0200e-003	77.4904
Total	**0.0843**	**1.4540**	**0.5987**	**5.6500e-003**	**0.2133**	**0.0205**	**0.2338**	**0.0577**	**0.0196**	**0.0773**		**608.3282**	**608.3282**	**0.0201**	**0.0862**	**634.5106**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0894	0.0000	7.0894	3.4258	0.0000	3.4258			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425	0.0000	1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**7.0894**	**0.9158**	**8.0051**	**3.4258**	**0.8425**	**4.2683**	**0.0000**	**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0528	1.4341	0.3170	4.8900e-003	0.1312	0.0201	0.1512	0.0360	0.0192	0.0551		531.4974	531.4974	0.0178	0.0842	557.0202
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
Worker	0.0314	0.0199	0.2817	7.6000e-004	0.0822	4.5000e-004	0.0826	0.0218	4.2000e-004	0.0222		76.8308	76.8308	2.2700e-003	2.0200e-003	77.4904
Total	**0.0843**	**1.4540**	**0.5987**	**5.6500e-003**	**0.2133**	**0.0205**	**0.2338**	**0.0577**	**0.0196**	**0.0773**		**608.3282**	**608.3282**	**0.0201**	**0.0862**	**634.5106**

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	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0134	0.2573	0.0761	8.7000e-004	0.0271	4.2900e-003	0.0314	7.8000e-003	4.1100e-003	0.0119		93.0924	93.0924	2.1900e-003	0.0138	97.2628
Worker	0.0628	0.0399	0.5633	1.5200e-003	0.1643	9.1000e-004	0.1652	0.0436	8.4000e-004	0.0444		153.6617	153.6617	4.5400e-003	4.0500e-003	154.9808
Total	**0.0762**	**0.2972**	**0.6394**	**2.3900e-003**	**0.1914**	**5.2000e-003**	**0.1966**	**0.0514**	**4.9500e-003**	**0.0563**		**246.7540**	**246.7540**	**6.7300e-003**	**0.0179**	**252.2435**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0134	0.2573	0.0761	8.7000e-004	0.0271	4.2900e-003	0.0314	7.8000e-003	4.1100e-003	0.0119		93.0924	93.0924	2.1900e-003	0.0138	97.2628
Worker	0.0628	0.0399	0.5633	1.5200e-003	0.1643	9.1000e-004	0.1652	0.0436	8.4000e-004	0.0444		153.6617	153.6617	4.5400e-003	4.0500e-003	154.9808
Total	**0.0762**	**0.2972**	**0.6394**	**2.3900e-003**	**0.1914**	**5.2000e-003**	**0.1966**	**0.0514**	**4.9500e-003**	**0.0563**		**246.7540**	**246.7540**	**6.7300e-003**	**0.0179**	**252.2435**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.6300e-003	0.2158	0.0641	8.5000e-004	0.0271	2.3000e-003	0.0294	7.8000e-003	2.2000e-003	0.0100		90.7943	90.7943	1.9800e-003	0.0135	94.8529
Worker	0.0582	0.0351	0.5170	1.4700e-003	0.1643	8.6000e-004	0.1652	0.0436	7.9000e-004	0.0444		149.6126	149.6126	4.0800e-003	3.7300e-003	150.8263
Total	**0.0668**	**0.2509**	**0.5811**	**2.3200e-003**	**0.1914**	**3.1600e-003**	**0.1945**	**0.0514**	**2.9900e-003**	**0.0544**		**240.4069**	**240.4069**	**6.0600e-003**	**0.0172**	**245.6791**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.6300e-003	0.2158	0.0641	8.5000e-004	0.0271	2.3000e-003	0.0294	7.8000e-003	2.2000e-003	0.0100		90.7943	90.7943	1.9800e-003	0.0135	94.8529
Worker	0.0582	0.0351	0.5170	1.4700e-003	0.1643	8.6000e-004	0.1652	0.0436	7.9000e-004	0.0444		149.6126	149.6126	4.0800e-003	3.7300e-003	150.8263
Total	**0.0668**	**0.2509**	**0.5811**	**2.3200e-003**	**0.1914**	**3.1600e-003**	**0.1945**	**0.0514**	**2.9900e-003**	**0.0544**		**240.4069**	**240.4069**	**6.0600e-003**	**0.0172**	**245.6791**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3500e-003	0.1716	0.0548	8.1000e-004	0.0271	1.0400e-003	0.0281	7.8000e-003	9.9000e-004	8.7900e-003		86.9844	86.9844	1.7800e-003	0.0129	90.8609
Worker	0.0541	0.0311	0.4781	1.4200e-003	0.1643	8.1000e-004	0.1651	0.0436	7.5000e-004	0.0443		145.7690	145.7690	3.6800e-003	3.4600e-003	146.8915
Total	**0.0585**	**0.2026**	**0.5329**	**2.2300e-003**	**0.1914**	**1.8500e-003**	**0.1932**	**0.0514**	**1.7400e-003**	**0.0531**		**232.7534**	**232.7534**	**5.4600e-003**	**0.0163**	**237.7524**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3500e-003	0.1716	0.0548	8.1000e-004	0.0271	1.0400e-003	0.0281	7.8000e-003	9.9000e-004	8.7900e-003		86.9844	86.9844	1.7800e-003	0.0129	90.8609
Worker	0.0541	0.0311	0.4781	1.4200e-003	0.1643	8.1000e-004	0.1651	0.0436	7.5000e-004	0.0443		145.7690	145.7690	3.6800e-003	3.4600e-003	146.8915
Total	**0.0585**	**0.2026**	**0.5329**	**2.2300e-003**	**0.1914**	**1.8500e-003**	**0.1932**	**0.0514**	**1.7400e-003**	**0.0531**		**232.7534**	**232.7534**	**5.4600e-003**	**0.0163**	**237.7524**

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	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830		1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0341					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8079**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**		**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0409	0.0259	0.3661	9.9000e-004	0.1068	5.9000e-004	0.1074	0.0283	5.4000e-004	0.0289		99.8801	99.8801	2.9500e-003	2.6300e-003	100.7375
Total	**0.0409**	**0.0259**	**0.3661**	**9.9000e-004**	**0.1068**	**5.9000e-004**	**0.1074**	**0.0283**	**5.4000e-004**	**0.0289**		**99.8801**	**99.8801**	**2.9500e-003**	**2.6300e-003**	**100.7375**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830	0.0000	1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0341					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8079**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**	**0.0000**	**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0409	0.0259	0.3661	9.9000e-004	0.1068	5.9000e-004	0.1074	0.0283	5.4000e-004	0.0289		99.8801	99.8801	2.9500e-003	2.6300e-003	100.7375
Total	**0.0409**	**0.0259**	**0.3661**	**9.9000e-004**	**0.1068**	**5.9000e-004**	**0.1074**	**0.0283**	**5.4000e-004**	**0.0289**		**99.8801**	**99.8801**	**2.9500e-003**	**2.6300e-003**	**100.7375**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.2508					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**0.4554**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0116	7.0200e-003	0.1034	2.9000e-004	0.0329	1.7000e-004	0.0330	8.7200e-003	1.6000e-004	8.8700e-003		29.9225	29.9225	8.2000e-004	7.5000e-004	30.1653
Total	**0.0116**	**7.0200e-003**	**0.1034**	**2.9000e-004**	**0.0329**	**1.7000e-004**	**0.0330**	**8.7200e-003**	**1.6000e-004**	**8.8700e-003**		**29.9225**	**29.9225**	**8.2000e-004**	**7.5000e-004**	**30.1653**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.2508					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**0.4554**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0116	7.0200e-003	0.1034	2.9000e-004	0.0329	1.7000e-004	0.0330	8.7200e-003	1.6000e-004	8.8700e-003		29.9225	29.9225	8.2000e-004	7.5000e-004	30.1653
Total	**0.0116**	**7.0200e-003**	**0.1034**	**2.9000e-004**	**0.0329**	**1.7000e-004**	**0.0330**	**8.7200e-003**	**1.6000e-004**	**8.8700e-003**		**29.9225**	**29.9225**	**8.2000e-004**	**7.5000e-004**	**30.1653**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.2508					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**0.4425**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0108	6.2100e-003	0.0956	2.8000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.5000e-004	8.8700e-003		29.1538	29.1538	7.4000e-004	6.9000e-004	29.3783
Total	**0.0108**	**6.2100e-003**	**0.0956**	**2.8000e-004**	**0.0329**	**1.6000e-004**	**0.0330**	**8.7200e-003**	**1.5000e-004**	**8.8700e-003**		**29.1538**	**29.1538**	**7.4000e-004**	**6.9000e-004**	**29.3783**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.2508					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**0.4425**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0108	6.2100e-003	0.0956	2.8000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.5000e-004	8.8700e-003		29.1538	29.1538	7.4000e-004	6.9000e-004	29.3783
Total	**0.0108**	**6.2100e-003**	**0.0956**	**2.8000e-004**	**0.0329**	**1.6000e-004**	**0.0330**	**8.7200e-003**	**1.5000e-004**	**8.8700e-003**		**29.1538**	**29.1538**	**7.4000e-004**	**6.9000e-004**	**29.3783**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

Increase Transit Accessibility

Improve Pedestrian Network

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5900	0.4475	3.8628	7.3100e-003	0.7325	5.5500e-003	0.7381	0.1951	5.1600e-003	0.2003		750.9661	750.9661	0.0570	0.0390	764.0002
Unmitigated	0.6898	0.6300	5.5711	0.0118	1.2051	8.4400e-003	1.2135	0.3209	7.8600e-003	0.3288		1,210.5188	1,210.5188	0.0745	0.0544	1,228.5888

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	21.96	24.42	18.84	50,501	30,699
Condo/Townhouse	117.12	130.24	100.48	269,340	163,726
Medical Office Building	110.04	27.10	4.49	162,669	98,883
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	249.12	181.76	123.81	482,510	293,308

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Medical Office Building	9.50	7.30	7.30	29.60	51.40	19.00	60	30	10
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Condo/Townhouse	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Medical Office Building	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Other Asphalt Surfaces	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Parking Lot	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0134	0.1152	0.0558	7.3000e-004		9.2300e-003	9.2300e-003		9.2300e-003	9.2300e-003		145.8084	145.8084	2.7900e-003	2.6700e-003	146.6749
NaturalGas Unmitigated	0.0134	0.1152	0.0558	7.3000e-004		9.2300e-003	9.2300e-003		9.2300e-003	9.2300e-003		145.8084	145.8084	2.7900e-003	2.6700e-003	146.6749

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	160.405	1.7300e-003	0.0148	6.2900e-003	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		18.8712	18.8712	3.6000e-004	3.5000e-004	18.9834
Condo/Townhouse	913.07	9.8500e-003	0.0842	0.0358	5.4000e-004		6.8000e-003	6.8000e-003		6.8000e-003	6.8000e-003		107.4200	107.4200	2.0600e-003	1.9700e-003	108.0583
Medical Office Building	165.897	1.7900e-003	0.0163	0.0137	1.0000e-004		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003		19.5173	19.5173	3.7000e-004	3.6000e-004	19.6332
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0134**	**0.1152**	**0.0558**	**7.3000e-004**		**9.2400e-003**	**9.2400e-003**		**9.2400e-003**	**9.2400e-003**		**145.8084**	**145.8084**	**2.7900e-003**	**2.6800e-003**	**146.6749**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0.160405	1.7300e-003	0.0148	6.2900e-003	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		18.8712	18.8712	3.6000e-004	3.5000e-004	18.9834
Condo/Townhouse	0.91307	9.8500e-003	0.0842	0.0358	5.4000e-004		6.8000e-003	6.8000e-003		6.8000e-003	6.8000e-003		107.4200	107.4200	2.0600e-003	1.9700e-003	108.0583
Medical Office Building	0.165897	1.7900e-003	0.0163	0.0137	1.0000e-004		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003		19.5173	19.5173	3.7000e-004	3.6000e-004	19.6332
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0134**	**0.1152**	**0.0558**	**7.3000e-004**		**9.2400e-003**	**9.2400e-003**		**9.2400e-003**	**9.2400e-003**		**145.8084**	**145.8084**	**2.7900e-003**	**2.6800e-003**	**146.6749**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.0377	0.1908	11.8941	0.0200		1.4743	1.4743		1.4743	1.4743	159.0461	73.2395	232.2855	0.2204	0.0112	241.1449
Unmitigated	8.0377	0.1908	11.8941	0.0200		1.4743	1.4743		1.4743	1.4743	159.0461	73.2395	232.2855	0.2204	0.0112	241.1449

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0247					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1516					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.8139	0.1727	10.3238	0.0199		1.4656	1.4656		1.4656	1.4656	159.0461	70.4118	229.4578	0.2177	0.0112	238.2491
Landscaping	0.0475	0.0181	1.5703	8.0000e-005		8.6900e-003	8.6900e-003		8.6900e-003	8.6900e-003		2.8277	2.8277	2.7300e-003		2.8959
Total	**8.0377**	**0.1908**	**11.8941**	**0.0200**		**1.4743**	**1.4743**		**1.4743**	**1.4743**	**159.0461**	**73.2395**	**232.2855**	**0.2204**	**0.0112**	**241.1449**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0247					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1516					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.8139	0.1727	10.3238	0.0199		1.4656	1.4656		1.4656	1.4656	159.0461	70.4118	229.4578	0.2177	0.0112	238.2491
Landscaping	0.0475	0.0181	1.5703	8.0000e-005		8.6900e-003	8.6900e-003		8.6900e-003	8.6900e-003		2.8277	2.8277	2.7300e-003		2.8959
Total	**8.0377**	**0.1908**	**11.8941**	**0.0200**		**1.4743**	**1.4743**		**1.4743**	**1.4743**	**159.0461**	**73.2395**	**232.2855**	**0.2204**	**0.0112**	**241.1449**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Excavators	0	8.00	260	158	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Excavators	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Crespi Drive Project

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Medical Office Building	3.16	1000sqft	0.07	3,162.00	0
Other Asphalt Surfaces	5.57	1000sqft	0.13	5,566.00	0
Parking Lot	15.00	Space	0.13	6,000.00	0
Apartments Low Rise	3.00	Dwelling Unit	0.00	3,692.00	9
Condo/Townhouse	16.00	Dwelling Unit	0.72	36.84	46

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.983	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on site plan.

Construction Phase - Phasing adjusted per applicant-provided information.

Grading -

Energy Use - Title 24 energy intensities adjusted to reflect compliance with the 2019 CBSC.

Mobile Land Use Mitigation - Project would improve pedestrian network connectivity, transit accessbility, and diversity of land uses.

Energy Mitigation -

Water Mitigation - Water conservation strategy applied to reflect compliance with MWELO and CalGreen Code.

Operational Off-Road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	4.00	40.00
tblConstructionPhase	NumDays	200.00	360.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	10.00	360.00
tblConstructionPhase	PhaseEndDate	10/8/2021	11/29/2021
tblConstructionPhase	PhaseEndDate	7/15/2022	5/15/2023
tblConstructionPhase	PhaseEndDate	7/29/2022	12/27/2021
tblConstructionPhase	PhaseEndDate	8/12/2022	5/30/2023
tblConstructionPhase	PhaseStartDate	10/9/2021	12/28/2021
tblConstructionPhase	PhaseStartDate	7/16/2022	11/30/2021
tblConstructionPhase	PhaseStartDate	7/30/2022	1/12/2022
tblGrading	MaterialImported	0.00	2,400.00
tblLandUse	LandUseSquareFeet	5,570.00	5,566.00
tblLandUse	LandUseSquareFeet	3,000.00	3,692.00
tblLandUse	LandUseSquareFeet	16,000.00	36.84
tblLandUse	LotAcreage	0.19	0.00
tblLandUse	LotAcreage	1.00	0.72
tblProjectCharacteristics	CO2IntensityFactor	203.98	203.983

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.9112	21.7503	13.5126	0.0262	7.3027	0.9363	8.2390	3.4835	0.8621	4.3456	0.0000	2,598.547 9	2,598.547 9	0.6657	0.0865	2,640.969 3
2022	2.1839	14.1911	15.1981	0.0275	0.2243	0.6739	0.8982	0.0601	0.6537	0.7138	0.0000	2,540.599 3	2,540.599 3	0.3744	0.0186	2,555.512 0
2023	2.0365	13.2409	15.0283	0.0274	0.2243	0.5873	0.8116	0.0601	0.5695	0.6296	0.0000	2,532.868 5	2,532.868 5	0.3636	0.0177	2,547.222 3
Maximum	**2.1839**	**21.7503**	**15.1981**	**0.0275**	**7.3027**	**0.9363**	**8.2390**	**3.4835**	**0.8621**	**4.3456**	**0.0000**	**2,598.547 9**	**2,598.547 9**	**0.6657**	**0.0865**	**2,640.969 3**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.9112	21.7503	13.5126	0.0262	7.3027	0.9363	8.2390	3.4835	0.8621	4.3456	0.0000	2,598.547 9	2,598.547 9	0.6657	0.0865	2,640.969 3
2022	2.1839	14.1911	15.1981	0.0275	0.2243	0.6739	0.8982	0.0601	0.6537	0.7138	0.0000	2,540.599 3	2,540.599 3	0.3744	0.0186	2,555.512 0
2023	2.0365	13.2409	15.0283	0.0274	0.2243	0.5873	0.8116	0.0601	0.5695	0.6296	0.0000	2,532.868 5	2,532.868 5	0.3636	0.0177	2,547.222 3
Maximum	**2.1839**	**21.7503**	**15.1981**	**0.0275**	**7.3027**	**0.9363**	**8.2390**	**3.4835**	**0.8621**	**4.3456**	**0.0000**	**2,598.547 9**	**2,598.547 9**	**0.6657**	**0.0865**	**2,640.969 3**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.0377	0.1908	11.8941	0.0200		1.4743	1.4743		1.4743	1.4743	159.0461	73.2395	232.2855	0.2204	0.0112	241.1449
Energy	0.0134	0.1152	0.0558	7.3000e-004		9.2300e-003	9.2300e-003		9.2300e-003	9.2300e-003		145.8084	145.8084	2.7900e-003	2.6700e-003	146.6749
Mobile	0.6197	0.7268	5.9867	0.0111	1.2051	8.4500e-003	1.2135	0.3209	7.8700e-003	0.3288		1,143.0002	1,143.0002	0.0852	0.0598	1,162.9520
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**8.6708**	**1.0329**	**17.9365**	**0.0318**	**1.2051**	**1.4920**	**2.6970**	**0.3209**	**1.4914**	**1.8123**	**159.0461**	**1,362.0481**	**1,521.0941**	**0.3084**	**0.0737**	**1,550.7719**

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	lb/day										lb/day					
Area	8.0377	0.1908	11.8941	0.0200		1.4743	1.4743		1.4743	1.4743	159.0461	73.2395	232.2855	0.2204	0.0112	241.1449
Energy	0.0134	0.1152	0.0558	7.3000e-004		9.2300e-003	9.2300e-003		9.2300e-003	9.2300e-003		145.8084	145.8084	2.7900e-003	2.6700e-003	146.6749
Mobile	0.5147	0.5177	4.3415	6.9100e-003	0.7325	5.5500e-003	0.7381	0.1951	5.1700e-003	0.2003		710.4022	710.4022	0.0675	0.0431	724.9384
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**8.5658**	**0.8237**	**16.2913**	**0.0276**	**0.7325**	**1.4891**	**2.2216**	**0.1951**	**1.4887**	**1.6838**	**159.0461**	**929.4501**	**1,088.4962**	**0.2906**	**0.0570**	**1,112.7582**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.21**	**20.25**	**9.17**	**13.23**	**39.21**	**0.19**	**17.63**	**39.21**	**0.18**	**7.09**	**0.00**	**31.76**	**28.44**	**5.75**	**22.63**	**28.24**

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	10/1/2021	10/4/2021	5	2	
2	Grading	Grading	10/5/2021	11/29/2021	5	40	
3	Building Construction	Building Construction	12/28/2021	5/15/2023	5	360	
4	Paving	Paving	11/30/2021	12/27/2021	5	20	

5	Architectural Coating	Architectural Coating	1/12/2022	5/30/2023		5	360	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 40

Acres of Paving: 0.26

Residential Indoor: 7,551; Residential Outdoor: 2,517; Non-Residential Indoor: 4,743; Non-Residential Outdoor: 1,581; Striped Parking Area: 694 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	300.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	20.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041		1,666.517 4	1,666.517 4	0.5390		1,679.992 0
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**6.2662**	**0.7654**	**7.0316**	**3.0041**	**0.7041**	**3.7082**		**1,666.517 4**	**1,666.517 4**	**0.5390**		**1,679.992 0**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0256	0.0197	0.2139	5.6000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		57.0849	57.0849	2.0500e-003	1.8600e-003	57.6918
Total	**0.0256**	**0.0197**	**0.2139**	**5.6000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**57.0849**	**57.0849**	**2.0500e-003**	**1.8600e-003**	**57.6918**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041	0.0000	1,666.5174	1,666.5174	0.5390		1,679.9920
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**6.2662**	**0.7654**	**7.0316**	**3.0041**	**0.7041**	**3.7082**	**0.0000**	**1,666.5174**	**1,666.5174**	**0.5390**		**1,679.9920**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0256	0.0197	0.2139	5.6000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		57.0849	57.0849	2.0500e-003	1.8600e-003	57.6918
Total	**0.0256**	**0.0197**	**0.2139**	**5.6000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**57.0849**	**57.0849**	**2.0500e-003**	**1.8600e-003**	**57.6918**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0894	0.0000	7.0894	3.4258	0.0000	3.4258			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425		1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**7.0894**	**0.9158**	**8.0051**	**3.4258**	**0.8425**	**4.2683**		**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0521	1.5122	0.3218	4.8900e-003	0.1312	0.0201	0.1512	0.0360	0.0192	0.0552		531.5804	531.5804	0.0178	0.0842	557.1076
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
Worker	0.0320	0.0246	0.2674	7.0000e-004	0.0822	4.5000e-004	0.0826	0.0218	4.2000e-004	0.0222		71.3561	71.3561	2.5600e-003	2.3300e-003	72.1148
Total	**0.0841**	**1.5368**	**0.5892**	**5.5900e-003**	**0.2133**	**0.0205**	**0.2338**	**0.0577**	**0.0196**	**0.0774**		**602.9365**	**602.9365**	**0.0203**	**0.0865**	**629.2223**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0894	0.0000	7.0894	3.4258	0.0000	3.4258			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425	0.0000	1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**7.0894**	**0.9158**	**8.0051**	**3.4258**	**0.8425**	**4.2683**	**0.0000**	**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0521	1.5122	0.3218	4.8900e-003	0.1312	0.0201	0.1512	0.0360	0.0192	0.0552		531.5804	531.5804	0.0178	0.0842	557.1076
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
Worker	0.0320	0.0246	0.2674	7.0000e-004	0.0822	4.5000e-004	0.0826	0.0218	4.2000e-004	0.0222		71.3561	71.3561	2.5600e-003	2.3300e-003	72.1148
Total	**0.0841**	**1.5368**	**0.5892**	**5.5900e-003**	**0.2133**	**0.0205**	**0.2338**	**0.0577**	**0.0196**	**0.0774**		**602.9365**	**602.9365**	**0.0203**	**0.0865**	**629.2223**

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	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0133	0.2712	0.0784	8.7000e-004	0.0271	4.3000e-003	0.0314	7.8000e-003	4.1200e-003	0.0119		93.1006	93.1006	2.1900e-003	0.0138	97.2761
Worker	0.0639	0.0492	0.5348	1.4100e-003	0.1643	9.1000e-004	0.1652	0.0436	8.4000e-004	0.0444		142.7122	142.7122	5.1200e-003	4.6600e-003	144.2295
Total	**0.0773**	**0.3204**	**0.6132**	**2.2800e-003**	**0.1914**	**5.2100e-003**	**0.1966**	**0.0514**	**4.9600e-003**	**0.0563**		**235.8128**	**235.8128**	**7.3100e-003**	**0.0185**	**241.5056**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0133	0.2712	0.0784	8.7000e-004	0.0271	4.3000e-003	0.0314	7.8000e-003	4.1200e-003	0.0119		93.1006	93.1006	2.1900e-003	0.0138	97.2761
Worker	0.0639	0.0492	0.5348	1.4100e-003	0.1643	9.1000e-004	0.1652	0.0436	8.4000e-004	0.0444		142.7122	142.7122	5.1200e-003	4.6600e-003	144.2295
Total	**0.0773**	**0.3204**	**0.6132**	**2.2800e-003**	**0.1914**	**5.2100e-003**	**0.1966**	**0.0514**	**4.9600e-003**	**0.0563**		**235.8128**	**235.8128**	**7.3100e-003**	**0.0185**	**241.5056**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.5400e-003	0.2276	0.0663	8.5000e-004	0.0271	2.3000e-003	0.0294	7.8000e-003	2.2000e-003	0.0100		90.8311	90.8311	1.9700e-003	0.0135	94.8955
Worker	0.0594	0.0433	0.4932	1.3700e-003	0.1643	8.6000e-004	0.1652	0.0436	7.9000e-004	0.0444		138.9811	138.9811	4.6200e-003	4.3000e-003	140.3769
Total	**0.0680**	**0.2709**	**0.5595**	**2.2200e-003**	**0.1914**	**3.1600e-003**	**0.1945**	**0.0514**	**2.9900e-003**	**0.0544**		**229.8122**	**229.8122**	**6.5900e-003**	**0.0178**	**235.2724**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.5400e-003	0.2276	0.0663	8.5000e-004	0.0271	2.3000e-003	0.0294	7.8000e-003	2.2000e-003	0.0100		90.8311	90.8311	1.9700e-003	0.0135	94.8955
Worker	0.0594	0.0433	0.4932	1.3700e-003	0.1643	8.6000e-004	0.1652	0.0436	7.9000e-004	0.0444		138.9811	138.9811	4.6200e-003	4.3000e-003	140.3769
Total	**0.0680**	**0.2709**	**0.5595**	**2.2200e-003**	**0.1914**	**3.1600e-003**	**0.1945**	**0.0514**	**2.9900e-003**	**0.0544**		**229.8122**	**229.8122**	**6.5900e-003**	**0.0178**	**235.2724**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.787 7	2,001.787 7	0.3399		2,010.285 8
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.787 7**	**2,001.787 7**	**0.3399**		**2,010.285 8**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2000e-003	0.1815	0.0567	8.1000e-004	0.0271	1.0400e-003	0.0281	7.8000e-003	1.0000e-003	8.8000e-003		87.1088	87.1088	1.7700e-003	0.0129	90.9948
Worker	0.0555	0.0383	0.4579	1.3200e-003	0.1643	8.1000e-004	0.1651	0.0436	7.5000e-004	0.0443		135.4366	135.4366	4.1800e-003	3.9800e-003	136.7273
Total	**0.0597**	**0.2199**	**0.5146**	**2.1300e-003**	**0.1914**	**1.8500e-003**	**0.1932**	**0.0514**	**1.7500e-003**	**0.0531**		**222.5454**	**222.5454**	**5.9500e-003**	**0.0169**	**227.7221**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2000e-003	0.1815	0.0567	8.1000e-004	0.0271	1.0400e-003	0.0281	7.8000e-003	1.0000e-003	8.8000e-003		87.1088	87.1088	1.7700e-003	0.0129	90.9948
Worker	0.0555	0.0383	0.4579	1.3200e-003	0.1643	8.1000e-004	0.1651	0.0436	7.5000e-004	0.0443		135.4366	135.4366	4.1800e-003	3.9800e-003	136.7273
Total	**0.0597**	**0.2199**	**0.5146**	**2.1300e-003**	**0.1914**	**1.8500e-003**	**0.1932**	**0.0514**	**1.7500e-003**	**0.0531**		**222.5454**	**222.5454**	**5.9500e-003**	**0.0169**	**227.7221**

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	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830		1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0341					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8079**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**		**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0416	0.0320	0.3476	9.2000e-004	0.1068	5.9000e-004	0.1074	0.0283	5.4000e-004	0.0289		92.7629	92.7629	3.3300e-003	3.0300e-003	93.7492
Total	**0.0416**	**0.0320**	**0.3476**	**9.2000e-004**	**0.1068**	**5.9000e-004**	**0.1074**	**0.0283**	**5.4000e-004**	**0.0289**		**92.7629**	**92.7629**	**3.3300e-003**	**3.0300e-003**	**93.7492**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830	0.0000	1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0341					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8079**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**	**0.0000**	**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0416	0.0320	0.3476	9.2000e-004	0.1068	5.9000e-004	0.1074	0.0283	5.4000e-004	0.0289		92.7629	92.7629	3.3300e-003	3.0300e-003	93.7492
Total	**0.0416**	**0.0320**	**0.3476**	**9.2000e-004**	**0.1068**	**5.9000e-004**	**0.1074**	**0.0283**	**5.4000e-004**	**0.0289**		**92.7629**	**92.7629**	**3.3300e-003**	**3.0300e-003**	**93.7492**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.2508					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**0.4554**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day								lb/day			
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0119	8.6600e-003	0.0986	2.7000e-004	0.0329	1.7000e-004	0.0330	8.7200e-003	1.6000e-004	8.8700e-003		27.7962	27.7962	9.2000e-004	8.6000e-004	28.0754
Total	**0.0119**	**8.6600e-003**	**0.0986**	**2.7000e-004**	**0.0329**	**1.7000e-004**	**0.0330**	**8.7200e-003**	**1.6000e-004**	**8.8700e-003**		**27.7962**	**27.7962**	**9.2000e-004**	**8.6000e-004**	**28.0754**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day								lb/day			
Archit. Coating	0.2508					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**0.4554**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0119	8.6600e-003	0.0986	2.7000e-004	0.0329	1.7000e-004	0.0330	8.7200e-003	1.6000e-004	8.8700e-003		27.7962	27.7962	9.2000e-004	8.6000e-004	28.0754
Total	**0.0119**	**8.6600e-003**	**0.0986**	**2.7000e-004**	**0.0329**	**1.7000e-004**	**0.0330**	**8.7200e-003**	**1.6000e-004**	**8.8700e-003**		**27.7962**	**27.7962**	**9.2000e-004**	**8.6000e-004**	**28.0754**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.2508					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**0.4425**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0111	7.6700e-003	0.0916	2.6000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.5000e-004	8.8700e-003		27.0873	27.0873	8.4000e-004	8.0000e-004	27.3455
Total	**0.0111**	**7.6700e-003**	**0.0916**	**2.6000e-004**	**0.0329**	**1.6000e-004**	**0.0330**	**8.7200e-003**	**1.5000e-004**	**8.8700e-003**		**27.0873**	**27.0873**	**8.4000e-004**	**8.0000e-004**	**27.3455**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.2508					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**0.4425**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0111	7.6700e-003	0.0916	2.6000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.5000e-004	8.8700e-003		27.0873	27.0873	8.4000e-004	8.0000e-004	27.3455
Total	**0.0111**	**7.6700e-003**	**0.0916**	**2.6000e-004**	**0.0329**	**1.6000e-004**	**0.0330**	**8.7200e-003**	**1.5000e-004**	**8.8700e-003**		**27.0873**	**27.0873**	**8.4000e-004**	**8.0000e-004**	**27.3455**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

Increase Transit Accessibility

Improve Pedestrian Network

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5147	0.5177	4.3415	6.9100e-003	0.7325	5.5500e-003	0.7381	0.1951	5.1700e-003	0.2003		710.4022	710.4022	0.0675	0.0431	724.9384
Unmitigated	0.6197	0.7268	5.9867	0.0111	1.2051	8.4500e-003	1.2135	0.3209	7.8700e-003	0.3288		1,143.0002	1,143.0002	0.0852	0.0598	1,162.9520

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	21.96	24.42	18.84	50,501	30,699
Condo/Townhouse	117.12	130.24	100.48	269,340	163,726
Medical Office Building	110.04	27.10	4.49	162,669	98,883
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	249.12	181.76	123.81	482,510	293,308

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Medical Office Building	9.50	7.30	7.30	29.60	51.40	19.00	60	30	10
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Condo/Townhouse	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Medical Office Building	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Other Asphalt Surfaces	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928
Parking Lot	0.552821	0.058334	0.189005	0.121481	0.023262	0.005577	0.010166	0.007476	0.001000	0.000579	0.026545	0.000826	0.002928

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0134	0.1152	0.0558	7.3000e-004		9.2300e-003	9.2300e-003		9.2300e-003	9.2300e-003		145.8084	145.8084	2.7900e-003	2.6700e-003	146.6749
NaturalGas Unmitigated	0.0134	0.1152	0.0558	7.3000e-004		9.2300e-003	9.2300e-003		9.2300e-003	9.2300e-003		145.8084	145.8084	2.7900e-003	2.6700e-003	146.6749

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	160.405	1.7300e-003	0.0148	6.2900e-003	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		18.8712	18.8712	3.6000e-004	3.5000e-004	18.9834
Condo/Townhouse	913.07	9.8500e-003	0.0842	0.0358	5.4000e-004		6.8000e-003	6.8000e-003		6.8000e-003	6.8000e-003		107.4200	107.4200	2.0600e-003	1.9700e-003	108.0583
Medical Office Building	165.897	1.7900e-003	0.0163	0.0137	1.0000e-004		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003		19.5173	19.5173	3.7000e-004	3.6000e-004	19.6332
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0134**	**0.1152**	**0.0558**	**7.3000e-004**		**9.2400e-003**	**9.2400e-003**		**9.2400e-003**	**9.2400e-003**		**145.8084**	**145.8084**	**2.7900e-003**	**2.6800e-003**	**146.6749**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0.160405	1.7300e-003	0.0148	6.2900e-003	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		18.8712	18.8712	3.6000e-004	3.5000e-004	18.9834
Condo/Townhouse	0.91307	9.8500e-003	0.0842	0.0358	5.4000e-004		6.8000e-003	6.8000e-003		6.8000e-003	6.8000e-003		107.4200	107.4200	2.0600e-003	1.9700e-003	108.0583
Medical Office Building	0.165897	1.7900e-003	0.0163	0.0137	1.0000e-004		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003		19.5173	19.5173	3.7000e-004	3.6000e-004	19.6332
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0134**	**0.1152**	**0.0558**	**7.3000e-004**		**9.2400e-003**	**9.2400e-003**		**9.2400e-003**	**9.2400e-003**		**145.8084**	**145.8084**	**2.7900e-003**	**2.6800e-003**	**146.6749**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.0377	0.1908	11.8941	0.0200		1.4743	1.4743		1.4743	1.4743	159.0461	73.2395	232.2855	0.2204	0.0112	241.1449
Unmitigated	8.0377	0.1908	11.8941	0.0200		1.4743	1.4743		1.4743	1.4743	159.0461	73.2395	232.2855	0.2204	0.0112	241.1449

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0247					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1516					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.8139	0.1727	10.3238	0.0199		1.4656	1.4656		1.4656	1.4656	159.0461	70.4118	229.4578	0.2177	0.0112	238.2491
Landscaping	0.0475	0.0181	1.5703	8.0000e-005		8.6900e-003	8.6900e-003		8.6900e-003	8.6900e-003		2.8277	2.8277	2.7300e-003		2.8959
Total	**8.0377**	**0.1908**	**11.8941**	**0.0200**		**1.4743**	**1.4743**		**1.4743**	**1.4743**	**159.0461**	**73.2395**	**232.2855**	**0.2204**	**0.0112**	**241.1449**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0247					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1516					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.8139	0.1727	10.3238	0.0199		1.4656	1.4656		1.4656	1.4656	159.0461	70.4118	229.4578	0.2177	0.0112	238.2491
Landscaping	0.0475	0.0181	1.5703	8.0000e-005		8.6900e-003	8.6900e-003		8.6900e-003	8.6900e-003		2.8277	2.8277	2.7300e-003		2.8959
Total	**8.0377**	**0.1908**	**11.8941**	**0.0200**		**1.4743**	**1.4743**		**1.4743**	**1.4743**	**159.0461**	**73.2395**	**232.2855**	**0.2204**	**0.0112**	**241.1449**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Excavators	0	8.00	260	158	0.38	Diesel

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Excavators	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Crespi Drive Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Bay Area AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Crespi Drive Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Cement and Mortar Mixers	Diesel	No Change	0	1	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	1	No Change	0.00
Graders	Diesel	No Change	0	2	No Change	0.00
Pavers	Diesel	No Change	0	1	No Change	0.00
Rollers	Diesel	No Change	0	1	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	2	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	5	No Change	0.00
Paving Equipment	Diesel	No Change	0	1	No Change	0.00
Welders	Diesel	No Change	0	3	No Change	0.00

Crespi Drive Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	3.61300E-002	2.47880E-001	3.26310E-001	5.30000E-004	1.41300E-002	1.41300E-002	0.00000E+000	4.59586E+001	4.59586E+001	2.92000E-003	0.00000E+000	4.60316E+001
Cement and Mortar Mixers	4.40000E-004	2.76000E-003	2.31000E-003	1.00000E-005	1.10000E-004	1.10000E-004	0.00000E+000	3.43710E-001	3.43710E-001	4.00000E-005	0.00000E+000	3.44600E-001
Cranes	4.96400E-002	5.52600E-001	2.53520E-001	7.80000E-004	2.29700E-002	2.11300E-002	0.00000E+000	6.84394E+001	6.84394E+001	2.21300E-002	0.00000E+000	6.89928E+001
Forklifts	1.49600E-002	1.39170E-001	1.55450E-001	2.10000E-004	9.07000E-003	8.35000E-003	0.00000E+000	1.81293E+001	1.81293E+001	5.86000E-003	0.00000E+000	1.82759E+001
Generator Sets	5.83000E-002	5.17350E-001	6.61370E-001	1.18000E-003	2.55900E-002	2.55900E-002	0.00000E+000	1.01737E+002	1.01737E+002	4.74000E-003	0.00000E+000	1.01856E+002
Graders	9.51000E-003	1.24420E-001	3.71100E-002	1.40000E-004	3.94000E-003	3.63000E-003	0.00000E+000	1.22247E+001	1.22247E+001	3.95000E-003	0.00000E+000	1.23235E+001
Pavers	1.85000E-003	1.94600E-002	2.17900E-002	4.00000E-005	9.40000E-004	8.70000E-004	0.00000E+000	3.09618E+000	3.09618E+000	1.00000E-003	0.00000E+000	3.12122E+000
Paving Equipment	1.92000E-003	1.94000E-002	2.54100E-002	4.00000E-005	9.60000E-004	8.80000E-004	0.00000E+000	3.57844E+000	3.57844E+000	1.16000E-003	0.00000E+000	3.60738E+000
Rollers	1.66000E-003	1.68400E-002	1.64500E-002	2.00000E-005	1.03000E-003	9.50000E-004	0.00000E+000	2.01692E+000	2.01692E+000	6.50000E-004	0.00000E+000	2.03323E+000
Rubber Tired Dozers	2.18400E-002	2.29030E-001	8.42900E-002	1.80000E-004	1.11100E-002	1.02300E-002	0.00000E+000	1.56680E+001	1.56680E+001	5.07000E-003	0.00000E+000	1.57947E+001
Tractors/Loaders/ Backhoes	3.04000E-002	3.08710E-001	4.05890E-001	5.60000E-004	1.68300E-002	1.54800E-002	0.00000E+000	4.94600E+001	4.94600E+001	1.60000E-002	0.00000E+000	4.98599E+001
Welders	1.46390E-001	7.84140E-001	9.13310E-001	1.38000E-003	3.33000E-002	3.33000E-002	0.00000E+000	1.01639E+002	1.01639E+002	1.18900E-002	0.00000E+000	1.01936E+002

Crespi Drive Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	3.61300E-002	2.47880E-001	3.26310E-001	5.30000E-004	1.41300E-002	1.41300E-002	0.00000E+000	4.59585E+001	4.59585E+001	2.92000E-003	0.00000E+000	4.60315E+001
Cement and Mortar Mixers	4.40000E-004	2.76000E-003	2.31000E-003	1.00000E-005	1.10000E-004	1.10000E-004	0.00000E+000	3.43710E-001	3.43710E-001	4.00000E-005	0.00000E+000	3.44600E-001
Cranes	4.96400E-002	5.52600E-001	2.53520E-001	7.80000E-004	2.29700E-002	2.11300E-002	0.00000E+000	6.84394E+001	6.84394E+001	2.21300E-002	0.00000E+000	6.89927E+001
Forklifts	1.49600E-002	1.39170E-001	1.55450E-001	2.10000E-004	9.07000E-003	8.35000E-003	0.00000E+000	1.81293E+001	1.81293E+001	5.86000E-003	0.00000E+000	1.82759E+001
Generator Sets	5.83000E-002	5.17350E-001	6.61370E-001	1.18000E-003	2.55900E-002	2.55900E-002	0.00000E+000	1.01737E+002	1.01737E+002	4.74000E-003	0.00000E+000	1.01856E+002
Graders	9.51000E-003	1.24420E-001	3.71100E-002	1.40000E-004	3.94000E-003	3.63000E-003	0.00000E+000	1.22246E+001	1.22246E+001	3.95000E-003	0.00000E+000	1.23235E+001
Pavers	1.85000E-003	1.94600E-002	2.17900E-002	4.00000E-005	9.40000E-004	8.70000E-004	0.00000E+000	3.09618E+000	3.09618E+000	1.00000E-003	0.00000E+000	3.12121E+000
Paving Equipment	1.92000E-003	1.94000E-002	2.54100E-002	4.00000E-005	9.60000E-004	8.80000E-004	0.00000E+000	3.57844E+000	3.57844E+000	1.16000E-003	0.00000E+000	3.60737E+000
Rollers	1.66000E-003	1.68400E-002	1.64500E-002	2.00000E-005	1.03000E-003	9.50000E-004	0.00000E+000	2.01692E+000	2.01692E+000	6.50000E-004	0.00000E+000	2.03323E+000
Rubber Tired Dozers	2.18400E-002	2.29030E-001	8.42900E-002	1.80000E-004	1.11100E-002	1.02300E-002	0.00000E+000	1.56680E+001	1.56680E+001	5.07000E-003	0.00000E+000	1.57946E+001
Tractors/Loaders/Backhoes	3.04000E-002	3.08710E-001	4.05890E-001	5.60000E-004	1.68300E-002	1.54800E-002	0.00000E+000	4.94599E+001	4.94599E+001	1.60000E-002	0.00000E+000	4.98598E+001
Welders	1.46390E-001	7.84140E-001	9.13300E-001	1.38000E-003	3.33000E-002	3.33000E-002	0.00000E+000	1.01639E+002	1.01639E+002	1.18900E-002	0.00000E+000	1.01936E+002

Crespi Drive Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.30552E-006	1.30552E-006	0.00000E+000	0.00000E+000	1.08621E-006
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.16892E-006	1.16892E-006	0.00000E+000	0.00000E+000	1.15954E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.10318E-006	1.10318E-006	0.00000E+000	0.00000E+000	1.09434E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17951E-006	1.17951E-006	0.00000E+000	0.00000E+000	1.17814E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.63604E-006	1.63604E-006	0.00000E+000	0.00000E+000	1.62292E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	3.20388E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.77209E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.27649E-006	1.27649E-006	0.00000E+000	0.00000E+000	1.26625E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.21310E-006	1.21310E-006	0.00000E+000	0.00000E+000	1.20337E-006
Welders	0.00000E+000	0.00000E+000	1.09492E-005	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18065E-006	1.18065E-006	0.00000E+000	0.00000E+000	1.27531E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction		PM2.5 Reduction			
No	Replace Ground Cover of Area Disturbed	PM10 Reduction		PM2.5 Reduction			

Crespi Drive Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

No	Water Exposed Area	PM10 Reduction		PM2.5 Reduction		Frequency (per day)	
No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.03	0.01	0.03	0.01	0.00	0.00
Grading	Fugitive Dust	0.14	0.07	0.14	0.07	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.01	0.00	0.01	0.00	0.00	0.00
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Crespi Drive Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	16.53	28.94	28.52	38.01	34.11	34.17	0.00	37.88	37.88	21.85	28.11	37.71
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	20.00	20.00	20.00	20.00	20.31	20.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Urban

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
Yes	Land Use	Increase Diversity	0.18	0.45		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
Yes	Land Use	Increase Transit Accessibility	0.24	0.01		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.38			

Crespi Drive Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures	0.00			
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.02			
Yes	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
No	Transit Improvements	Expand Transit Network	0.00	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.39			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"	7.70			
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	

No	Commute	Provide Ride Sharing Program	15.00			
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.39			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	Use Low VOC Paint (Parking)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		

Crespi Drive Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

No	Install High Efficiency Lighting		
Yes	On-site Renewable	46.00	

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Apply Water Conservation on Strategy	20.00	20.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Crespi Drive Project

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Crespi Drive Project Construction Health Risk Assessment
CO	TITLETWO	Project title 2	
CO	MODELOPT	Model options	DFAULT,CONC,NODRYDPLT,NOWETDPLT
CO	AVERTIME	Averaging times	1,24,ANNUAL
CO	URBANOPT	Urban options	
CO	POLLUTID	Pollutant ID	PM25 H1H
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	1.8
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	C:\USERS\BSHEA\DESKTOP\METEOR~1\SANFRA~1.SFC
ME	PROFFILE	Profile met file	C:\USERS\BSHEA\DESKTOP\METEOR~1\SANFRA~1.PFL
ME	SURFDATA	Surf met data info.	23234 2009
ME	UAIRDATA	U-Air met data info.	23230 2009
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	2.4
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
29R3K7E1	VOLUME	Construction Equip	544210.9	4161358.8	0	0.00288001	(g/s)	5

Volume Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Release Height	Init. Lat. Dim.	Init. Vert. Dim.
		East (m)	North (m)	(m)	(g/s)	(m)	(m)	(m)
29R3K7E1	Construction Equip	544210.9	4161358.8	0	0.00288001	5	29.59	1

BREEZE AERMOD Model Results

Max. Annual (5 YEARS) Results of Pollutant: PM25 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	0.02881	544313.30	4161379.00	0.00	0.00	1.80	DC	
	2ND	0.02861	544308.30	4161389.00	0.00	0.00	1.80	DC	
	3RD	0.02761	544313.30	4161384.00	0.00	0.00	1.80	DC	
	4TH	0.02745	544318.30	4161374.00	0.00	0.00	1.80	DC	
	5TH	0.02717	544167.10	4161255.70	0.00	0.00	1.80	DC	
	6TH	0.02707	544308.30	4161394.00	0.00	0.00	1.80	DC	
	7TH	0.02649	544318.30	4161379.00	0.00	0.00	1.80	DC	
	8TH	0.02632	544313.30	4161389.00	0.00	0.00	1.80	DC	
	9TH	0.02629	544177.10	4161250.70	0.00	0.00	1.80	DC	
	10TH	0.02628	544162.10	4161255.70	0.00	0.00	1.80	DC	

Highest Results of Pollutant: PM25

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
1-HR	ALL	1ST	Avg. Conc.	3.47117	ug/m**3	09011618	544167.10	4161255.70	0.00	0.00	1.80	DC	

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
6306	Informational Message(s)
43872	Hours Were Processed
5804	Calm Hours Identified
502	Missing Hours Identified (1.14 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	CO	W276	Special proc for 1h-NO2/SO2 24hPM25 NAAQS disabled PM25 H1H
WARNING	CO	W363	Multiyr 24h/Ann PM25 processing not applicable for PM25 H1H

WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	MX	W481	Data Remaining After End of Year. Number of Hours= 48

www.breeze-software.com

*HARP - HRACalc v19044 6/11/2021 10:15:59 AM - Cancer Risk - Input File: C:\Users\bshea\Desktop\HARP\Crespi_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK
1			9901	DieselExhPM	0.02881	8.67E-06	1.75YrCancerHighEnd_Inh_FAH16to70	*	8.67E-06	0.00E+00

DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK	1ST_DRIVER
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA

2ND_DRIVER	PASTURE_CONC	FISH_CONC	WATER_CONC
NA	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v19044 6/11/2021 10:15:59 AM - Chronic Risk - Input File: C:\Users\bshea\Desktop\HARP\Crespi_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV
1			9901	DieselExhPM	0.02881	NonCancerChronicHighEnd_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	DETAILS	INH_CONC	SOIL_DOSE
0.00E+00	5.76E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	*	2.88E-02	0.00E+00

DERMAL_DOSE	MMILK_DOSE	WATER_DOSE	FISH_DOSE	CROP_DOSE	BEEF_DOSE	DAIRY_DOSE	PIG_DOSE	CHICKEN_DOSE	EGG_DOSE
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

1ST_DRIVER	2ND_DRIVER	3RD_DRIVER	PASTURE_CONC	FISH_CONC	WATER_CONC
INHALATION	NA	NA	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v19044 6/11/2021 10:15:59 AM - Acute Risk - Input File: C:\Users\bshea\Desktop\HARP\Crespi_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL
1			9901	DieselExhPM	3.47117	NonCancerAcute	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Appendix B

Biological Constraints Analysis, Biological Constraints Analysis Update, and Aquatic Resources Delineation

BIOLOGICAL CONSTRAINTS ANALYSIS
570 CRESPI DRIVE, CITY OF PACIFICA
SAN MATEO COUNTY, CALIFORNIA
(APNS: 022-162-310) (~1.7 ACRES)

OCTOBER 8, 2014

Prepared for

SC Properties
311 South Ellsworth
San Mateo, California 94401

Attention: Mr. Brendan Murphy

Prepared by

Monk & Associates, Inc.
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595

Attention: Mr. Geoff Monk

TABLE OF CONTENTS

FIGURES

TABLES

EXHIBITS

1. INTRODUCTION

On September 2, 2014 you received a Building Inspection Compliance Report from the City of Pacifica stating that you were to stop all work at 570 Crespi Drive (the project site) in the City of Pacifica (the City) (Figures 1 and 2). Per my conversation with you, after discussing this with the City, you were instructed to obtain a Biological Constraints Report. In response, Monk & Associates, Inc., (M&A) principal investigator Mr. Geoff Monk visited the project site on September 17, 2014 to evaluate biological resources on the project site and to determine if proposed development of the project site would affect special-status species and/or resource agency regulated areas.

M&A's analysis of biological regulatory issues that would be pertinent to development of the project site comes from our background research, our September 17, 2014 site visit, and our knowledge of biological resource issues (for example, special-status species and wetland permitting) in the Pacifica area. Below we describe the project site's biological resources and the federal and state regulations that would be applicable or not applicable to any proposal to develop the project site.

Please note that development of the project site could be subjected to distinct major regulatory processes. The City of Pacifica may, at a minimum, initiate review conducted pursuant to the California Environmental Quality Act (CEQA). In addition, there are features on the project site that if impacted (as detailed below), would be subject to regulation by the U.S. Army Corps of Engineers (Corps) and the California Regional Water Quality Control Board (RWQCB). Below we discuss our findings and regulatory considerations they pertain to any proposal to develop the project site.

2. APPLICANT

SC Properties
311 South Ellsworth
San Mateo, California 94401

Attention: Mr. Brendan Murphy

3. PROPOSED PROJECT

A project is not defined at this time, but likely will include development of some form of housing.

4. PROJECT SITE SETTING

The project site is a long and narrow parcel that is approximately 75 feet wide (east to west) and is 530 feet deep (north to south) (Figure 3). It is an "urban infill" location situated within the City of Pacifica. It is surrounded by the Crespi Business Center immediately to the east, by high-density multifamily senior housing, a liquor store, and a post office all immediately north of the property on Crespi Avenue, and there are single family homes on Anza Street at the southern project site boundary. Finally, the City owned Senior Center and a skateboard park occur immediately west of the project site.

The project site currently supports a single-family home located on the north end of the property. That home and use of the project site dates back several decades, although the home has been used in a “low-use” capacity for many years. There were utility sheds visible in aerial photographs from Google Earth at the backside of the house that were recently cleared.

5. PLANT COMMUNITIES AND WILDLIFE HABITATS

There is a Monterey cypress (*Hesperocyparis macrocarpa*) grove on the northern end of the project site that grows over and around the single family home. Sparse residual landscape species remain around the house, but for the most part the extensive shade and a deep litter layer created by the Monteray cypress trees prevent most herbaceous species from growing near/around the house. Immediately behind the house to approximately 150 feet south of Crespi Avenue, there is an area that was the former active use area of the residence. It is now characterized by debris from recently demolished sheds, fencing and other miscellaneous forms of debris. An herbaceous weedy community remains, but extensive recent clearing of the old structures and landscaping around the residence has rendered this backyard area so disturbed that it is difficult to identify many herbaceous plants. M&A did identify wild oats (*Avena* sp.) as the dominant cover remaining today, but it is clear that extensive Himalayan blackberry (*Rubis armeniacus*) was present and extended southward on the property. Starting approximately 150 south of the residence almost to the south end of the project site it appears that this area supported a dominant cover of arroyo willow (*Salix lasiolepis*) but was recently cleared via chainsaws. These willows extend onto/from the City’s property immediately west of the project site. The dominant understory species is spreading bent grass (*Agrostis stolonifera*). At the middle to rear one-third of the project site, the willow community phases into a non-canopied, seasonal wetland that is dominated by Baltic rush (*Juncus balticus*). This area is at the lowest elevation on the project site and is subjected to seasonal inundation. The willow community again becomes dominant at the south end of the project site. Willows were not recently cleared to within approximately 50 of the southern property boundary.

6. PROJECT SITE HYDROLOGY

The project site is an old residential home site that over the years has been completely surrounded by development that raised all grades around the project site approximately 1 to 4 feet above the project site elevations. The Crespi Business Center imported or cut/filled up to 4 feet of fill above the project site that extends at a 2:1 slope off the backside of the Business Center down to the project site’s eastern boundary. Similarly, residences along Anza Street to the south were constructed on fill that is approximately 1 foot above the highest elevations of the project site. Immediately west of the project site is a sliver of property (approximately 50-60 feet wide east to west) owned by the City of Pacifica, which is approximately level with the project site at the north end, but slopes 1 to 1.5 feet lower in elevation than the project site at the middle and back (south) end of this City property.

Immediately to the west of the narrow City parcel are a community skate board park and the Pacifica Community Center. These were constructed on fill that is approximately 2 to 4 feet higher in elevation than the adjacent City owned property immediately west of the project site and the project site. Thus, the project site and the City of Pacifica’s narrow parcel are in a deep, depressional area with only a restricted opportunity to drain.

The project site slopes gently from north to south. The old residence and immediate backyard area are approximately 1-2 higher in elevation than the back (south) end of the property. Rainfall sheet water flows southward on the project sit, off the project site to a topography low area on the City's narrow sliver of property immediately west of the project site. When rainfall collects to 1 foot deep on the City parcel it then extends onto the project site at the location where a Baltic rush seasonal wetland occurs. This seasonally inundated area typically dries in the late spring or early summer months.

At the south end of the project site there is a narrow ditch (approximately 4 feet wide) that likely used to drain the project site. This ditch, for the most part, has been filled in over the years by residential development that occurred along Anza Street. The ditch does not occur to the east of the project site but remains at the southwest corner of the project site as a narrow, 1-foot elevated ditch that turns to upland immediately west of the project site. Owing to filling over the years stormwater has to fill to at least 2 feet deep on the City property and 0.5 to 1-foot deep on the project site to drain off site to the City property via overland flows through a confined area at the backside of residences on Anza Street.

The ditch on the south end of the project site is discontinuous and is not a natural tributary. Rather is a man-made ditch that likely was created in a past era in an attempt to drain the project site and the City property. Over the many decades of surrounding land development, this ditch no longer has continuity with a natural drainage features except during episodic storms and winters. Rather rainwater is simply retained on the City property immediately west of the project site and this water backs up onto the project site that both function as a low sink. Accumulated stormwater eventually evaporates, percolates into subsoils, and/or is removed through evapotranspiration. It is likely that the seasonal wetland on the project site completely dries in most years by early to mid-summer.

7. POTENTIALLY OCCURRING SPECIAL-STATUS PLANT AND ANIMAL SPECIES

Special-status plant and wildlife species known to occur in the vicinity of the project site are discussed below. Special-status plant species known to occur within two miles of the project site are listed in Table 1. Special-status wildlife species known to occur within two miles of the project site are listed in Table 2. Figure 4 shows California Natural Diversity Record Locations of Special-Status Plant and Animals within two miles of the project site. Below we provide the definition of what constitutes a special-status species. We also discuss those special-status species known from the vicinity of the project site.

7.1 Special-Status Species Definition

For purposes of this analysis, special-status species are plants and animals that are legally protected under the California and Federal Endangered Species Acts (CESA and FESA, respectively) or other regulations, and species that are considered rare by the scientific community (for example, the CNPS). Special-status species are defined as:

- plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 *et seq*.; 14 CCR §670.1 *et seq.*) or the

FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);

- plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);

- plants and animals that meet the definition of endangered, rare, or threatened under the California Environmental Quality Act (CEQA) (14 CCR §15380) that may include species not found on either State or Federal Endangered Species lists;

- Plants occurring on Ranks 1A, 1B, 2A, 2B, 3, and 4 of CNPS' electronic *Inventory* (CNPS 2001). The California Department of Fish and Wildlife (the Department) recognizes that Ranks 1A, 1B, 2A and 2B of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and the Department requests their inclusion in EIRs. Plants occurring on CNPS Ranks 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2001). Such plants may be included as special-status species on a case by case basis due to local significance or recent biological information (more on CNPS Rank species below);

- migratory nongame birds of management concern listed by U.S. Fish and Wildlife Service (Migratory Nongame Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);

- animals that are designated as "species of special concern" by the Department (2014);

- Animal species that are "fully protected" in California (Fish and Game Codes 3511, 4700, 5050, and 5515).

- Bat Species that are designated on the Western Bat Working Group's (WBWG) Regional Bat Species Priority Matrix as: "RED OR HIGH." This priority is justified by the WBWG as follows: "Based on available information on distribution, status, ecology, and known threats, this designation should result in these bat species being considered the highest priority for funding, planning, and conservation actions. Information about status and threats to most species could result in effective conservation actions being implemented should a commitment to management exist. These species are imperiled or are at high risk of imperilment."

- Species that are provided "Ranks" in the CNDDB (Rare Find Application) that equate to a rarity status as defined in Appendix A of the CNDDB Rare Find Definitions. Ranks that indicate that a species is "rare" and should be afford protections pursuant to §15382 of the CEQA include "Global Ranks" listed as G1, G2, and G3. Similarly, "State Ranks" that should be afforded protections pursuant to §15382 of the CEQA include S1, S2, and S3 species.

In the paragraphs below we provide further definitions of legal status as they pertain to the special-status species discussed in this report or in the attached tables.

Federal Endangered or Threatened Species. A species listed as Endangered or Threatened under the FESA is protected from unauthorized "take" (that is, harass, harm, pursue, hunt, shoot, trap) of that species. If it is necessary to take a Federal listed Endangered or Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the Service prior to initiating the take.

State Threatened Species. A species listed as Threatened under the state Endangered Species Act (§2050 of California Fish and Game Code) is protected from unauthorized "take" (that is, harass, pursue, hunt, shoot, trap) of that species. If it is necessary to "take" a state listed Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the Department prior to initiating the "take."

California Species of Special Concern. These are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR §15380), some species of special concern could be considered "rare." Pursuant to its rarity status, any unmitigated impacts to rare species could be considered a "significant effect on the environment" (§15382). Thus, species of special concern must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS Rank Species. The CNPS maintains an "Inventory" of special status plant species. This inventory has four lists of plants with varying rarity. These lists are: Rank 1, Rank 2, Rank 3, and Rank 4. Although plants on these lists have no formal legal protection (unless they are also state or federal listed species), the Department requests the inclusion of Rank 1 species in environmental documents. In addition, other state and local agencies may request the inclusion of species on other lists as well. The Rank 1 and 2 species are defined below:

- Rank 1A – Presumed extinct in California;
- Rank 1B – Rare, threatened, or endangered in California and elsewhere;
- Rank 2A: Plants presumed extirpated in California, but more common elsewhere;
  Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.

All of the plants constituting Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the Fish and Game Code, and are eligible for state listing (CNPS 2001). Rank 2 species are rare in California, but more common elsewhere. Ranks 3 and 4 contain species about which there is some concern, and are reviewed by the Department and maintained on "watch lists."

Additionally, in 2006 CNPS updated their lists to include "threat code extensions" for each list. For example, Rank 1B species would now be categorized as Rank 1B.1, Rank 1B.2, or Rank 1B.3. These threat codes are defined as follows:

- .1 is considered "seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)";

- .2 is "fairly endangered in California (20-80% of occurrences threatened)";
- .3 is "not very endangered in California (less than 20% of occurrences threatened or no current threats known)."

Under the CEQA review process only CNPS Rank 1 and 2 species are considered since these are the only CNPS species that meet CEQA's definition of "rare" or "endangered." Impacts to Rank 3 and 4 species are not regarded as significant pursuant to CEQA.

Fully Protected Birds. Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). Fully protected birds may not be "taken" or possessed (i.e., kept in captivity) at any time.

7.2 Potentially Occurring Special Status Plant Species

Table 1 lists special-status plant species that are known to occur within two miles of the project site. These plants occur in a variety of habitats, including coastal sand dune, coastal scrub, and grassland. These habitats do not occur on the project site. Thus, in general it is M&A's conclusion that none would occur on this urban infill project site.

7.2.1 Monterey Cypress

Monterey cypress trees occur on the north end of the project site. There are two native populations (only) located along 17-Mile Drive and at Point Lobos. These Monterey peninsula trees are designated by CNPS as Rank 1B.2. , but widely planted Monterey cypress along the Coast are not.

7.3 Potentially Occurring Special-Status Animal Species

Table 2 presents a list of special-status animal species known from the City of Pacifica area. This Table provides reasons for why the locally known special-status animals would not occur on the project site. Of the 10 considered for this project site, there is no suitable habitat on or adjacent to the project site that would be likely to support any of these species. Below we discuss those species that require further justification for submittal than is provided in Table 2.

7.3.1 San Francisco Garter Snake

The San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) is a slender multi-colored subspecies of the common garter snake. Designated as an endangered subspecies since the year 1967 it is endemic to San Mateo County and the extreme northern part of coastal Santa Cruz County in California. The Service has not designated critical habitat for this snake and thus the project site is not within designated critical habitat.

This subspecies of the common garter snake is found in scattered wetland areas on the San Francisco Peninsula from approximately the northern boundary of San Mateo County south along the eastern and western bases of the Santa Cruz Mountains, at least to the Upper Crystal Springs Reservoir, and along the Pacific coast south to Año Nuevo Point, and thence to Waddell Creek in Santa Cruz County. The U.S. Fish and Wildlife Service has stated that many locations that previously had healthy populations of garter snakes are now in decline due to land development pressure and the filling of wetlands in San Mateo County over the last sixty years.

The snake's preferred habitat is a densely vegetated pond near an open hillside where it can sun, feed, and find cover in rodent burrows; however, markedly less suitable habitat can be successfully used. This subspecies avoids brackish marsh areas because its preferred prey, the California red-legged frog (*Rana draytonii*), cannot survive in saline water.

Emergent and bankside vegetation such as cattails (*Typha* spp.), bulrushes (*Scirpus* / *Schoenoplectus* spp.), and spike rushes (*Juncus* spp. and *Eleocharis* spp.) apparently are preferred and used for cover. The zone between stream and pond habitats and grasslands or bank sides is characteristically utilized for basking while nearby dense vegetation or water often provide escape cover. The subspecies occasionally uses floating algal or rush mats, when available.

San Francisco garter snakes forage extensively in aquatic habitats. Adult snakes feed primarily on California red-legged frogs, which are federally listed as threatened. They may also feed on juvenile bullfrogs (*Rana catesbeiana*), but they are unable to consume adults; in fact, adult bullfrogs prey on juvenile garter snakes, and may be a contributing factor in the population decline of the San Francisco garter snake. Newborn and juvenile San Francisco garter snakes depend heavily upon Pacific treefrogs (*Pseudacris regilla*) as prey. If newly metamorphosed Pacific treefrogs are not available, the young garter snakes may not survive. San Francisco garter snakes are one of the few animals capable of ingesting the toxic California newt (*Taricha torosa*) without incurring sickness or death.

In Pacifica within 2.5 miles of the project site, there are 3 Department CNDDB records for the San Francisco garter snake. There is an occurrence at Sharp Park Golf Course/Laguna Salada, upper Sharp Park and Calera Creek (CNDDB # 9) at Laguna Salada. There is a lake and extensive freshwater aquatic habitat at this location that supports this snake. CNDDB #45 is from along Calera Creek on the south side of Mori Point. This has been a known site since the 1970s. Calera Creek and its biota including prey base is critical to supporting the San Francisco garter snake at this location. CNDDB # 11 is from San Andres Lake approximately 3.2 miles east of the project site and is the nearest prominent record location for San Francisco garter snake. Again there is a large fresh water lake which supports this endangered snake species.

The seasonal wetland on the project site is relatively very small and likely dries in the spring or early summer. It does not maintain key prey species of the San Francisco garter snake which include the red-legged frog and occasionally the bullfrog (*Rana catesbeiana*). No Ranid frogs (which include the California red-legged frog and bullfrog) are expected to occur on the project site. While Sierran treefrog (*Pseudacris sierra*)[formerly Pacific tree frog] likely breeds seasonally in wetland on the project site none were observed during the site investigation and thus this frog if present, would only consist of a very small number of individuals and could not sustain the San Francisco garter snake.

As the project site is complete surrounded by development (is an urban infill) there is no realistic likelihood that the San Francisco garter snake would migrate to the project site. There are also no adjacent marsh habitats that could support this snake. Accordingly, M&A concludes that the San

Francisco garter snake does not occur on the property and would not be impacted by proposed development of the property.

7.3.2 California red-legged frog

The California red-legged frog (*Rana draytonii*) was federally listed as threatened on May 23, 1996 (Federal Register 61: 25813-25833) and as such is protected pursuant to the Federal Endangered Species Act. On March 16, 2010 the USFWS issued the final designation for California red-legged frog Critical Habitat (USFWS 2010). The 2010 Critical Habitat maps (Federal Register dated March 17, 2010 (Volume 75, Number 51:12815-12864) shows that the project site falls well outside of mapped Critical Habitat SMN-1 of this frog. The California red-legged frog is also a state "species of special concern."

The California red-legged frog is typically found in ponds, slow-flowing portions of perennial and intermittent streams that maintain water in the summer months. This frog is also found in hillside seeps that maintain pool environments or saturated soils throughout the summer months. Populations probably cannot be maintained if all surface water disappears (i.e., no available surface water for egg laying and larval development habitat). Larval California red-legged frogs require 11-20 weeks of permanent water to reach metamorphosis (i.e., to change from a tadpole into a frog), in water depths of 10 to 20 inches (USFWS 2002). Riparian vegetation such as willows and emergent vegetation such as cattails are preferred red-legged frog habitats, though not necessary for this species to be present. Populations of California red-legged frog will be reduced in size or eliminated from ponds supporting non-native species such as bullfrog, Centrarchid fish species (such as sunfish, bluegill, or largemouth bass), and signal and red swamp crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*, respectively), all of which are known California red-legged frog predators. However, the presence of these non-native species does not preclude the presence of the California red-legged frog.

California red-legged frogs also use upland habitats for migration and dispersal. The USFWS *Recovery Plan for the California Red-Legged Frog* states that frog overland excursions via uplands can vary between 0.25 mile up to 3 miles during the course of a wet season, and that frogs "have been observed to make long-distance movements that are straight-line, point to point migrations rather than using corridors for moving in between habitats" (USFWS 2002). The information presented in the USFWS' Recovery Plan was taken from a publication by Bulger et al. (2003) that recounts a study in coastal redwoods in Santa Cruz area. M&A believes that such overland straight-line migrations are primarily limited to periods of heavy rainfall or during periods when ambient conditions exhibit high moisture levels such as in fog belts along the coast. Working in Pointe Reyes National Seashore on the coast of California, Fellers and Kleeman (2007) found approximately 31 percent of California red-legged frogs moved more than 30 meters from their breeding sites and about 69 percent moved less than 30 meters from their breeding site during seasonal movement periods. Similarly, Bulger et al. (2003) found that 60 percent of their radio tagged frogs stayed within 30 meters of their breeding sites.

In locations that are characterized by hot and seasonally dry climates, the California red-legged frog is inclined to stay closer to its aquatic environments or will not migrate. Tatarian (2005) who studied an inland population of California red-legged frogs in eastern Contra Costa County where the climate is far drier than the coastal environment, found that all movements started after the first 0.5 cm of rain in the fall, with more terrestrial movements being made in the fall pre-breeding season (57%) than in the winter breeding season (32%) or spring post-breeding season (11%). Tatarian (op. cit.) also found that California red-legged frogs moved greater average distances aquatically (84.6 m) than terrestrially (27.7 m). Greater terrestrial distances were moved in the pre-breeding season (35.2 m) than in the breeding season (15.5 m) or post-breeding season (16.3 m) with the majority of movements occurring for only one of the 3-4 day survey periods. The majority of frogs (57%) were position faithful within a pool, indicating they did not migrate at all. These data suggest that long forays across the landscape found in coastal populations are less likely in dry inland locations.

The USFWS *Recovery Plan for the California Red-Legged Frog* states that populations are "most likely to persist where multiple breeding areas are embedded within a matrix of habitats used for dispersal." "The primary constituent elements for California red-legged frogs are aquatic and upland areas where suitable breeding and non-breeding habitat is interspersed throughout the landscape and is interconnected by unfragmented dispersal habitat" (USFWS 2002).

7.3.3 SALTMARSH COMMON YELLOWTHROAT

The saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*) is a California species of special concern. This warbler is found in freshwater marshes, coastal swales, riparian thickets, brackish marshes, salt marshes, and the edges of disturbed weed fields and grasslands that border these wet habitats. In the San Francisco Bay region, about 60 percent of the population breeds in brackish marsh, 20 percent breeds in riparian woodland, 10 percent in freshwater marsh, 5 percent in salt marsh, and 5 percent in upland vegetation (Hobson et al. 1986). Nests are well concealed, mostly on or near the ground in grass tussocks, low herbaceous vegetation, cattails, rushes, and bushes generally to about five feet above the ground, though many are below six inches (Shuford 1993).

The closest known record for this species is located 1.8 miles north of the project site (CNDDB Record # 5). The willow trees on back of project site and on adjacent sliver of property owned by the City could provide migration habitat for the saltmarsh common yellowthroat. However, the willow habitat only occurs in a limited area and is an urban setting. Accordingly, this willow habitat is not expected to support nesting saltmarsh common yellowthroats. However out of an abundance of caution, *it is recommended that preconstruction survey be conducted prior to site grading or other construction work if this work occurs between February 1 and September 1st (the Department designated nesting season for birds) to ensure that if this species nests near the project site, that is will not be affected by the proposed project. If an active nest is discovered, a protective buffer should be established by a qualified ornithologist that is of sufficient size to keep the nesting birds, their eggs/young from being harmed by disturbance associated with implementation of a construction project.*

8. HERITAGE TREES

Chapter 12 of the Pacifica Municipal Code (Preservation of Heritage Trees) stipulates regulations designed to preserve and protect heritage trees on private or city-owned property. In general, heritage trees are defined as any trees within the City of Pacifica, exclusive of eucalyptus, which have a trunk with a circumference of fifty (50”) inches (approximately sixteen (16”) inches in diameter) or more, measured at twenty-four (24”) inches above the natural grade.

It is often necessary to obtain a permit when performing work on or engaging in construction around heritage trees. The project site supports Monterey cypress trees at its north end around the existing residence that likely are heritage trees. To remove a heritage tree, it is necessary to obtain a tree removal permit. Tree removal permits may be applied for at the City of Pacifica Planning Department. Tree protection plans are required when engaging in new construction within the drip-line of a heritage tree. The plan must be prepared by a qualified arborist, horticulturist, landscape architect or other qualified person.

9. REGULATORY FRAMEWORK FOR NATIVE WILDLIFE, FISH, AND PLANTS

This section provides a discussion of those laws and regulations that are in place to protect native wildlife, fish, and plants. Under each law we discuss their pertinence to proposed development of the project site.

9.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) forms the basis for the federal protection of threatened or endangered plants, insects, fish and wildlife. FESA gives regulatory authority to the Service for federally listed terrestrial species and non-anadromous fish. The NMFS has regulatory authority over federally listed marine mammals and anadromous fish.

The project site is an in-fill site completely surrounded by commercial and high density urban development. The project site’s location within a commercial/urban area, bordered by busy roads, isolates the project site from extant, naturalized habitats and removes any wildlife corridor value. As such, there are no areas of the project site that provide suitable habitat for federally listed plants or animals. There are no streams or rivers on the project site. Thus, there are no habitats that would facilitate fish species or other aquatic species moving to/from the project site. No impacts to federally listed species are expected from development of the project site (See Tables 1 and 2).

9.2 Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to “take” (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

As long as there is no direct mortality of species protected pursuant to this Act caused by development of the site, there should be no constraints to development of the site. To comply with the Migratory Bird Treaty Act, all active nest sites would have to be avoided while such birds were nesting. Upon completion of nesting, the project could commence as otherwise planned.

To avoid impacts to nesting birds protected pursuant to the Federal Migratory Bird Treaty Act it is recommended that preconstruction survey be conducted prior to site grading, vegetation clearing, or other construction work if this work occurs between February 1 and September 1st (the Department designated nesting season for birds) to ensure that nesting birds are not impacted by these activities. If an active nest is discovered, a protective buffer should be established by a qualified ornithologist that is of sufficient size to keep the nesting birds, their eggs/young from being harmed by disturbance associated with implementation of a construction project.

9.3 **California Endangered Species Act**

In 1984, the state legislated the California Endangered Species Act (CESA) (Fish and Game Code §2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats.

The project site is a highly disturbed, graded lot; this is an in-fill development project. The surrounding landscape is urban and commercial development. The project site's location within a commercial area, bordered by busy roads, isolates the project site from extant, naturalized habitats and removes any wildlife corridor value. As such, there are no areas of the project site that provide suitable habitat for state-listed plants or animals. No impacts to state-listed species are expected from the proposed project (See Tables 1 and 2).

9.4 California Fish and Game Code § 3503, 3503.5, 3511, and 3513

California Fish and Game Code §3503, 3503.5, 3511, and 3513 prohibit the "take, possession, or destruction of birds, their nests or eggs." Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered "take." Such a take would also violate federal law protecting migratory birds (Migratory Bird Treaty Act).

All raptors (that is, hawks, eagles, owls) their nests, eggs, and young are protected under California Fish and Game Code (§3503.5). Additionally, "fully protected" birds, such as the white-tailed kite and golden eagle (*Aquila chrysaetos*), are protected under California Fish and Game Code (§3511). "Fully protected" birds may not be taken or possessed (that is, kept in captivity) at any time.

The only nesting habitat for raptors would be the Monterey cypress trees on the north end of the project site. No old nests were observed by M&A during our site investigation, but raptors are mobile and so preconstruction surveys are warranted prior to tree removal or disturbance on the project site to ensure that the project will not impact raptors. The project site also provides habitat for common passerine birds (i.e., "perching birds), and indeed occurs in all urban and commercial areas in addition to native or naturalized habitats. *Preconstruction nesting bird surveys by a qualified ornithologist are recommended if grading or site preparation would occur between February 1 and September 1 in any year (the Department of Fish and Wildlife Recognized nesting season). Any active nests that are found during preconstruction nesting surveys would have to be avoided by the project. Suitable non-disturbance buffers would have to be established around nest sites until the nesting cycle is complete.*

9.5 Protected Amphibians

Under Title 14 of the California Code of Regulations (CCR 14, Division 1, Subdivision 1, Chapter 5, §41. Protected Amphibians), protected amphibians, such as the California tiger salamander, may only be taken under special permit from the Department issued pursuant to Sections 650 and 670.7 of these regulations.

No special-status or protected amphibians would be found on or adjacent to the project site. As such, no significant adverse impacts are expected to occur to protected amphibians from implementation of the proposed project.

10. REGULATORY REQUIREMENTS PERTAINING TO WATERS OF THE UNITED STATES AND STATE

This section presents an overview of the criteria used by the U.S. Army Corps of Engineers, the California Regional Water Quality Control Board, the State Water Resources Control Board, and the Department to determine those areas within a project area that would be subject to their regulation.

10.1 U.S. Army Corps of Engineers Jurisdiction and General Permitting

10.1.1 Section 404 of the Clean Water Act

Congress enacted the Clean Water Act "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 U.S.C. §1251(a)). Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the U.S. Army Corps of Engineers (Corps) regulates the disposal of dredged or fill material into "waters of the United States" (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from the Corps prior to discharging dredged or fill materials into any water of the United States.

In the Federal Register "waters of the United States" are defined as, "...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce..." (33 CFR Section 328.3).

Limits of Corps' jurisdiction:

(a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:

> (1) Extends to the high tide line, or
> (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:

> (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or

> (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
> (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

Section 404 jurisdiction in "other waters" such as lakes, ponds, and streams, extends to the upward limit of the ordinary high water mark (OHWM) or the upward extent of any adjacent wetland. The OHWM on a non-tidal water is:

- the "line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]).

Wetlands are defined as: "...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions" (33 CFR Section 328.8 [b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by the Corps pursuant to Section 404 of the Clean Water Act.

10.1.1.1 <u>Significant Nexus of Tributaries</u>

On December 2, 2008, the Corps and the Environmental Protection Agency (EPA) issued joint guidance on implementing the U.S. Supreme Court decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (herein referred to simply as "Rapanos") (Corps 2008b) which address the jurisdiction over waters of the United States under the Clean Water Act. In this joint guidance these agencies provide guidance on where they will assert jurisdiction over waters of the U.S.

The EPA and Corps will assert jurisdiction over the following waters:
- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (for example, typically three months).
- Wetlands that directly abut such tributaries.

The agencies generally will <u>not</u> assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow); and
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters; and

Significant nexus includes consideration of hydrologic and ecologic factors.

10.1.1.2 Isolated Areas Excluded from Section 404 Jurisdiction

In addition to areas that may be exempt from Section 404 jurisdiction, some isolated wetlands and waters may also be considered outside of Corps jurisdiction as a result of the Supreme Court's decision in Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers (531 U.S. 159 [2001]). Isolated wetlands and waters are those areas that do not have a surface or groundwater connection to, and are not adjacent to a navigable "Waters of the U.S.," and do not otherwise exhibit an interstate commerce connection.

10.1.1.3 Permitting Corps Jurisdictional Areas

To remain in compliance with Section 404 of the Clean Water Act, project proponents and property owners (applicants) are required to be permitted by the Corps prior to discharging or otherwise impacting waters of the United States. In many cases, the Corps must visit a proposed project area (to conduct a "jurisdictional determination") to confirm the extent of area falling under their jurisdiction prior to authorizing any permit for that project area. Typically, at the time the jurisdictional determination is conducted, applicants (or their representative) will discuss the appropriate permit application that would be filed with the Corps for permitting the proposed impact(s) to "waters of the United States."

Pursuant to Section 404 of the Clean Water Act, the Corps normally provides two alternatives for permitting impacts to the type of "waters of the United States" found in the project area. The first alternative would be to use Nationwide Permit(s) (NWP). The second alternative is to apply to the Corps for an Individual Permit (33 CFR Section 235.5(2)(b)). The application process for Individual Permits is extensive and includes public interest review procedures (i.e., public notice and receipt of public comments) and must contain an "alternatives analysis" that is prepared pursuant to Section 404(b) of the Clean Water Act (33 U.S.C. 1344(b)). The alternatives analysis is also typically reviewed by the federal EPA and thus brings another resource agency into the permitting framework. Both the Corps and EPA take the initial viewpoint that there are practical alternatives to the proposed project if there would be impacts to waters of the U.S., and the proposed permitted action is not a water dependent project (e.g. a pier or a dredging project). Alternative analyses therefore must provide convincing reasons that the proposed permitted impacts are unavoidable. Individual Permits may be available for use in the event that discharges into regulated waters fail to meet conditions of NWP(s).

NWPs are a type of general permit administered by the Corps and issued on a nationwide basis that authorize minor activities that affect Corps regulated waters. Under NWP, if certain conditions are met, the specified activities can take place without the need for an individual or regional permit from the Corps (33 CFR, Section 235.5[c][2]). In order to use NWP(s), a project must meet 27 general nationwide permit conditions, and all specific conditions pertaining to the NWP being used (as presented at 33 CFR Section 330, Appendices A and C). It is also important to note that pursuant to 33 CFR Section 330.4(e), there may be special regional conditions or modifications to NWPs that could have relevance to individual proposed projects. Finally, pursuant to 33 CFR Section 330.6(a), Nationwide permittees may, and in some cases must, request from the Corps confirmation that an activity complies with the terms and conditions of the NWP intended for use (*i.e.*, must receive “verification” from the Corps).

Prior to finalizing design plans, the applicant needs to be aware that the Corps maintains a policy of “no net loss” of wetlands (waters of the United States) from project area development. Therefore, it is incumbent upon applicants that propose to impact Corps regulated areas to submit a mitigation plan that demonstrates that impacted regulated areas would be recreated (*i.e.*, impacts would be mitigated). Typically, the Corps requires mitigation to be “in-kind” (i.e., if a stream channel would be filled, mitigation would include replacing it with a new stream channel), and at a minimum of a 1:1 replacement ratio (i.e., one acre or fraction there of recreated for each acre or fraction thereof lost). Often a 2:1 replacement ratio is required. Usually the 2:1 ratio is met by recreation or enhancement of an equivalent amount of wetland as is impacted, in addition to a requirement to preserve an equivalent amount of wetland as is impacted by the project. In some cases, the Corps allows “out-of-kind” mitigation if the compensation site has greater value than the impacted site. For example, if project designs call for filling an intermittent drainage, mitigation should include recreating the same approximate jurisdictional area (same drainage widths) at an offsite location or on a set-aside portion of the project area. Finally, there are many Corps approved wetland mitigation banks where wetland mitigation credits can be purchased by applicants to meet mitigation compensation requirements. Mitigation banks have defined service areas and the Corps may only allow their use when a project would have minimal impacts to wetlands.

10.1.2 Applicability to the Proposed Project

Mr. Monk is a qualified wetlands biologist that has been conducting wetland delineations with the U.S. Army Corps of Engineers for more than 25 years. Mr. Monk conducted a preliminary wetland delineation according to the Corps’ 1987 *Wetlands Delineation Manual*[1] in conjunction with the Regional Supplement for the Arid West Region[2]. Vegetation, hydrology, and soils information from selected data points were recorded. The locations of these data points are indicated on the preliminary wetland delineation map (Exhibit A- Attached). Data points and potential wetland areas were mapped using a Trimble Pro-XR Global Positioning System (GPS) having sub-meter accuracy. GPS data were corrected using base station files from California Survey and Drafting. The delineation map was made from the GPS files using ArcMap 9.0. All spatial data were projected into the California State Plane, NAD 83 coordinate system, Zone 3. Using GPS technology, the boundaries (within 30 inches) of each delineated wetland was transferred to an aerial photograph of the project site.

Exhibit A indicates that the southern one-half or more of the project site would likely be regarded by the Corps as subject to their jurisdiction pursuant to Section 404 of the Clean Water

---

[1] U.S. Army Corps of Engineers. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station. Technical Report, Y-87-1. Vicksburg, Mississippi. 100 pp

[2] U.S. Army Corps of Engineers. 2008. Regional supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2). Ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center (December 2008).

Act. A significant area near the residence was formerly dominated by arroyo willows (was recently cleared), which are a hydrophytic plant species. As willows are deep-rooted they are not necessarily indicative of "wetland conditions." Hydrology must be within the top 12 inches of the soil profile and soils must also exhibit redoximorphic conditions. The wetland/upland boundary was defined not by the presence of willows. Rather it was defined by soils exhibiting redoximorphic conditions (shown in Exhibit A as "wetland") vs. those soils that exhibited no or very little redoximorphic conditions (not mapped in Exhibit A as "wetland"). The redoximorphic conditions in this case also helped define hydrology within the top 12 inches of the soil profile.

As the applicant has cleared trees from a likely wetland area, the applicant did not "fill" this wetland area. As the Corps (Clean Water Act) only regulates fill in waters of the U.S., thus far no activities have transpired by the applicant that include vegetation clearing, that likely would require a permit from the Corps. That said any proposed fill of the mapped wetland area would require a permit from the Corps.

Please note that only the Corps can determine the extent of its jurisdiction, but wetland consultants typically render draft delineation maps that are then confirmed by the Corps. No action with the Corps is required if the applicant will avoid all likely Corps' jurisdictional areas.

To avoid up to two or more years of regulatory hurdles (Corps permitting that includes Section 7 consultation with the U.S. Fish and Wildlife Service), and expensive wetland and/or species mitigation, M&A highly recommends that any project that is implemented on the project site avoid likely waters of the U.S. (and state). This will best ensure that no permits are required from the Corps for Clean Water Act impacts to waters of the United States.

11. STATE WATER RESOURCES CONTROL BOARD (SWRCB) / CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)

11.1.1 SECTION 401 OF THE CLEAN WATER ACT

The SWRCB and RWQCB regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the Clean Water Act. While the Corps administers a permitting program that authorizes impacts to waters of the United States, including wetlands and other waters, any Corps permit authorized for a proposed project would be inoperative unless it is a NWP that has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification or waiver of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the permit (the term is typically for five years). Certification must be consistent with the requirements of the federal Clean Water Act, the California Environmental Quality Act, the California Endangered Species Act, and the SWRCB's mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification of water quality.

Additionally, if a proposed project would impact waters of the State, including wetlands, the project applicant must demonstrate that the project is unable to avoid these adverse impacts, or water quality certification will most likely be denied. Section 401 Certification may also be denied based on significant adverse impacts to waters of the United States/State, including wetlands.

11.1.2 Applicability to the Proposed Project

Since the RWQCB does not have a formal method for technically defining what constitutes waters of the state, they typically fall back on the Corps' methods for delineation of Clean Water Act regulated waters of the State. Any impacts to waters of the State would have to be mitigated to the satisfaction of the RWQCB prior to the time this resource agency would issue a permit for impacts to such features. The RWQCB requirements for issuance of a "401 Permit" typically parallels the Corps requirements for permitting impacts to Corps regulated areas pursuant to Section 404 of the Clean Water Act. Please refer to the Corps Applicability Section above for likely mitigation requirements for impacts to RWQCB regulated wetlands. Also, please refer to the applicability section of the Porter-Cologne Water Quality Control Act below for other applicable actions that may be imposed on the project by the RWQCB prior to the time any certification of water quality is authorized for the project. Please note that any isolated wetlands or other waters that are determined to be on the project site that are not regulated by the Corps pursuant to the SWANCC decision, would still be regulated by the RWQCB pursuant to the Porter-Cologne Water Quality Control Act (see below).

To avoid up extensive and expensive wetland, M&A highly recommends that any project that is implemented on the project site avoid likely waters of the state. This will ensure that a Clean Water Act Section 401 permit is not required from the RWQCB.

11.1.3 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that "any person discharging waste, or proposing to discharge waste, that could affect the waters of the State to file a report of discharge" with the RWQCB through an application for waste discharge (Water Code Section 13260(a)(1). The term "waters of the State" is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050(e)). It should be noted that pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates "isolated wetlands," or those wetlands considered to be outside of the Corps' jurisdiction pursuant to the SWANCC decision (see Corps Section above).

The RWQCB generally considers filling in waters of the State to constitute "pollution." Pollution is defined as an alteration of the quality of the waters of the state by waste that unreasonably affects its beneficial uses (Water Code §13050(1)). The RWQCB litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any "threat" to water quality.

The RWQCB requires complete pre- and post-development Best Management Practices Plan (BMPs) of any portion of the project site that is developed. This means that a water quality treatment plan for the pre- and post-developed project site must be prepared and implemented. Preconstruction requirements must be consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES). That is, a *Stormwater Pollution Prevention Plan* (SWPPP) must be developed prior to the time that a site is graded (see NPDES section below). In addition, a post construction BMPs plan, or a Stormwater Management Plan (SWMP) must be developed and incorporated into any site development plan.

11.1.4 Applicability to Proposed Project

Since any "threat" to water quality could conceivably be regulated pursuant to the Porter-Cologne Water Quality Control Act, care will be required when constructing the proposed project to be sure that adequate pre and post construction Best Management Practices Plan (BMPs) are incorporated into the project implementation plans. Please note that any isolated wetlands defined by the Corps on the project site, that are not regulated by the Corps pursuant to the SWANCC decision, would still be regulated by the RWQCB pursuant to the Porter-Cologne Water Quality Control Act.

It should also be noted that prior to issuance of any permit from the RWQCB this agency will require submittal of a Notice of Determination from the City of Pacifica indicating that the proposed project has completed a review conducted pursuant to CEQA.

12. CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE PROTECTIONS

Pursuant to Section 1602 of the California Fish and Game Code, California Department of Fish and Wildlife (the Department) regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which the Department typically considers to include its riparian vegetation.

There are no streams or tributaries occurring on the project site that would be regulated by the Department. Hence, a SBAA with the Department pursuant to 1602 of the Fish and Game Code would not be necessary for any development of the project site.

13. LITERATURE CITED

Bulger, J.B., N.J. Scott, Jr., R.B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. Biological Conservation. Vol. 110. Issue 1. March 2003. pps. 85-95.

Fellers, Gary M. and Patrick M. Kleeman (2007). California red-legged frog *(Rana draytonii)* movement and habitat use: implications for conservation. Western Ecological Research Center, USGS, Point Reyes National Seashore, Point Reyes, California 94956 *USA.* Journal of Herpetology. Vol. 31, No. 2, Pages 276-286, 2007. Copyright 2007 Society for the Study of Amphibian and Reptiles.

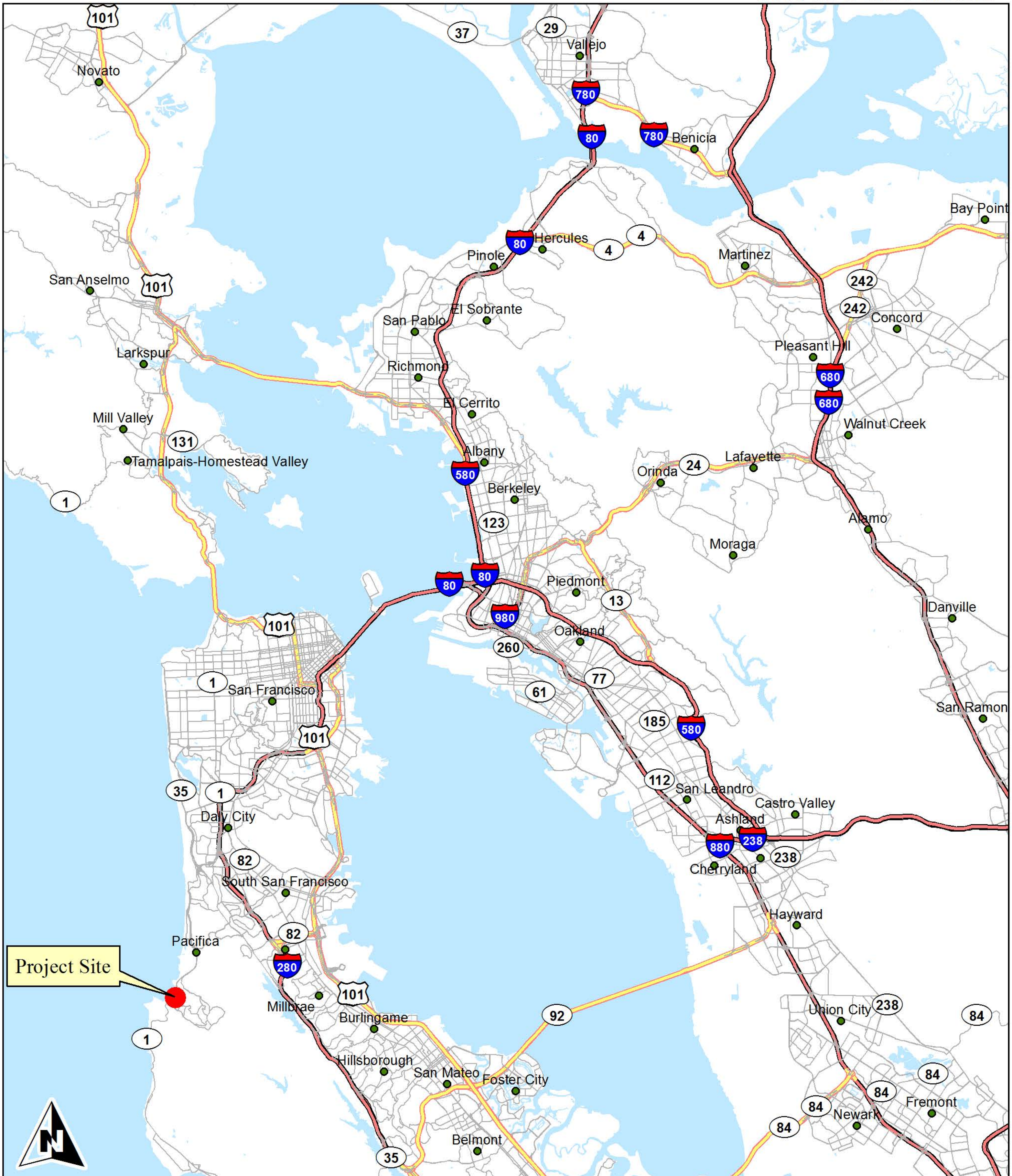
Hobson, K.,P. Perrine, E.B. Roberts, M.L. Foster and P. Woodin. 1986. A breeding season survey of salt marsh common yellowthroats (*Geothlypis trichas sinuosa)* in the San Francisco Bay Region. Report of the San Francisco Bay Bird Observatory to the U.S. Fish and Wildlife Service.

Shuford, W.D. 1993. The Marin County breeding bird atlas: A distributional and natural history of coastal California birds. California Avifauna S

Tatarian, P. J. 2005. Movement patterns of the California red-legged frogs (*Rana aurora draytonii*) in an inland California environment (Master's Thesis, Sonoma State University).

USFWS (U.S. Fish and Wildlife Service). 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon. Viii + 173 pps.

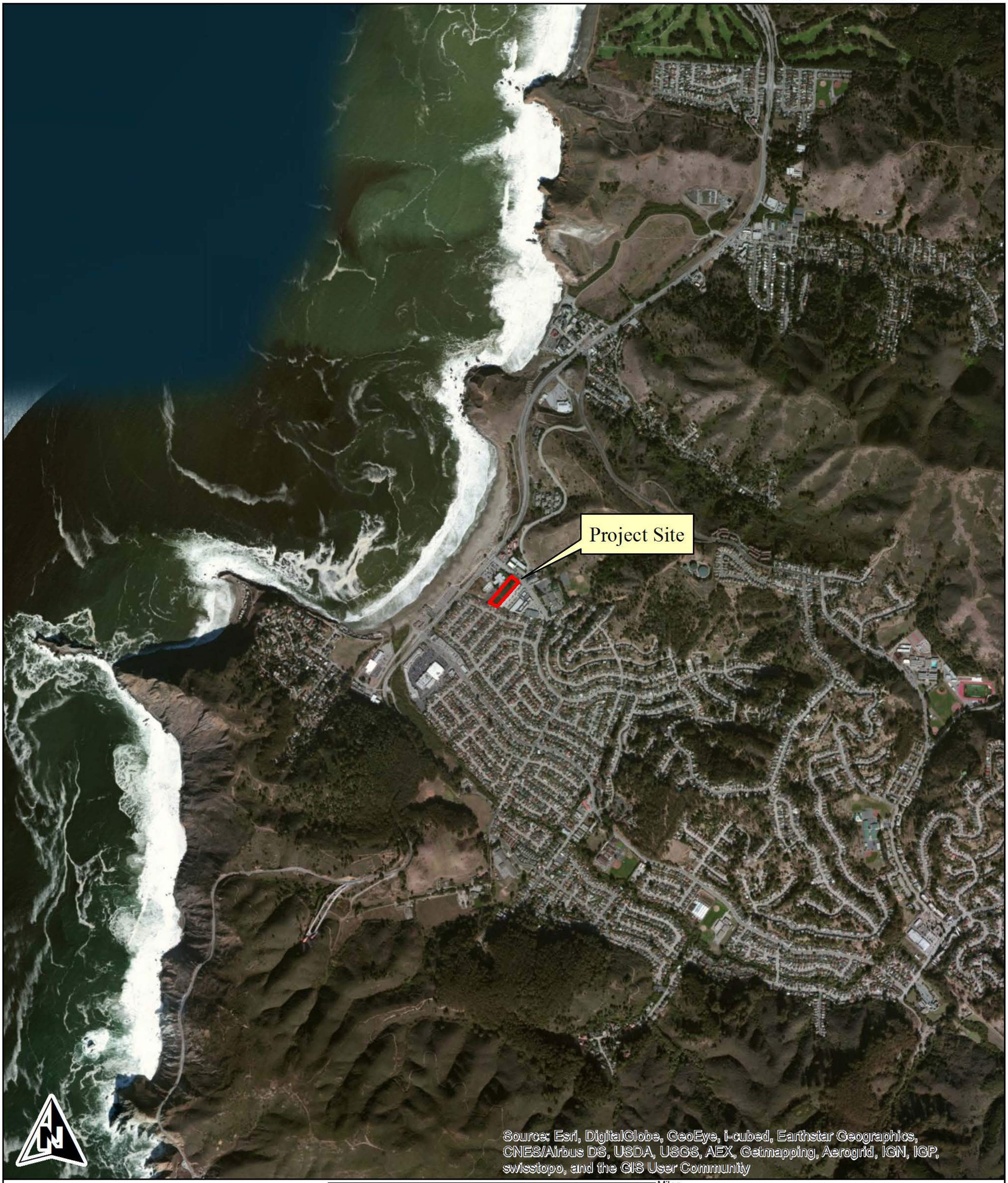
USFWS (U.S. Fish and Wildlife Service) 2010. Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for California Red-Legged Frog; Final Rule. Federal Register 50 CFR Part 17 March 17, 2010 (Volume 75, Number 51) Page 12815-12864



Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Figure 1. 570 Crespi Drive Project Site
Regional Map
Pacifica, California

County: San Mateo
Map Preparation Date: September 15, 2014



Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

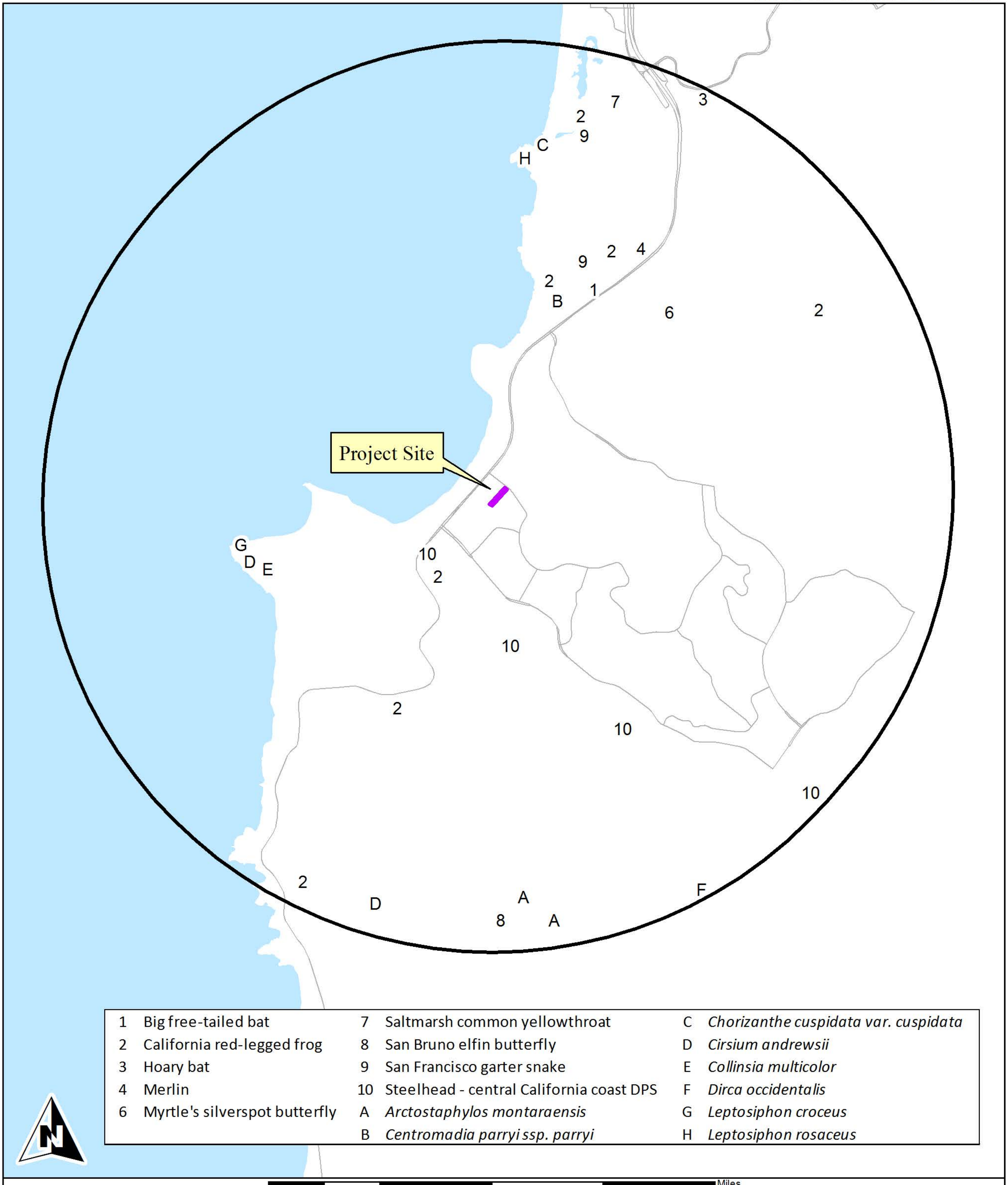
Figure 2. 570 Crespi Drive Project Site
Location Map
Pacifica, California

Land Grant
7.5-Minute Montera Mountain quadrangle
Aerial Photograph Source: ESRI
Map Preparation Date: September 15, 2014

Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Figure 3. Aerial Photograph of the
570 Crespi Drive Project Site
Pacifica, California

Aerial Photograph Source: ESRI
Map Preparation Date: September 15, 2014



Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Figure 4. Closest Known Special-Status Species Occurrences within 2 Miles of the 570 Crespi Drive Project Site

Map Preparation Date:
October 6, 2014
2-Mile Radius
Source: CDFW,
California Natural Diversity Data Base, 2014

Table 1

Special-Status Plants Known From Within Two Miles of Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Asteraceae					
Centromadia parryi parryi Pappose tarplant	Fed: - State: - CNPS: Rank 1B.2	May-November	Coastal prairie; meadows and seeps; marshes and swamps; vernally wet grassland (sometimes alkaline).	Record for this species located 0.3 mile south from the project site (Occurrence No. 1).	Site too canopied with trees, and Baltic juncus seasonal wetland to wet and dense to provide opportunity for this species to occur. Not visible during September 2014 site visit.
Cirsium andrewsii Franciscan thistle	Fed: - State: - CNPS: Rank 1B.2	June-July	Broadleafed upland forest; coastal bluff scrub; [sometimes serpentinite].	Record for this species located 1.0 mile west from the project site (Occurrence No. 2).	No likely habitat occurs. Regardless, this species would be vegetatively evident throughout the summer months. Not present during M&A's September site visit (both onsite or on adjacent
Ericaceae					
Arctostaphylos montaraensis Montara manzanita	Fed: - State: - CNPS: Rank 1B	January-March	Chaparral (maritime), Coastal scrub.	Record for this species located 1.0 mile northwest from the project site (Occurrence No. 2).	No suitable habitat on the project site for this species.
Plantaginaceae					
Collinsia multicolor San Francisco collinsia	Fed: - State: - CNPS: Rank 1B	March-May	Closed-cone coniferous forest; shady scrub forest, coastal scrub.	Record for this species located 1.0 mile west from the project site (Occurrence No. 13).	No closed cone conifer or coastal scrub. No suitable habitat on the project site for this species.
Polemoniaceae					
Leptosiphon croceus Coast yellow leptosiphon	Fed: - State: - CNPS: Rank 1B.1	April-May	Only known from 5 locations. Open, grassy areas, coastal bluffs,	Record for this species located 1.0 mile west from the project site (Occurrence No. 3).	No grassland or coastal bluff. No suitable habitat on the project site for this species.

Table 1

Special-Status Plants Known From Within Two Miles of Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Leptosiphon rattanii Rattan's leptosiphon	Fed: - State: - CNPS: Rank 4	May-July	Dry openings in conifer forest. 1700 to 2000 meters.	Record for this species located 1.4 mile northfrom the project site (Occurrence No. 3).	No suitable habitat on the project site for this species.
Polygonaceae					
Chorizanthe cuspidata cuspidata San Francisco Bay spineflower	Fed: - State: - CNPS: Rank 1B	April-July	Coastal bluff scrub; coastal dunes; coastal prairie; coastal scrub [sandy]	Record for this species located 1.9 mile north from the project site (Occurrence No. 2).	No suitable habitat on the project site for this species. No sandy soils.
Thymelaeaceae					
Dirca occidentalis Western leatherwood	Fed: - State: - CNPS: Rank 1B.2	January-April	Chaparral; riparian, broadleaf, and coniferous woodlands and forests; [mesic locations].	Record for this species located 2.0 mile southeast from the project site (Occurrence No. 53).	Would be vegetatively visible of present. No observed on or adjacent to the project site. No suitable habitat on the project site for this species.

Table 1

Special-Status Plants Known From Within Two Miles of Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site

***Status**

Federal:
FE - Federal Endangered
FT - Federal Threatened
FPE - Federal Proposed Endangered
FPT - Federal Proposed Threatened
FC - Federal Candidate

State:
CE - California Endangered
CT - California Threatened
CR - California Rare
CC - California Candidate
CSC - California Species of Special Concern

CNPS:
Rank 1A - Presumed extinct in California
Rank 1B - Plants rare, threatened, or endangered in California and elsewhere
Rank 1B.1 - Seriously endangered in California (over 80% occurrences threatened/ high degree and immediacy of threat)
Rank 1B.2 - Fairly endangered in California (20-80% occurrences threatened)
Rank 1B.3 - Not very endangered in California (<20% of occurrences threatened or no current threats known)

CNPS Continued:
Rank 2 - Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 2A - Extirpated in California, common elsewhere
Rank 2B.1 - Seriously endangered in California, but more common elsewhere
Rank 2B.2 - Fairly endangered in California, but more common elsewhere
Rank 2B.3 - Not very endangered in California, but more common elsewhere
Rank 3 - Plants about which we need more information (Review List)
Rank 3.1 - Plants about which we need more information (Review List) Seriously endangered in California
Rank 3.2 - Plants about which we need more information (Review List) Fairly endangered in California
Rank 4 - Plants of limited distribution - a watch list

Table 2

Special-Status Animals Known From Within Two Miles of Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Insects				
Monarch butterfly *Danaus plexippus*	Fed: - State: - Other:	Winters in tall trees along the coast. Prefers eucalyptus, Monterey pine, and Monterey cypress.	The closest record of overwintering sites is from Martini Creek near Montara State Beach about 3 miles SSW (data from suppressed records of the CNDDB).	None. Migration roosts are a highly visible spectacal that are typically quite well known. None are known to occur on the project site. (See text).
San Bruno elfin butterlfy *Callophrys mossii bayensis*	Fed: FE State: - Other:	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on steep, north facing slopes within the fog belt. Larval host plant is Sedum spathulifolium.	Record for this species located 1.9 mile south from the project site (Occurrence No. 14).	None. No suitable habitat on or adjacent to the project site.
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	Fed: FE State: - Other:	Inhabits coastal terrace prairie, coastal bluff scrub, and associated non-native grassland habitats in w. Marin and SW Sonoma Counties. Extirpated from San Mateo County. Viola adunca is the larval food plant.	Record for this species located 1.0 mile north from the project site (Occurrence No. 13).	None. No suitable grassland habitat on the project site.
Fish				
Steelhead - Central California Coast ESU *Oncorhynchus mykiss*	Fed: FT State: - Other:	From Russian River south to Soquel Creek, and to Pajaro River. Also found in San Francisco & San Pablo Bay Basins. Spawn in clear, cool, well oxygenated streams greater than 18 cm deep.	Record for this species located 0.3 mile south from the project site (Occurrence No. 12).	None. No suitable habitat.
Amphibians				
California red-legged frog *Rana draytonii*	Fed: FT State: CSC Other:	Occurs in lowlands and foothills in deeper pools and streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larval development.	Record for this species located 0.3 mile south from the project site (Occurrence No. 652).	None. The seasonal wetalnd on the project site dries in the late spring or early summer. It does not constute breeding habitat. This urban infill project is isolated from migration potential.

Table 2

Special-Status Animals Known From Within Two Miles of Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Reptiles				
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	Fed: FE State: CE Other:	Found in freshwater marshes, ponds, and slow-moving streams on the San Francisco peninsula. Prefers dense cover and water depths of at least one foot.	Closest record is 1 mile north of the project site (CNDDB Occurrence 45)(from Suppressed Records). Record locations in the Pacifica area are all from sites that support well developed aquatic habitats that remain inundated	None. Seasonal wetland on and immediately adjacent to project site dries late in Spring or early summer, and is isolated from extant suitable habitats by surrounding development. See text.
Birds				
Merlin *Falco columbarius*	Fed: State: WL Other:	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches. Clumps of trees or windbreaks are required for roosting in open country.	Record for this species located 1.2 mile northeast from the project site (Occurrence No. 12).	None. Does not nest in California. Migrating birds would not be affected by proposed project.
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	Fed: - State: CSC Other:	Resident of freshwater and salt water marshes in the San Francisco Bay region. Requires thick, continuous cover for foraging and tall grasses, tules, or willows for nesting.	Record for this species located 1.8 mile north from the project site (Occurrence No. 5).	Unlikely. Willow grove on back of project site and on adjacent City property could provide migration habitat. Only a small, limitted area of suitable habitat in an urban setting. It is not expected to support nesting birds (see text).
Mammals				
Hoary bat *Lasiurus cinereus*	Fed: State: Other:	This bat prefers roost sites with dense foliage consisting of medium to large trees. Preferred sites are hidden from above, with few branches below, and have ground cover of low reflectivity.	Record for this species located 2.0 miles north from the project site (Occurrence No. 120).	No longer is a special status bat species. Not expected to be impacted.
Big free-tailed bat *Nyctinomops macrotis*	Fed: - State: CSC Other:	Roost mainly in crevices and rocks in cliff situations, although there is some documentation of roosts in buildings, caves, and tree cavities.	Record for this species located 1.0 mile northwest from the project site (Occurrence No. 20).	None. No rocky habitat for roosting which is the primary roosting habitat. A single family home is tightly sealed and unlikely to support bat species.

Table 2

Special-Status Animals Known From Within Two Miles of Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site

***Status**

Federal:	State:
FE - Federal Endangered	CE - California Endangered
FT - Federal Threatened	CT - California Threatened
FPE - Federal Proposed Endangered	CR - California Rare
FPT - Federal Proposed Threatened	CC - California Candidate
FC - Federal Candidate	CSC - California Species of Special Concern
FPD - Federally Proposed for delisting	FP - Fully Protected
	WL - Watch List. Not protected pursuant to CEQA

Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Exhibit A. Potential Wetlands Area of the
570 Crespi Drive Project Site
Pacifica, California

Aerial Photograph Source: ESRI
Map Preparation Date: September 18, 2014

Wood Biological Consulting
PO Box 1569
El Granada, CA 94018
(415) 254-4835
chris@wood-biological.com
www.wood-biological.com

DATE: August 17, 2020
TO: Brendan Murphy, Eamon Murphy
BayWorks Construction, Inc.
P.O. Box 301
San Mateo, CA 94401
FROM: Chris Rogers
SUBJECT: Biological Constraints Analysis - Updated
540 and 570 Crespi Drive, Pacifica CA

A 2014 Biological Constraints Analysis[1] report was prepared in 2014 for the single parcel at 570 Crespi Avenue. The current development proposal for this parcel (referred to herein as the Murphy parcel) now also includes the adjacent parcel at 540 Crespi Avenue (APN 540 and 570 Crespi Drive, in Pacifica, CA (APN 022-162-420 and 022-162-310) which is owned by the City of Pacifica. The parcels are owned by the City of Pacifica and by Brendan and Eamon Murphy, respectively, and are referred to here as the City parcel and the Murphy parcel (see Figures 1 and 2). The two parcels are under consideration for being merged and developed by the Murphys.

A peer review of the original biology report[2] recommended several information items to enable the City to make planning decisions with regard to biological resources. Because the 2014 report is technically sound (according to the peer review), this memorandum focuses on the items that require update or revision. This memorandum amends the 2014 report in response to the following peer review recommendations:

- Include both parcels that are the subject of the current development proposal.
- Include California Rare Plant Rank 3 plants, which should be analyzed during environmental review under CEQA.
- Expand the analysis to include plants, wildlife and natural communities documented in the California Natural Diversity Data Base within five miles of the project site, and preparing an update to Table 1 of the Biological Constraints Report.
- Provide analysis of the potential for California red-legged frog to occupy the site, and avoidance and minimization measures, if warranted.
- Provide discussion on protections for migratory birds subject to the Migratory Bird Treaty Act and California Fish and Game Code, with recommended avoidance and minimization measures.

In addition to these recommendations to address biological resources, the peer review also recommended an update of the aquatic resources delineation (i.e. wetland delineation) subject to state

---

[1] Monk & Associates. 2014. *Biological Constraints Analysis, 570 Crespi Drive, City of Pacifica, San Mateo County, California (APNS: 022-162-310) (~1.7 Acres)*. Prepared for SC Properties, San Mateo CA. October 8.

[2] Madrone Ecological Consulting. 2020. *Peer review for the proposed 570 Crespi Drive, City of Pacifica, San Mateo County, California*. Letter to Rod Stinson. Raney Planning and Management, Inc. April 4.

and federal jurisdiction. A separate report prepared by Wood Biological Consulting[3] summarizes the findings of the recently completed delineation of aquatic resources for both the City and Murphy parcels.

Because the site is not located within the Coastal Zone, no Environmentally Sensitive Habitat Areas (ESHA) subject to regulation under the City's Local Coastal Plan were documented.

METHODS

Prior to conducting field data collection, Wood Biological Consulting (WBC) reviewed relevant background information, including:

- California Natural Diversity Database records of special-status plant, animal species and natural communities documented as occurring within five miles of the study area[4]
- U.S. Fish and Wildlife Service (IPac) database for federally listed species and migratory birds[5]
- California Native Plant Society Inventory of Rare and Endangered Plants[6]
- a sequence of aerial photo imagery on Google Earth
- Montara Mountain U.S. Geological Survey 7.5-minute topographic quadrangle map,
- a topographic survey map of the study area
- CEQA documentation of the City's recently completed Wet Weather Equalization Basin[7], which is adjacent to and dues west of the City parcel.

In addition, WBC conferred with Mr. Patrick Kobernus of Coast Ridge Ecology, who acted as the City's biological compliance monitor during construction of the EQ basin in 2017-2018, during which he made direct observations of biological resources in the study area.

A reconnaissance-level survey for biological resources on both parcels was conducted by WBC senior ecologist Chris Rogers on July 19, 2020. This consisted of walking as much of the parcels as were physically accessible (dense and impenetrable willow scrub is limiting over a large portion of the study area), and making observations of habitats plant and wildlife species on and adjacent to the study area.

---

3 Wood Biological Consulting. 2020. *Aquatic Resources Delineation*, *540 and 570 Crespi Drive, Pacifica CA.* Technical Report prepared for BayWorks Construction, Inc.

4 California Natural Diversity Database (CNDDB). 2020. Version 5.89.14c. *Query for the Montara Mountain and South San Francisco USGS 7.5' Quadrangles*. California Department of Fish and Wildlife, Biogeographic Data Branch. Sacramento, California. Information dated August 1.

5 United States Fish and Wildlife Service (USFWS). 2020. *IPaC Trust Resource Report for 540 and 570 Crespi Drive.* Information for Planning and Conservation. Report generated July 18 at https://ecos.fws.gov/ipac/

6 California Native Plant Society (CNPS). 2020. *Inventory of Rare and Endangered Plants* (online edition, v8-03 0.39). Query for the Montara Mountain and San Francisco South USGS 7.5' Quadrangles. California Native Plant Society, Sacramento, CA. Accessed July 18 at www.rareplants.cnps.org/

7 Terraphase Engineering, Inc. 2016. *Wet Weather Equalization Basin Project, Draft Mitigated Negative Declaration/Initial Study*. Prepared for City of Pacifica. https://www.cityofpacifica.org/civicax/filebank/blobdload.aspx?BlobID=11510

Botanical taxonomy and nomenclature conforms to The Jepson Manual[8], except for recent revisions posted on the Jepson Online Interchange. Vegetation communities described herein conform to A Manual of California Vegetation[9].

Results of Database queries are included as attachments.

SETTING

The study area is located within the Santa Cruz Mountains subsection of the Central California Coast Section as described in the Ecological Subregions of California[10] (USDA 1997). Vegetation in the study area is not representative of historic conditions, which likely consisted of coastal scrub, coastal dunes and coastal prairie. Currently, the northern portion of the study area supports several large Monterey cypress trees with an understory (groundcover) of predominantly non-native herbaceous vegetation. The southern portion of the study area is slightly lower in elevation gradually becomes dominated by perennial wetland vegetation, such as willows, cattails and sedges.

The study area is situated within a residential and commercial neighborhood of Linda Mar, within the City of Pacifica. The study area ranges from approximately 15 ft elevation (relative to a City benchmark in Crespi Drive) at the northeastern end of the Murphy parcel, to about 9 ft at the southwestern end. The climate is cool and temperate, characteristic of the San Francisco peninsula coastal region. The average annual high temperature in Pacifica is 64°F; the annual average low temperature is 49°F). About 29.5 inches of precipitation falls annually, with the majority of rainfall between October and April[11].

VEGETATION AND WILDLIFE HABITATS

Vegetation within the study area consists of arroyo willow scrub, and emergent marsh, non-native annual grassland, and disturbed and ornamental habitats (figure 3). The following are descriptions of the vegetation types occurring within the wetland delineation study area.

Arroyo Willow Scrub

Willow scrub, dominated by arroyo willow (*Salix lasiolepis*), covers the majority of the southern portion of the study area on both parcels (Figure 3). It also occurs in smaller stands along the western and eastern parcel boundaries. The willows form a dense and impenetrable thicket with few associated plant species. The willow scrub is almost entirely within the delineated wetland boundary; the exception is at the northern extent, where soils and hydrology near the edge of the willows failed to meet jurisdictional criteria.

---

[8] Baldwin, B.G, D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson Manual: Vascular Plants of California*. Second edition. Univ. Calif. Press, Berkeley. 1568 pp. Jepson eFlora available online at http://ucjeps.berkeley.edu/IJM.html

[9] Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation* (2nd edition). California Native Plant Society, Sacramento. 1300 pp. Available online at http://vegetation.cnps.org/

[10] U.S. Department of Agriculture (USDA). 1997. *Ecological Subregions of California: sections and subsections descriptions. USDA, Forest Service, Pacific Southwest Region.* https://web.archive.org/web/20080304224853/http://www.fs.fed.us/r5/projects/ecoregions/`

[11] https://www.usclimatedata.com/climate/pacifica/california/united-states/usca0822

Emergent Marsh

Emergent marsh occupies a shallow topographic depression in the middle part of the study area (Figure 3), corresponding with the small area that used to have shallow ponded water in the winter. Seasonally high groundwater presumably persists, resulting in a predominance of emergent marsh plant species, such as Baltic rush (*Juncus balticus)*, broadleaf cattail (*Typha angustifolia*), Pacific silverweed (*Potentilla anserina* ssp. *pacifica*), and dotted smartweed (*Persicaria punctata*), among others. All of the emergent marsh is within the delineated wetland boundary.

Non-native Annual Grassland

Non-native grassland vegetation is present on the majority of the northern part of the study area, including the former residence site (Figure 3). Dominant plant species are annual grasses, such as bromes (*Bromus diandrus, B. hordeaceus*), slender oats (*Avena barbata*), hare barley (*Hordeum murinum* ssp. *leporinum*), and Italian ryegrass (*Festuca perennis*), with various non-native broad-leaf herbaceous species. A small portion of the non-native annual grassland is situated within the delineated wetland boundary, where it appears to be expanding down the topographic gradient in response to drier soil conditions following groundwater pumping during construction of the City's Wet Weather Equalization Basin.

Disturbed and Ornamental

Disturbed habitat includes land cleared of vegetation or lands that have undergone frequent or extensive alteration to the extent that the site is dominated by non-native plant species. This type of habitat also includes areas subject to periodic vegetation management, such as mowing or brush clearing, which preclude the re-establishment of native vegetation communities. Within the study area, a parking area adjacent to Crespi Drive that is used by beach visitors, and a gravel staging area used during construction of the Wet Weather Equalization Basin are disturbed habitat (Figure 3).

Ornamental vegetation consists of maintained and unmaintained landscaping using native and non-native plants. Within the study area, large Monterey cypress trees are remnants of landscaping associated with the former residence on the Murphy parcel. None of this area is within the delineated wetland boundary.

SPECIAL-STATUS SPECIES

The laws comprising California's legal framework and authority for plant species conservation include the federal Endangered Species Act (FESA), California Endangered Species Act (CESA), the Native Plant Protection Act (NPPA), and California Environmental Quality Act (CEQA). Special-status plants include those listed as endangered, threatened, or rare or as candidates for listing by the USFWS and CDFW[12], as

[12] CDFW. 2020a. *State and Federally Listed Endangered, Threatened, and Rare Plants of California*. Biogeographic Data Branch, Natural Diversity Database. Quarterly publication. January 2. 13 pp. Available online at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline

well as those with California Rare Plant Rank of 1 through 3[13]. Additional definitions are given in Section 15380 of the CEQA Guidelines.

Special-status animal species include those listed as endangered, threatened, or rare or as candidates for listing by the USFWS and/or CDFW[14]. Other species having special status include the "special animals" listed in the CNDDB[15] and avian species protected under the Bald Eagle Protection Act[16] and the Migratory Bird Treaty Act (MBTA)[17]. The California Fish and Game Code provides protection for "fully protected birds[18]", "fully protected mammals[19]", "fully protected reptiles and amphibians[20]," and "fully protected fish[21]." Title 14 of the California Code of Regulations prohibits the take of amphibians[22], reptiles[23], and furbearers[24] that are listed under CESA, MBTA, or are "fully protected." Additional definitions are given in Section 15380 of the CEQA Guidelines.

Special-status natural communities are known to have limited distribution in the region, support special-status plant or wildlife species, or receive regulatory protection (i.e., waters of the United States, covered under Section 404 of the Clean Water Act [CWA] and/or waters of the State covered under Section 1600, *et seq*., of the California Fish and Game Code and the Porter-Cologne Water Quality Control Act [Water Code Sections 13000–14920]). The California Natural Diversity Data Base (CNDDB) has ranked a number of natural communities in terms of their significance and rarity[25].

Tables 1 and 2 (plants and wildlife, respectively; see attachments) provide an update of the summary table included in the 2014 Biological Constraints Analysis report. Two species, salt marsh common yellowthroat and California red-legged frog, are evaluated in detail, below.

---

[13] CDFW. 2020b. *Special Vascular Plants, Bryophytes, and Lichens List.* Biogeographic Data Branch, Natural Diversity Database. Quarterly publication. January. 140 pp. Available online at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline

[14] CDFW. 2020c. *State and Federally Listed Endangered and Threatened Animals of California.* Biogeographic Data Branch, Natural Diversity Database. July 17. 32 pp. Available online at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109405&inline

[15] CDFW. 2020d. *Special Animals List*. Natural Diversity Database. July. 120pp. Available online at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline

[16] 16 USC 668, et seq.

[17] 16 USC 703-711, as amended

[18] §3511

[19] §4700

[20] §5050

[21] §5515

[22] Chapter 5 §41

[23] Chapter 5 §42

[24] Chapter 5 §460

[25] CDFW. 2019. *California Sensitive Natural Communities*. Biogeographic Data Branch, Natural Diversity Database. November 8. 63 pp. Available online at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline

California red-legged frog

The 2014 Biological Constraints Analysis provided a detailed summary of California red-legged frog (CRLF), including its regulatory status (*i.e.*, federal under the Federal Endangered Species Act, and state protection as a species of special concern), its breeding and dispersal habitat requirements, and environmental conditions that facilitate their movement. The analysis also cited the *USFWS recovery Plan for California Red-Legged Frog* that populations are "most likely to persist where multiple breeding areas are embedded within a matrix of habitats used for dispersal." "The primary constituent elements for California red-legged frogs are aquatic and upland areas where suitable breeding and non-breeding habitat is interspersed throughout the landscape and is interconnected by unfragmented dispersal habitat"[26].

The 2014 Biological Constraints Analysis did not, however provide an analysis of the potential for California red-legged frog to occupy the study area. Based on observations of the emergent wetlands in the study area in July 2020, and conversations with the biologist that monitored the construction of the City's Wet-Weather Equalization Basin, the study area does provide suitable breeding or dispersal habitat for this species[27]. The only potentially aquatic feature is a small area within the emergent marsh vegetation that, in the past, ponded seasonally, but not consistently between and within years. In particular, *permanent* water for the minimum duration of 11-20 weeks required for larval development does not occur. Groundwater level on and around the study area appear to have been drawn down since construction of the Equalization Basin[28].

The nearest population of CRLF is just 0.3 miles south of the study area, in San Pedro Creek, but is separated from by dense residential and commercial development, heavily traveled roads (including Highway 1), and frequently-visited Pacifica State Beach. There are no opportunities for CRLF to successfully disperse to the study area from San Pedro Creek. Similarly, populations of CRLF at Calera Creek (1 mile north of the study area; Occ. #504), Laguna Salada (1.9 miles north; Occ. #455), and in Vallemar (1.6 mile northeast; Occ. #918) are separated from the study area high ridges and other topographic barriers precluding line-of-sight migration, residential development and major roads, including Highway 1.

Therefore, the primary constituent elements in the *Recovery Plan* and cited above are not present. Therefore, avoidance and minimization measures for CRLF are not warranted.

Saltmarsh common yellowthroat

Regulatory Status: FESA: none; CESA: none; CDFW: none (full species); USFWS: Bird of Conservation Concern; Global/State rarity ranking: G5T3/S3.

Description: Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa,* hereafter SCY) is a California Species of Special Concern[29], a Bird Species of Conservation concern[30], and is protected under the

[26] USFWS. 2002. *Recovery Plan for the California Red-legged Frog* (Rana aurora draytonii). Region 1, Portland, Oregon. Viii+173 pp. May 28.
[27] Patrick Kobernus, pers. comm. with C. Rogers. July 20, 2020.
[28] Wood Biological Consulting. *Ibid.*
[29] CDFW. 2020d. *Ibid.*
[30] USFWS. 2020. *Ibid*.

federal Migratory Bird Treaty Act and California Fish and Game Code[31]. Species assigned a ranking of S3 are considered vulnerable, at risk of extirpation in California due to fairly restricted range, relatively very few populations or occurrences, recent or widespread declines, threats, or other factors (CDFW, 2015c). Impacts to nesting saltmarsh common yellowthroat would be a significant adverse impact pursuant to the statutes and guidelines of CEQA; impacts should be addressed in environmental review documents. Impact avoidance measures are warranted, as outlined in the Recommendations section, below.

SCY is a small bird with an olive-brown back and rich yellow throat. This migratory bird ranges from Canada to southern Mexico and winters from the southern United States to the West Indies and Panama. A year-round resident of the San Francisco Bay Area, the SCY inhabits dense vegetation in wetlands, marshes, estuaries, prairies and riparian areas of San Francisco and San Pablo bays, and along the coastal areas of Marin, San Francisco, and San Mateo counties[32].

SCY requires thick, continuous cover down to the water surface for foraging and tall grasses, tule patches or willows for nesting, and forage on insects and spiders on the ground or within dense vegetation[33]. Nests are built near the base of dense vegetation, sometimes over water[34]. Breeding occurs from mid-March to late July, and pair typically double-brood[22, 24].

Critical Habitat: The SCY is not listed under FESA; therefore, Critical Habitat has not been designated for the species.

Habitat Suitability and Probability of Occurrence: The 2014 Biological Constraints Analysis referenced the nearest known record (CNNDB Occ. #5) which is 1.8 miles north of the study area, and acknowledged the potential for the willows on the site to provide migratory habitat, but stated that it the study area provided nesting habitat due to its small area and urban setting. Field observations during the July 2020 survey agree with this, but also note the absence of proximity to water that is usually associated with SCY nests, which further supports the conclusion that the study area is not high quality nesting habitat for this species. SCY was observed in the study area during monitoring of the City's wet-weather equalization basin in 2017-2018[35], although its nesting status was not determined.

Potential Project-Related Effects: Due to the marginal value of nesting habitat, the species may use the willow thicket within the study area for occasional foraging by periodic transitory individuals. Although the removal or pruning of willows on site is not proposed, disturbance from construction activities could result in direct and indirect impacts on breeding SCY and other migratory birds. Disturbance during the nesting season could result in the potential nest abandonment and mortality of young, which would be a

[31] § 3503
[32] Shuford, W.D. and T.G. Gardali. Eds. 2008. *California Bird Species of Special Concern. A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California*. Studies of Western Birds No. 1. Western Field Ornithologists, Camarillo, California and California Department of Fish and Game, Sacramento. 65 pp. Available on line at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83841
[33] Guzy and Ritchison, 1999
[34] Baicich and Harrison, 2005
[35] Patrick Kobernus, pers. comm. with C. Rogers. July 20, 2020.

significant adverse effect pursuant to CEQA. Impact avoidance measures are warranted and are outlined in the Recommendations Section, below.

Migratory Birds and Raptors

In addition to special-status birds identified within five miles of the study area in the CNDDB, the USFWS IPaC database also identified 19 species of birds protected under the Migratory Bird Treaty act and Bald Eagle Protection Act, and are considered Bird Species of Conservation Concern. The IPaC database queery results are included in the Attachments. Of the 19 species listed, two raptors (bald eagle and golden eagle) are not expected to occur in the study area based on lack of suitable habitat. Eight species are not expected to occur in the study area because they are marine birds or shorebirds (black oystercatcher, black turnstone, Clark's grebe, long-billed curlew, marbled godwit, short-billed dowitcher, whimbrel, and willet). Suitable nesting habitat for three species (Nuttall's woodpecker, oak titmouse, and tri-colored blackbird) is not present in the study area. The remaining six species (Allen's hummingbird, rufous hummingbird, song sparrow, spotted towhee, wrentit, and saltmarsh common yellowthroat) have low probability of nesting in the study area, but cannot be entirely ruled out. Saltmarsh common yellowthroat is discussed in detail above. Impact avoidance measures are warranted and are outlined in the Recommendations Section, below.

Other Special-Status Species

In addition to the special-status species identified within five miles of the study area in the CNDDB query, several additional special-status species were identified in the USFWS and CNPS database searches. These database searches do not include site-specific observations, but instead document species that may occur nearby based on location or that have been observed within the same USGS quadrangle maps. Federal-listed species identified on the USFWS IPaC database for which no habitat is present in the study area includes: two mammals that are limited to marine or tidal saltmarsh habitats (southern sea otter and salt marsh harvest mouse); five bird species of marine, beach or tidal wetland habitats (Ridgway's [=California] clapper rail, California least tern, marbled murrelet, short-tailed albatross, and western snowy plover; one reptile (green sea turtle); two fish (delta smelt, tidewater goby), and one plant (San Mateo woolly sunflower). The study area also is not within any critical habitat designated for federal listed species. The results of the USFWS IPaC query are provided in the attachments.

A query of the CNPS Inventory generated a list of 66 plant species that have been documented as occurring on the Montara Mountain and San Francisco South USGS quadrangle maps. All 30 plant species identified by CNDDB as occurring within five miles of the study area are included in the CNPS Inventory results as well. The remaining 36 plant species are not considered to have potential to occur in the study area due to lack of suitable habitat (such as chaparral, coastal dunes and scrubs, undisturbed or native grasslands, forest and woodlands, chaparral), absence of specialized soils (such as soils derived from serpentinite), distance from well-documented range of occurrence, or because they are perennial plants that would have been detected at the time of the survey. The results of the CNPS Inventory query are provided in the attachments.

RECCOMENDATIONS

As described above, marginally suitable habitat is present on site for one special-status animal species, saltmarsh common yellowthroat. In addition, raptors and other migratory bird species protected under state and federal law, if nesting on or near the study area during construction, could be adversely affected by the project. These effects could be reduced to a less-than-significant level with incorporation of the following project design features included as part of the proposed project.

1. Special-Status and Migratory Birds

Although removal or pruning of willow trees and shrubs or other vegetation associated with the arroyo willow scrub and emergent marsh vegetation is not proposed, project construction of the project would temporarily increase noise and human activity levels nearby; these activities could result in indirect impacts on birds by disrupting breeding or causing abandonment of occupied nests. If present at the time of construction, such indirect impacts on special-status and migratory birds, including saltmarsh common yellowthroat, would be considered significant pursuant to CEQA.

The 2014 Biological Constraints Analysis recommended, and we concur, that a pre-construction survey be conducted prior to site grading or other construction work if this work occurs between February 1 and August 31 (the CDFW-designated nesting season for birds) to ensure that if saltmarsh common yellowthroat or any other migratory birds nest are nesting near the project site, they will not be affected by the proposed project. If an active nest is discovered, a protective buffer should be designated by a qualified biologist that is of sufficient size to keep the nesting birds, their eggs/young from being harmed by disturbance associated with implementation of a construction project.

To ensure compliance with protections for migratory birds under the Migratory Bird Treaty Act and the California Fish and Game Code, the measures outlined below should be implemented prior to the commencement of construction activities. With the incorporation of the measures outlined below, potential impacts would be reduced to a less-than-significant level pursuant to CEQA.

1. If construction activities are scheduled to occur outside of the breeding season (*i.e.*, September 1 through January 31), no pre-construction surveys or other mitigation measures are necessary.
2. If construction activities are scheduled to occur during the breeding season (i.e., February 1 through August 31), a preconstruction nesting bird survey should be conducted of the wharf structures, the identified work area and a buffer zone (see #3, below). The survey should be performed by a qualified biologist no more than two weeks prior to the initiation of work. If no nesting or breeding activity is observed, work may proceed without restrictions. To the extent allowed by access, all active nests identified within 76 m (250 ft) for raptors and 33 m (100 ft) for passerines should be mapped.
3. For any active nests found near the construction limits (76 m [250 ft] for raptors and 33 m [100 ft] for passerines), the project biologist should make a determination as to whether or not construction activities are likely to disrupt reproductive behavior. If it is determined that construction is unlikely to disrupt breeding behavior, construction may proceed. If it is determined that construction may disrupt breeding, the no-construction buffer zone should be expanded; avoidance is the only mitigation available. The ultimate size of the no-construction buffer zone may be adjusted by the project biologist based on the species involved, topography, lines of site between the work area and the nest, physical barriers, and the ambient level of

human activity. For raptors, the project biologist will contact CDFW and/or the USFWS Division of Migratory Bird Management for guidance regarding site evaluations and buffer adjustments.

If it is determined that construction activities are likely to disrupt raptor breeding, construction activities within the no-construction buffer zone may not proceed until the project biologist determines that the nest is long longer occupied.

4. If maintenance of a no-construction buffer zone is not practicable, active nests should be monitored by a qualified biologist to document breeding and rearing behavior of the adult birds. If it is determined that construction activities might cause nest abandonment, work should cease until the project biologist determines that the nest is long longer occupied. For raptors, the CDFW and/or the USFWS Division of Migratory Bird Management should be contacted for guidance.

2. Temporary Sediment and Debris Barrier and Wildlife Exclusion Fence

Prior to the start of construction, a temporary sediment and debris barrier will be installed on the southern limit of the construction area that slopes toward the arroyo willow and emergent wetland habitat (see Figure 3). The fence also will double as a wildlife exclusion fence during construction. The fence will consist of standard construction silt fence material with a height of 36 inches. The lower six inches of fence material will either be folded toward the construction side of the fence and weighted down with soil or sandbags, or backfilled in a trench; with both methods, the purpose is to completely contact the surface so that water and sediment will not flow under it, and wildlife will not enter the work area from the wetland.

ATTACHMENTS

Figure 1. Study Area Location

Figure 2. Study Area Boundary

Figure 3. Habitat Map

Figure 4. Special-Status Plants within Five Miles of the Study Area

Figure 5. Special-Status Animals within Five Miles of the Study Area

Figure 6. Sensitive Natural Communities within Five Miles of the Study Area

Table 1. Special-Status Plant Species within Five Miles of the Study Area

Table 2. Special-Status Animal Species within Five Miles of the Study Area

Database Search Results:

- California Natural Diversity Data Base – Plants
- California Natural Diversity Data Base – Animals
- California Natural Diversity Data Base – Sensitive Natural Communities
- U.S. Fish and Wildlife Service – Information for Planning and Consultation (IPaC)
- California Native Plant Society Inventory of Rare and Endangered Plants of California

Figure 1. Study Area Location

Figure 2. Study Area Boundary

Figure 3. Habitat Map

Vegetation Acreages	
AWS-1	0.09
AWS-2	0.45
AWS-3	0.02
AWS-NON-JD	0.08
NNG-1	0.39
SW-1	0.06
FEM-1	0.24
DO-1	0.50
DO-2	0.01

Source: Bing Maps Hybrid (accessed 9/28/2020)

Figure 4. Special-Status Plants within Five Miles of the Study Area

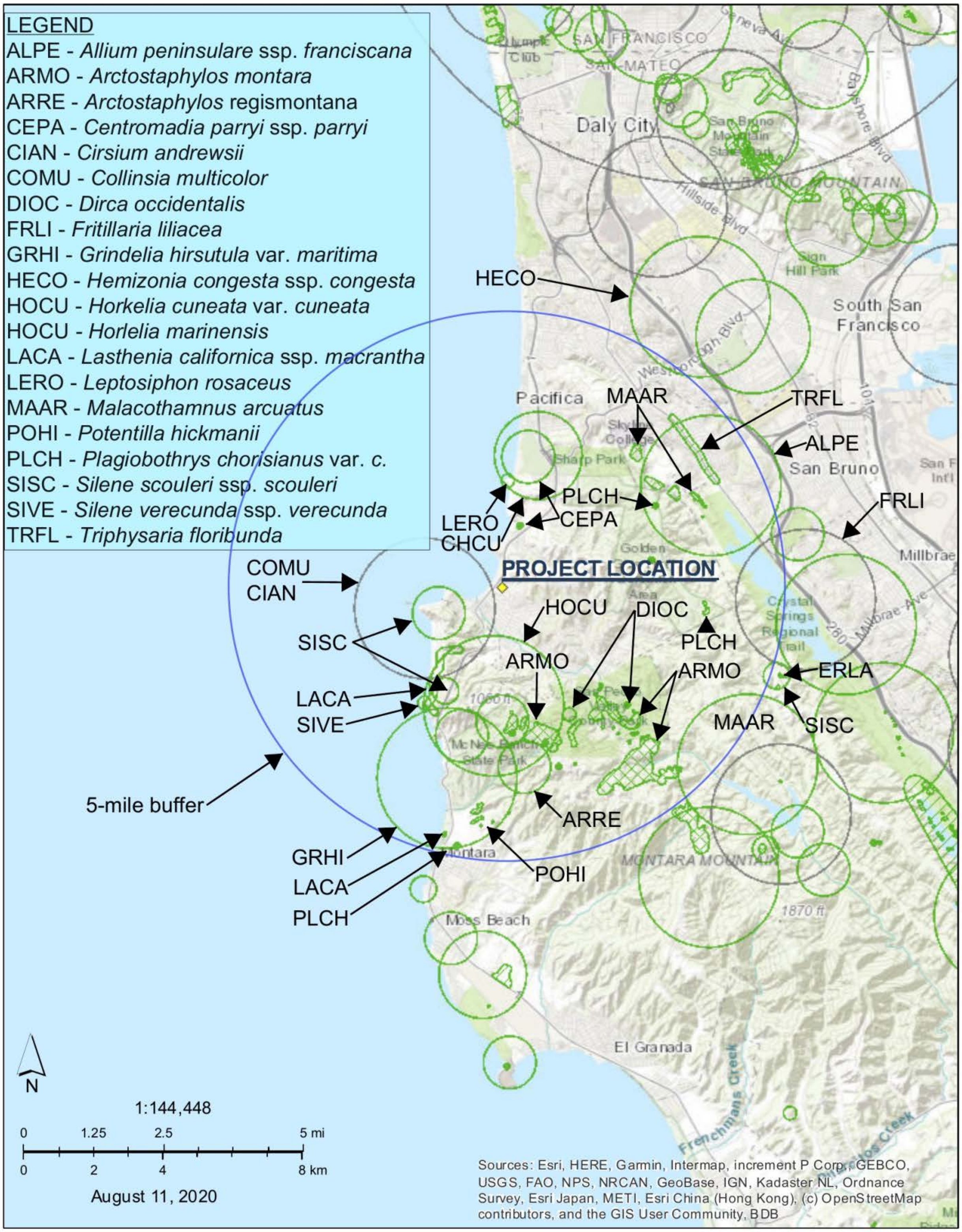


Figure 5. Special-Status Animals within Five Miles of the Study Area

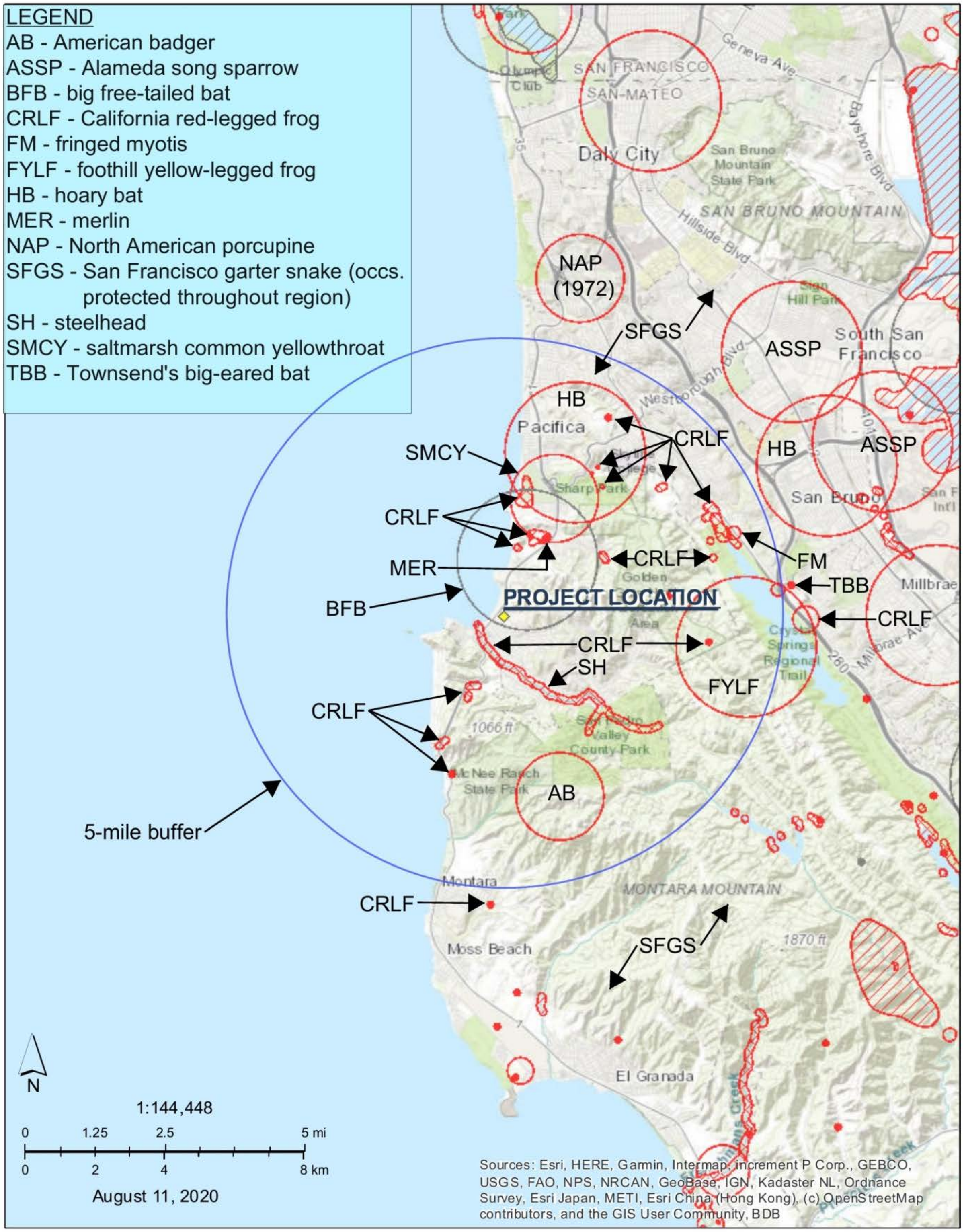


Figure 6. Sensitive Natural Communities within Five Miles of the Study Area

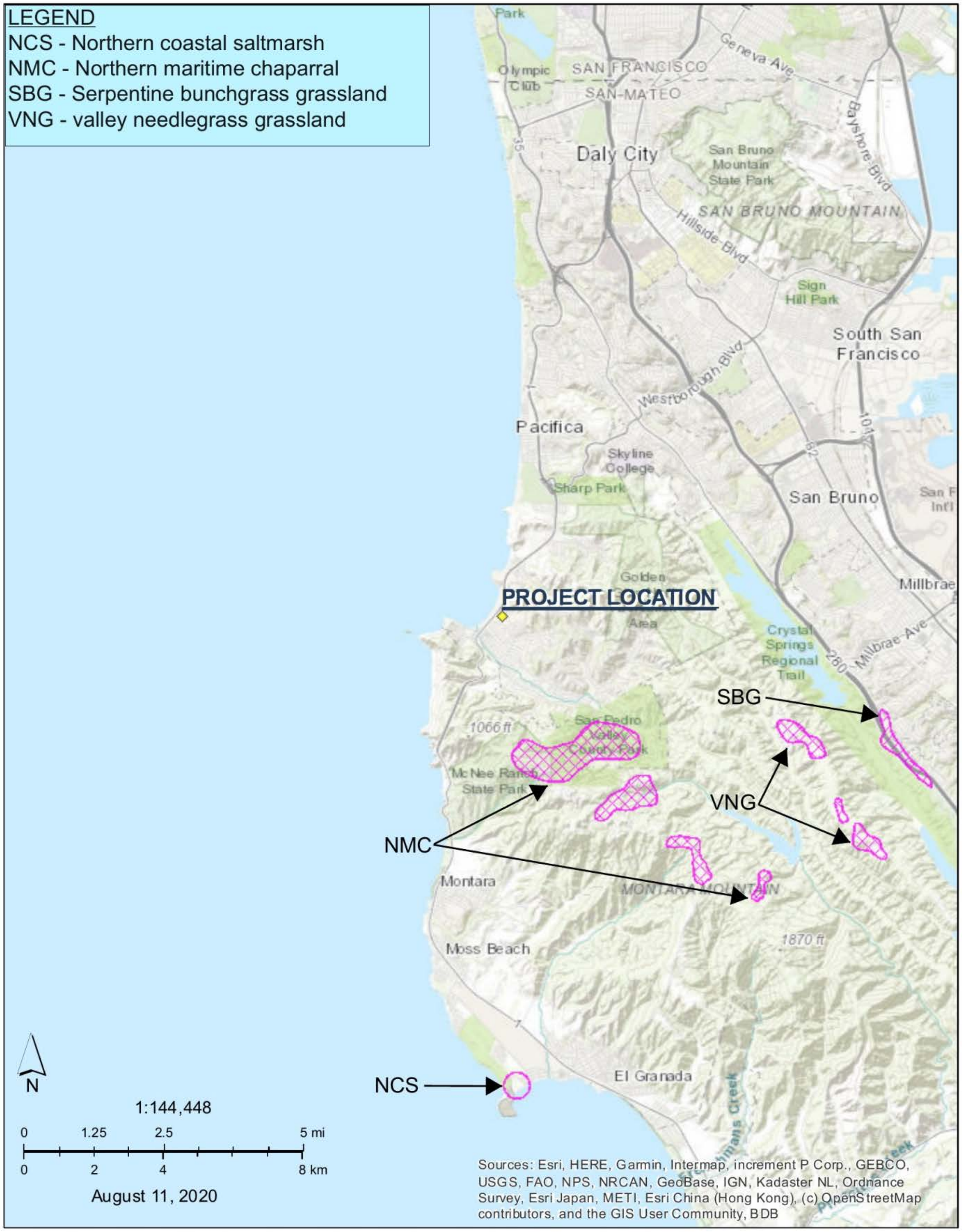


Table 1. Special-status plants within five miles of the study area.

Scientific Name Common Name	Status[1]	Flowering Period	Habitat	Area Locations	Probability in Study Area
Blasdale's bent grass *Agrostis blasdalei*	Fed: none State: none CRPR: 1B.2	May-July	Coastal bluff scrub, coastal dunes, coastal prairie.	Located 4.8 miles south of study area, on coastal bluff in Moss Beach (Occ. #60).	Not present. No suitable habitat. Not observed during July 2020 site visit.
Franciscan onion *Allium peninsulare*	Fed: none State: none CRPR: 1B.2	May-June	Woodland, grassland; clay soils, often on serpentine.	Located 3.4 miles east of study area, near San Andreas Lake. Occ. #20).	Not present. No suitable habitat.
Arctostaphylos montaraensis Montara manzanita	Fed: none State: none CRPR: 1B.2	Jan-March	Maritime chaparral and coastal scrub.	Located 1.8-2.0 miles south to southeast of study area, on and around Montara Mountain (Occ. #2).	Not present. No suitable habitat. Not observed during July 2020 site visit.
Kings Mountain manzanita *Arctostaphylos regismontana*	Fed: none State: none CRPR: 1B.2	Jan-April	Broadleafed upland forest, chaparral, north coast coniferous forest. Granitic or sandstone outcrops.	Located 2.5 miles south of study area, on Peak Mountain and Montara Mountain (Occ. #15).	Not present. No suitable habitat. Not observed during July 2020 site visit.
Centromadia parryi ssp. *parryi* pappose tarplant	Fed: none State: none CRPR: 1B.2	May-Nov	Coastal prairie; meadows and seeps; marshes and swamps; vernally wet grassland (sometimes alkaline).	Located 0.3 mile south from the study area (Occurrence #1).	Not present. No suitable habitat. Perennial plant, would have been seen if present. Not observed during July 2020 site visit.
Cirsium andrewsii Franciscan thistle	Fed: none State: none CRPR: 1B.2	June-July	Broadleafed upland forest; coastal bluff scrub (sometimes serpentinite).	Located 1.0 mile west from the study area (Occ. #2).	Not present. No suitable habitat. Would have been evident if present; not observed.
Chorizanthe cuspidata var. *cuspidata* San Francisco Bay spineflower	Fed: none State: none CRPR: 1B.2	April-July	Coastal bluff scrub; coastal dunes; coastal prairie; coastal scrub (sandy)	Located 1.9 miles north from the project site (Occ. #2).	Very low. Sandy soils present, but species not observed during July 2020 survey.
Collinsia multicolor San Francisco collinsia	Fed: none State: none CRPR: 1B.2	March-May	Closed-cone coniferous forest; shady scrub forest, coastal scrub.	Located 1.0 mile west from study area (Occ. #13).	Not present. No suitable habitat. .
Dirca occidentalis Western leatherwood	Fed: none State: none CRPR: 1B.2	Jan-April	Chaparral; riparian, broadleaf, and coniferous woodlands and forests; (mesic locations).	Located 2 miles SE from study area (Occ. #53).	Not present. No suitable habitat. Shrub/small tree, would have been evident if present. Not observed.
Eriophyllum latilobum San Mateo woolly sunflower	Fed: FE CA: CE CRPR: 1B.1	May-June	Woodland, coastal scrub, lower montane coniferous forest.	Located 4.5 miles ESE, from study area (Occ. #6), near San Andreas Lake.	Not present. No suitable habitat. Perennial shrub, would have been evident if present. Not observed.
Fritillaria liliacea fragrant fritillary	Fed: none State: none CRPR: 1B.2	Feb-April	Coastal scrub, valley and foothill grassland, coastal prairie, woodland, often on serpentine soil, usually on clay soil.	Located 5 miles SE of study area (Occ. #37), near Pilarcitos Lake.	Not present. No suitable soil or habitat.
Grindelia hirsutula var. *maritima* San Francisco gumplant	Fed: none State: none CRPR: 3.2	June-Sept	Coastal scrub, coastal bluff scrub, valley and foothill grassland.	Located 2.75 miles S of study area, near Gray Whale Cove (Occ. #11).	Not present. No suitable habitat. Perennial plant, would have been evident if present. Not observed.
Hemizonia congesta ssp. *congesta* hayfield tarweed	Fed: none State: none CRPR: 1B.2	April-Nov	Valley and foothill grassland.	Historic collection (1909; Occ. #1). Entire area is developed, likely extirpated.	Not present. No suitable habitat. Not observed.

Scientific Name **Common Name**	**Status**[1]	**Flowering Period**	**Habitat**	**Area Locations**	**Probability in Study Area**
Horkelia cuneata var. *sericea* Kellogg's horkelia	Fed: none CA: none CRPR: 1B.1	Feb-July	Coastal dunes (mesic), coastal scrub, coastal salt marshes, streamsides.	Historic locations near Colma (Occ. #30), and recent observations ~2 miles S of study area near Montara Mtn. (Occ. #60).	Not present. No suitable habitat; perennial plant, would have been observed if present.
Horkelia marinensis Point Reyes horkelia	Fed: none State: none CRPR: 1B.2	May-Sept	Sandy flats and dunes near coast; coastal dunes, coastal prairie, coastal scrub.	Historic locations near San Bruno (1962, Occ. #26) and Colma (1909, Occ. #33).	Not present. No suitable habitat; perennial plant, would have been observed if present.
Hypogymnia schizidiata Island rock lichen	Fed: none State: none CRPR: 1B.3	n/a	Chaparral, closed-cone coniferous forest, on bark of hardwood shubs.	Located 2 miles S of study area near McNee Ranch St. Park and Peak Mtn. (Occs. #5, 6, 7)	Not present. No suitable habitat.
Lasthenia californica ssp. *macrantha* perennial goldfields	Fed: none State: none CRPR: 1B.2	Jan-Nov	Coastal bluff scrub, coastal dunes, coastal scrub.	Located in coastal prairie 3.5 miles S of study area on bluffs in Moss Beach (Occ. #45) and 1.5 miles SW on Devil's Slide trail (Occ. #46),	Not present. No suitable habitat.
Leptosiphon croceus Coast yellow leptosiphon	Fed: none State: none CRPR: 1B.1	April-May	Only known from five locations. Open, grassy areas, coastal bluffs,	Located on bluffs 4.8 miles south from the study area (Occ. #2).	Not present. No suitable habitat.
Leptosiphon rosaceus rose leptosiphon	Fed: none CA: CE CRPR: 1B.1	April-July	Coastal bluff scrub, coastal dunes, coastal prairie.	Historic collections (1903 and 1950), near Montara Pt., 4.4 miles S of study area. Possibly extirpated.	Not present. No suitable habitat.
Malacothamnus arcuatus arcuate bush mallow	Fed: none State: none CRPR: 1B.2	April-Sept	Chaparral and woodland.	Located 2.6 miles NE of study area (Occ. #20) near San Bruno, and 4.2 miles SE (Occ. #32) near Pilarcitos Lake (historical occurrence, 1902).	Not present. No suitable habitat. Perennial shrub, would have been evident if present. Not observed.
Monolopia gracilens woodland monolopia	Fed: none State: none CRPR: 1B.2	March-July	Grassy openings in chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, North Coast coniferous forest.	Historic collection (1949) near Pilarcitos Lake, 5 miles SE of study area (Occ. #40).	Not present. No suitable habitat.
Pentachaeta bellidiflora white-rayed pentachaeta	Fed: FE CA: CE CRPR: 1B.1	March-May	Valley and foothill grassland, woodland.	Near San Skyline Boulevard, Andreas Lake, 4.3 miles E of study area (Occ. #2). Presumed extirpated.	Not present. No suitable habitat.
Plagiobothrys chorisianus var. *chorisianus* Choris's popcorn flower	Fed: none State: none CRPR: 1B.2	March-June	Chaparral, coastal scrub, coastal prairie.	Located on Sweeney Ridge 3 miles E of study area (Occ. #10) and 2.5 miles NE (Occ. #9), and in Montara, 3.7 miles S (Occ. #43).	Not present. No suitable habitat.
Potentilla hickmanii Hickman's cinquefoil	Fed: FE CA: CE CRPR: 1B.1	April-Aug	Coastal bluff scrub, closed-cone coniferous forest, meadows and seeps (vernally mesic), freshwater marshes.	Located north of Montara, 3 miles S of study area (Occ. #6).	Not present. No suitable habitat; perennial plant, would have been observed if present.
Silene scouleri ssp. *scouleri* simple campion	Fed: none State: none CRPR: 2B.2	May-Aug	Coastal bluff scrub, coastal prairie, valley and foothill grassland.	Nearest population is 1 mile SW of study area, on Pedro Point (Occ.	Not present. No suitable habitat; perennial plant, would have been

Scientific Name **Common Name**	**Status[1]**	**Flowering Period**	**Habitat**	**Area Locations**	**Probability in Study Area**
				#2)	observed if present.
Silene verecunda ssp. *verecunda* San Francisco campion	Fed: none CA: none CRPR: 1B.2	March-July	Coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grassland.	Nearest population is 1.9 miles SW of study area along Devil's Slide trail.	Not present. No suitable habitat; perennial plant, would have been observed if present.
Trifolium amoenum showy Indian clover	Fed: FE State: none CRPR: 1B.1	April-June	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil,	Historic record (1907) near Colma, location not specific. Likely extirpated.	Not present. No suitable habitat.
Triphysaria floribunda San Francisco owl's clover	Fed: none CA: none CRPR: 1B.2	April-June	Coastal prairie, coastal scrub, valley and foothill grassland, usually on serpentine soil	Several historic records; nearest on Skyline Boulevard 3.5 miles NE of study area (Occ. #49)	Not present. No suitable habitat.
Triquetrella californica California triquetrella moss	Fed: none State: none CRPR: 1B.2	n/a	Coastal bluff scrub, coastal scrub, grasslands, on gravel or thin soil.	Located 2 miles E of study area (Occ. #8).	Not present. No suitable habitat.

[1]**Status**
Federal:
FE - Federal Endangered
FT - Federal Threatened

State:
CE - California Endangered
CSC - California Species of Special Concern

CRPR (California Rare Plant Rank):
Rank 1A - Presumed extinct in California
Rank 1B - Plants rare, threatened, or endangered in California and elsewhere
Rank 1B.1 - Seriously endangered in California (over 80% occurrences threatened/
high degree and immediacy of threat)
Rank 1B.2 - Fairly endangered in California (20-80% occurrences threatened)
Rank 1B.3 - Not very endangered in California (<20% of occurrences threatened or no
current threats known)
Rank 2 - Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 2A - Extirpated in California, common elsewhere
Rank 2B.1 - Seriously endangered in California, but more common elsewhere
Rank 2B.2 - Fairly endangered in California, but more common elsewhere
Rank 2B.3 - Not very endangered in California, but more common elsewhere
Rank 3 - Plants about which we need more information (Review List)
Rank 3.1 - Plants about which we need more information (Review List)
Seriously endangered in California
Rank 3.2 - Plants about which we need more information (Review List)
Fairly endangered in California
Rank 4 - Plants of limited distribution - a watch list

Table 2. Special-status wildlife within five miles of the study area.

Scientific Name Common Name	Status[1]	Habitat	Proximity to Study Area	Probability in Study Area
INSECTS				
Monarch butterfly[2] *Danaus plexippus*	Fed: none State: none Other: S	Winters in tall trees along the coast. Prefers eucalyptus, Monterey pine and Monterey cypress.	Nearest overwintering site is Martini Creek near Montara State Beach, ~3 miles SSW of study area (data from suppressed records in CNDDB).	None. Migration and overwintering roosts are highly visible and well-documented. Not present in study area.
San Bruno elfin butterfly[2] *Callophrys mossii bayensis*	Fed: FE State: none Other: none	Coastal mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mt., San Mateo Co., on steep north-facing slopes within the fog belt. Larval host plant is *Sedum spathulifolium.*	Located 1.9 miles south of the study area (occ. #14).	None. No suitable habitat on or adjacent to study area. Host plant not present.
Myrtle's silverspot butterfly[2] *Speyeria zerene myrtleae*	Fed: FE State: none Other: none	Coastal terrace prairie, coastal bluff scrub, and non-native grassland in Marin and SW Sonoma Counties. Extirpated from San Mateo County. Larval food plant is *Viola adunca.*	Nearest record mile north from study area (Occ. #13).	None. No suitable habitat present on or adjacent to study area. Host plant not present.
FISH				
Steelhead – Central California Coast DPS – Population 8	Fed: FT State: none Other: none	From Russian River south to Soquel Creek, Pajaro River. Also in SF and San Pablo Bay basins. Spawn in clear, cool well-oxygenated streams greater than 18 cm deep.	Located 0.3 mile S of study area in San Pedro Creek (Occ. #12)	None. No suitable habitat present.
AMPHIBIANS				
Foothill yellow-legged frog *Rana boylii*	Fed: FE State: Other:	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Historic and non-specific record, near San Andreas Lake (Occ. #2133), considered extirpated.	No suitable habitat present.
California red-legged frog *Rana draytonii*	Fed: FT State: SSC Other:	Lowlands and foothills in pools and streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larval development.	Nearest record 0.3 mile S of study area in San Pedro Creek (Occ. #652).	None. Wetland in study area dries in late spring or early summer (no significant ponding in 2020), therefore not suitable breeding habitat. This urban infill site is isolated from nearest population, with no migration potential.
REPTILES				
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	Fed: FE State: CE Other: none	Freshwater marshes, ponds and slow-moving streams on the SF peninsula. Prefers dense cover and water depths of at least 1 ft.	Closest record is 1 mile north of the study area (Occ. #45, CNDDB suppressed records). Locations in Pacifica area are all sites that support aquatic habitats that remain inundated.	None. Seasonal wetland on and immediately adjacent to project site dries late in Spring or early summer, and is isolated from extant suitable habitats by surrounding development.

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Proximity to Study Area**	**Probability in Study Area**
BIRDS				
Merlin *Falco columbarius*	Fed: none State: WL Other: LC	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches. Clumps of trees or windbreaks are required for roosting in open country.	Record for this species located 1.2 miles northeast from the project site (Occ. #12).	None. Does not nest in California. Migrating birds would not be affected by proposed project.
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	Fed: none State: SSC Other: BCC	Resident of freshwater and salt water marshes in the SF Bay region. Requires dense, continuous cover for foraging and tall grasses, tules, or willows for nesting.	Record for this species located 1.8 mile north from the project site (Occ. #5).	Observed during 2017-2018. Willow scrub in study area could provide migration habitat, but is only a small, limited area of suitable habitat in an urban setting. Not expected to support nesting birds (see text).
Alameda song sparrow *Melospiza melodia pusillula*	Fed: none State: SSC Other: BCC	Resident of salt marshes bordering San Francisco Bay.	Two historic records (1940, Occ. #23; and 1947, Occ. #32) from near Colma.	No suitable habitat present.
MAMMALS				
American badger *Taxidea taxus*	Fed: none State: none Other: LC	Scrub, forest, and herbaceous habitats, with friable soils.	One record from 1948 near Peak Mtn., 2.6 miles SSE (Occ. #127).	No suitable habitat.
North American porcupine *Erethizon dorsatum*	Fed: none State: none Other: LC	Forest, woodland, occasionally grassland and scrub.	One record from 1972 (Occ. #430) in Daly City. Site since developed.	No suitable habitat in study area, or connectivity to habitat.
Townsend's big-eared bat *Corynorhinus townsendii*	Fed: none State: SSC Other: LC	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Nearest record is 4 miles east of study area (Occ. #431). Building since demolished.	No suitable habitat present.
Hoary bat *Lasiurus cinereus*	Fed: none State: SSC Other: LC	Roosts in dense foliage in medium to large trees. Preferred sites are hidden from above, with few branches below, and have ground cover of low reflectivity.	Record for this species located 2 miles north from the project site (Occ. #120).	Large cypress trees in study area are marginally suitable for day roosting, but not as maternal roosting habitat. Not expected to be impacted.
Fringed myotis *Myotis thysanodes*	Fed: none State: none Other: LC	Uses caves, mines, buildings or crevices for maternity colonies and roosts.	Nearest record is near Crystal Springs Reservoir (Occ. #44).	No suitable habitat present.
Big free-tailed bat *Nyctinomops macrotis*	Fed: none State: CSC Other: LC	Roosts in crevices in rocky outcrops and cliffs, although there is some, documentation of roosts in buildings, caves, and tree cavities.	One record for this species from 1984 located 1 mile northwest from the project site (Occ. #20).	None. No rocky habitat for roosting which is the primary roosting habitat.

[1] **Status**

Federal:
FE - Federal Endangered
FT - Federal Threatened

[2] Included in 2014 Biological Constraints Analysis, but not within 5 miles of study area according to CNDDB 2020.

State:
CE - California Endangered
CT - California Threatened
CR - California Rare
CC - California Candidate
CSC - California Species of Special Concern
FP - Fully Protected
WL - Watch List. Not protected pursuant to CEQA

Other:
LC – IUCN Least Concern
BCC – USFWS Bird species of Conservation Concern
S – USFWS Sensitive

WOOD BIOLOGICAL CONSULTING
PO Box 1569
El Granada, CA 94018
(415) 254-4835
chris@wood-biological.com
www.wood-biological.com

DATE: August 20, 2020
TO: Brendan Murphy, Eamon Murphy
BayWorks Construction, Inc.
P.O. Box 301
San Mateo, CA 94401
FROM: Chris Rogers
SUBJECT: Aquatic Resources Delineation
570 Crespi Avenue, Pacifica CA

This memorandum summarizes the results of an assessment of potentially jurisdictional aquatic resources, including wetlands and other waters of the United States and of the state of California, on two parcels located at 540 and 570 Crespi Drive, in Pacifica, CA (APN 022-162-420 and 022-162-310). The parcels are owned by the City of Pacifica and by Brendan and Eamon Murphy, respectively, and are referred to here as the City parcel and the Murphy parcel (see Figures 1 and 2). The two parcels are under consideration for being merged and developed by the Murphys.

This report is intended to identify the boundary between jurisdictional and non-jurisdictional features that could have a bearing on the layout of proposed development for the properties. This delineation also identifies differences between the extent of jurisdictional features as they exist currently exist, and as they were identified in a 2014 Biological Constraints Analysis[1]. A peer review of that report recommended an update of the aquatic resource delineation, and to include the City parcel in the delineation.

METHODS

Prior to conducting field data collection, Wood Biological Consulting (WBC) reviewed relevant background information, including the 2014 biological report, the 2020 peer view, a sequence of aerial photo imagery on Google Earth, National Wetlands Inventory[2], Soil Conservation Service[3], Montara Mountain U.S. Geological Survey 7.5-minute topographic quadrangle map, a topographic survey map of the parcels, and environmental review documents related to the City's recently completed Wet Weather Equalization Basin[4], which is adjacent to and dues west of the City parcel.

---

1 Monk & Associates. 2014. *Biological Constraints Analysis, 570 Crespi Drive, City of Pacifica, San Mateo County, California (APNS: 022-162-310) (~1.7 Acres)*. Prepared for SC Properties, San Mateo CA. October 8.

2 U.S. Fish and Wildlife Service. 2020. *National Wetlands Inventory, Wetlands Mapper*. https://www.fws.gov/wetlands/data/mapper.html

3 United States Department of Agriculture (USDA). 2014. *Custom Soil Resource Report for, San Mateo County, Eastern Part, and San Francisco County, California: 570 Crespi Drive, Pacifica*. Natural Resource Conservation Service; Web Soil Survey. Report printed July 28. http://websoilsurvey.nrcs.usda.gov/app/ (see Attachments)

4 Terraphase Engineering, Inc. 2016. *Wet Weather Equalization Basin Project, Draft Mitigated Negative Declaration/Initial Study*. Prepared for City of Pacifica. https://www.cityofpacifica.org/civicax/filebank/blobdload.aspx?BlobID=11510

Aquatic resources on both parcels were assessed in the field by WBC senior ecologist Chris Rogers on July 19, 2020. The field data collection consisted of observations of wetland and upland vegetation in relation to topography. The delineation used the "Routine Determination Method" as described in the 1987 USACE of Engineers Wetland Delineation Manual[5], in conjunction with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coasts Region (Version 2.0)*[6], hereafter called the "WVMC Supplement." Wetlands and waters were classified using commonly accepted habitat types. Wetland plant indicator status was determined using the 2018 WVMC Regional Wetland Plant list[7].

Vegetation, soil and hydrology were documented at eight locations on three transects across the wetland-upland boundary. Based on these data, a preliminary jurisdictional wetland boundary (subject to verification by the USACE) was mapped on an aerial photograph. This preliminary delineation of jurisdictional aquatic resources includes wetlands that meet the federal three-parameter definition and other waters of the United States. Three positive wetland parameters must normally be present for an area to be considered a wetland: 1) a dominance of wetland vegetation, 2) presence of hydric soils, and 3) presence of wetland hydrology.

Botanical taxonomy and nomenclature conforms to The Jepson Manual[8] (Baldwin et al. 2012), except for recent revisions posted on the Jepson Online Interchange. Vegetation communities described herein conform to A Manual of California Vegetation[9].

REGULATORY DEFINITIONS

Wetlands and other waters (e.g., rivers, streams, and natural ponds) are a subset of waters of the U.S. and receive protection under Section 404 of the CWA. The USACE has primary federal responsibility for administering regulations that concern waters of the U.S. and requires a permit if a project proposes placement of structures within navigable waters and/or alteration of waters of the U.S. The USEPA has the ultimate authority under the CWA and can veto the USACE's issuance of a permit to fill jurisdictional waters of the U.S.

Waters of the State are inclusive of waters of the U.S. under Section 401 of the federal CWA, but also are also regulated more broadly by the Regional Water Quality Control Boards under the Porter-Cologne Water Quality Control Act. Under this law, the RWQCB protects water quality and the beneficial uses of both surface and ground water. Waters regulated under Porter-Cologne include isolated waters that are

---

5 Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1.* U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. January. 100 pp. Available online at http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/pdf/delineation_manual.pdf

6 United States Army Corps of Engineers (USACE). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, Coast Region (Version 2.0); Final Report.* ERDC/EL TR-08-28. U.S. Army Engineer Research and Development Center, Vicksburg, MS. Available online at https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/7646

7 U.S. Army Corps of Engineers 2018. *National Wetland Plant List, version 3.4*. http://wetland-plants.usace.army.mil/

8 Baldwin, B.G, D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson Manual: Vascular Plants of California*. Second edition. Univ. Calif. Press, Berkeley. 1568 pp. Jepson eFlora available online at http://ucjeps.berkeley.edu/IJM.html

9 Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation* (2[nd] edition). California Native Plant Society, Sacramento. 1300 pp. Available online at http://vegetation.cnps.org/

not regulated by the USACE. Discharges of fill (*e.g.*, waste) to waters of the State must file a Report of Waste Discharge and receive either waste discharge requirements (WDRs) or a waiver to WDRs before beginning the discharge.

Many of the terms used throughout this report have specific meanings with respect to the delineation of Waters of the U.S. These terms are defined below:

Hydric Soil: A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. Hydric soils are often characterized by redoximorphic features (such as redox concentrations, formerly known as mottles), which form by the reduction, translocation, and/or oxidation of iron and manganese oxides. Hydric soils may lack hydric indicators for a number of reasons. In such cases the same standard used to determine wetland hydrology when indicators are lacking can be used (USDA NRCS 2010).

Hydrophytic Vegetation: Hydrophytic vegetation is defined as plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. Emphasis is placed on the assemblage of plant species that exert a controlling influence on the character of the plant community, rather than on a single indicator species (i.e., there must be a prevalence of hydrophytic vegetation present in order to satisfy this wetland parameter).

Ordinary High Water Mark (OHWM): OHWM is defined in 33 CFR § 328.3[e] as '…that line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter or debris, or other appropriate means that consider the characteristics of the surrounding area'.

Other Waters: The term "other waters of the United States" includes water bodies, such as rivers and streams that may not meet the full criteria for wetlands designation but that do exhibit evidence of an OHWM and are navigable or hydrologically connected to a navigable water body. Under the latest regulatory guidance, all such waters must have a significant nexus to a navigable water body to be considered jurisdictional by the USACE.

Special Aquatic Sites: Special aquatic sites are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. Special aquatic sites include sanctuaries, refuges, wetlands, vernal pools, coral reefs and mudflats among others.

Study Area: For the purposes of this report, the study area, refers to the entire area surveyed or hereby evaluated, which is inclusive of the City parcel and the Murphy parcel.

Traditionally Navigable Waters (TNW): TNWs are all navigable waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide. TNWs also include all waters that are 'navigable-in-fact,' defined through case law to include those water bodies that are both navigable and have the capacity to be used for the purposes of commerce, whether or not they have ever been used for such a purpose.

Waters of the United States: The Code of Federal Regulations (33 CFR § 328.3[a]; 40 CFR § 230.3[s]) defines 'waters of the United States' as:

> (1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
>
> (2) All interstate waters including interstate wetlands;
>
> (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters which are or could be used by interstate or foreign travelers for recreational or other purposes; or from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or which are used or could be used for industrial purposes by industries in interstate commerce;
>
> (4) All impoundments of waters otherwise defined as waters of the United States under the definition;
>
> (5) Tributaries of waters identified in paragraphs (1) through (4);
>
> (6) Territorial seas; and
>
> (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6).

Wetland Hydrology: This term encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. These include both riverine and non-riverine hydrology indicators, such as sediment deposits, drift lines, and oxidized rhizospheres along living roots in the upper 12 inches of the soil. In the Arid West, hydrologic indicators may be absent in any given year due to annual variability in precipitation and in times of drought. The *Arid West Supplement* (USACE 2008) cites a technical standard that can be used for disturbed or problematic sites that support wetland vegetation and soils but where wetland hydrology is not apparent. This standard calls for 14 or more consecutive days of flooding, ponding, or saturation.

Wetland Indicator Status: Refers to the probability that a plant will occur in a wetland or not. Indicator status categories are as follows:

- *Obligate (OBL)*: almost always occurs in wetlands
- *Facultative wetland (FACW)*: usually occurs in wetlands, sometimes may occur in uplands
- *Facultative (FAC)*: equally likely to occur in wetlands or uplands
- *Facultative upland (FACU)*: usually occurs in uplands but may occasionally occur in wetlands
- *Obligate upland (UPL)*: almost never occurs in wetlands
- *No indicator (NI)*: no indicator assigned due to lack of information

Wetlands: The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (USEPA) define wetlands as, "Those areas that are saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for the life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." USACE wetlands must typically exhibit three parameters: 1) wetland hydrology, 2) hydrophytic vegetation, and 3) hydric soils in order to meet the federal definition.

SETTING

The wetland delineation study area is located within the Santa Cruz Mountains subsection of the Central California Coast Section as described in the Ecological Subregions of California[10] (USDA 1997). Vegetation in the study area is not representative of historic conditions, which likely consisted of coastal scrub, coastal dunes and coastal prairie. Currently, the northern portion of the study area supports several large Monterey cypress trees with an understory (groundcover) of predominantly non-native herbaceous vegetation. The southern portion of the study area is slightly lower in elevation gradually becomes dominated by perennial wetland vegetation, such as willows, cattails and sedges.

The study area is situated within a residential and commercial neighborhood of Linda Mar, within the City of Pacifica. The study area ranges from approximately 15 ft elevation (relative to a City benchmark in Crespi Drive) at the northeastern end of the Murphy parcel, to about 9 ft at the southwestern end. The climate is cool and temperate, characteristic of the San Francisco peninsula coastal region. The average annual high temperature in Pacifica is 64°F; the annual average low temperature is 49°F). About 29.5 inches of precipitation falls annually, with the majority of rainfall between October and April[11].

VEGETATION

Vegetation within the study area consists of arroyo willow scrub, and emergent marsh, non-native annual grassland, and disturbed and ornamental habitats. The following are descriptions of the vegetation types occurring within the wetland delineation study area.

Arroyo Willow Scrub

Willow scrub, dominated by arroyo willow (*Salix lasiolepis*), covers the majority of the southern portion of the study area on both parcels (Figure 3). It also occurs in smaller stands along the western and eastern parcel boundaries. The willows form a dense and impenetrable thicket with few associated plant species. The willow scrub is almost entirely within the delineated wetland boundary; the exception is at the northern extent, where soils and hydrology near the edge of the willows failed to meet jurisdictional criteria.

Emergent Marsh

Emergent marsh occupies a shallow topographic depression in the middle part of the study area (Figure 3), corresponding with the small area that used to have shallow ponded water in the winter. Seasonally high groundwater presumably persists, resulting in a predominance of emergent marsh plant species, such as Baltic rush (*Juncus balticus)*, broadleaf cattail (*Typha angustifolia*), Pacific silverweed (*Potentilla anserina* ssp. *pacifica*), and dotted smartweed (*Persicaria punctata*), among others. All of the emergent marsh is within the delineated wetland boundary.

---

[10] U.S. Department of Agriculture (USDA). 1997. *Ecological Subregions of California: sections and subsections descriptions. USDA, Forest Service, Pacific Southwest Region.* https://web.archive.org/web/20080304224853/http://www.fs.fed.us/r5/projects/ecoregions/`

[11] https://www.usclimatedata.com/climate/pacifica/california/united-states/usca0822

Non-native Annual Grassland

Non-native grassland vegetation is present on the majority of the northern part of the study area, including the former residence site (Figure 3). Dominant plant species are annual grasses, such as bromes (*Bromus diandrus, B. hordeaceus*), slender oats (*Avena barbata*), hare barley (*Hordeum murinum* ssp. *leporinum*), and Italian ryegrass (*Festuca perennis*), with various non-native broad-leaf herbaceous species. A small portion of the non-native annual grassland is situated within the delineated wetland boundary, where it appears to be expanding down the topographic gradient in response to drier soil conditions following groundwater pumping during construction of the City's Wet Weather Equalization Basin.

Disturbed and Ornamental

Disturbed habitat includes land cleared of vegetation or lands that have undergone frequent or extensive alteration to the extent that the site is dominated by non-native plant species. This type of habitat also includes areas subject to periodic vegetation management, such as mowing or brush clearing, which preclude the re-establishment of native vegetation communities. Within the study area, a parking area adjacent to Crespi Drive that is used by beach visitors, and a gravel staging area used during construction of the Wet Weather Equalization Basin are disturbed habitat (Figure 3).

Ornamental vegetation consists of maintained and unmaintained landscaping using native and non-native plants. Within the study area, large Monterey cypress trees are remnants of landscaping associated with the former residence on the Murphy parcel. None of this area is within the delineated wetland boundary.

SOILS

Soils in the study area are mapped as Urban land or Urban land-Orthents, cut and fill complex, 0 to 5 percent slopes[12]. While this is an accurate description of the adjacent parcels that already have been developed, a more accurate description of the soil on the undeveloped study area is the Candlestick-Barnabe complex, which is mapped in the comparable undeveloped parcel west of the skate park, and may have been the native soil type prior to widespread development of the Linda Mar neighborhood. The Barnabe soil series describes shallow well-drained soils formed from sandstone and shale[13], while the Candlestick soil series is moderately steep, well-drained soils[14] (*i.e.*, on the surrounding hillsides). Neither soil series is considered hydric (though this does not preclude hydric soils from forming where these series area mapped).

Soil samples in the study area were typically sandy to sandy loam, with some clay, to depths of greater than 18 inches. Several samples exhibited redoximorphic features in the form of concentrations of oxidized iron minerals indicating the soils have been (but are not necessarily currently) subject to

[12] USDA. 2014. *Ibid*. (soil report, see Attachment).

[13] USDA. 2003. *Barnabe Series*. Official Soil Series Descriptions and Series Classification. https://soilseries.sc.egov.usda.gov/OSD_Docs/B/BARNABE.html

[14] USDA. 2003. *Candlestick Series*. Official Soil Series Descriptions and Series Classification. https://soilseries.sc.egov.usda.gov/OSD_Docs/C/CANDLESTICK.html

saturation by a seasonally high water table. These samples met the "Sandy Redox (S5) hydric soil indicator[15].

HYDROLOGY

No wetlands or other surface waters are shown in the National Wetlands Inventory (NWI) as occurring on the City or Murphy parcels. Although these maps are often imprecise due to the mapping scale and nation-wide scope, this may be an indication of changes in land use and drainage, and stormwater management. The study area is not located on a stream or near other surface waters. The two parcels are nearly enclosed by surrounding development, from which it has received stormwater runoff (*i.e.*, from the roof of the Crespi Center to the east (580 Crespi Drive), and possibly from the Community Center and parking lot to the west.

Historic aerial photographs from as early as 1946 (predating development of the Pedro Valley and Linda Mar, show that the parcels are not in the path of drainage from either the Linda Mar neighborhood in general, or the remnant stream segments that are located in the hills to the north east, across Crespi Drive. Similar hydrological conditions appear in 1956 (see Figure 4); although residential development was well underway, parcels adjacent to and near the study area are still relatively vacant, and the study area itself is occupied by one or more residences and outbuildings. By 1980, however, following construction of the original parking lot where the City's Wet Weather Equalization Basin and skate park are now located, there is some evidence of willows or other wetland vegetation beginning to develop at the lowest part of the southwestern end of the parcels (the southwestern end), possibly in response to restriction of runoff imposed by the parking lot (Figure 5).

During 2017 and 2018, construction of the City's Wet Weather Equalization Basin required groundwater pumping. It is likely that the local water table, including the adjacent City and Murphy parcels, was drawn down to some degree. Soils in the region have a high proportion of sand, which is not effective at retaining water when groundwater is being removed nearby.

Although groundwater extraction is not ongoing as part of operation of the basin, there is a drainage system that removes surface runoff and, presumably, shallow groundwater. This system could continue to remove shallow groundwater from the upper soil horizon within the study area. Observers have remarked that the shallow pond in the study area did not retain water during the winter of 2019-2010. During this wetland delineation, no samples locations exhibited surface or shallow groundwater, although there was evidence in several samples (redoximorphic features in the form of iron mineral concentrations and reduced matrices) that the soils had developed under conditions that likely included seasonally high groundwater to within 12 inches of the soil surface. However, other evidence (lack of observed water table, abundance of worm burrows, and elevation above the presumed high water line of the former pond), suggest that the redoximorphic evidence is relictual, *i.e.,* indicative of past hydrologic conditions, not current conditions.

This is consistent with a comparison of the extent of the 2014 delineated wetland boundary and the current one, which has shifted slightly toward the southwest, following the topographic contour.

---

[15] U.S. Department of Agriculture, Natural Resource Conservation Service (USDA NRCS). 2010*. Field Indicators of Hydric Soils in the United States, Version 7.0.* L.M Vasilas, G.W. Hurt and C.V. Noble, eds*.* In cooperation with the National Technical Committee for Hydric Soils*.* Available online at https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046970.pdf

JURISDICTIONAL FEATURES

Table 1 summarizes the areas of federal jurisdictional waters of the U.S. and non-jurisdictional features in the study area. All jurisdictional features are wetlands; there are no open water aquatic features (*i.e.*, other waters of the U.S.). All areas are preliminary and subject to verification by the USACE. Areas of waters of the state within the study area are assumed to equal waters of the U.S.

The jurisdictional boundary is inferred from the location of three sample points where all three jurisdictional criteria were met (sample points 1A, 2A and 3B; see Figure 3). All three points are located at or below the 10-foot contour, as shown on a topographic survey of the Murphy parcel[16]. Two vegetation types are bisected by the wetland boundary. Therefore, there are jurisdictional and non-jurisdictional components of arroyo willow scrub and non-native annual grassland. This is consistent with the interpretation that site hydrology has changed toward drier conditions since groundwater pumping during construction of the City's Wet Weather Equalization Basin.

Non-jurisdictional areas were confirmed by six sample pints: 1B, 1C, 2B, 2C, 3C and 3D. A combination of vegetation, soils or hydrology failed to meet the jurisdictional criteria at these locations.

Table 1. Potential Jurisdictional and Non-Jurisdictional Features in the Study Area

AQUATIC RESOURCE TYPE	JURISDICTIONAL	NON-JURISDICTIONAL	TOTAL
Arroyo willow scrub	0.630 ac (27,443 sf)	0.008 ac (369 sf)	0.638 ac (27,812 sf)
Emergent marsh	0.237 ac (10,312 sf)	0.000 ac (0.0 sf)	0.237 ac (10,312 sf)
Non-native annual grassland	0.066 ac (2,876 sf)	0.379 ac (16,540 sf)	0.446 ac (19,416 sf)
Disturbed and ornamental	0.000 ac (0.0 sf)	0.523 ac (22,787 sf)	0.523 ac (22,787 sf)
Total	**0.933 ac (40,631 sf)**	**0.910 ac (39,696 sf)**	**1.843 ac (80,327 sf)**

JURISDICTIONAL ANALYSIS

On June 22, 2020, the U.S. Environmental Protection Agency and the Department of the Army's (Corps of Engineers) Navigable Waters Protection Rule became effective, and re-codified of the definition of waters of the U.S. The NWPR establishes the scope of federal regulatory authority under the Clean Water Act. Included in the definition are *adjacent wetlands*[17], which includes wetlands that are physically separated from other jurisdictional waters, such as territorial seas that are subject to the ebb and flow of the tide (*i.e.,* the Pacific Ocean), only by an artificial dike, barrier, or similar artificial structure so long as that structure allows for a direct hydrologic surface connection in a typical year, such as through a culvert, flood or tide gate, pump, or similar artificial feature. An adjacent wetland is jurisdictional in its entirety when a road (such as Highway 1) or similar artificial structure divides the wetland, as long as the structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

At the southwestern end of the study area, surface water (*i.e.*, in excess of what percolates on site) can enter a shallow drainage swale that flows west-northwest toward Highway 1, parallel with the backyard

[16] B & H Surveying, Inc. 2014. Boundary and Topographic Survey, Lands of Murphy. APN 022-162-310.
[17] Code of Federal Regulations, Title-33, Chapter II, Part 328.3(c)(1).

fences of houses on Anza Drive. This swale follows the route of a buried 24-inch storm drain culvert. At least two drain inlets to the culvert are located at ground surface level within the undeveloped parcel between the skate park and Highway 1. The culvert crosses Highway 1 under the north entrance to the parking lot for Pacifica State Beach, where it connects to the Anza Pump Station, which discharges directly to the Pacific Ocean. This series of connections, however artificial, meets the federal definition of adjacent wetlands, therefore, the wetlands in the study area are jurisdictional waters of the U.S. under Section 404 of the Clean Water Act. Waters of the state are inclusive of waters of the U.S. as interpreted by the Regional Water Quality Control Board according to the recently published guidance[18].

[18] California State Water Resources Control Board. 2019. *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State.* Adopted April 2.

ATTACHMENTS

Figure 1. Study Area Location

Figure 2. Study Area Boundary

Figure 3. Jurisdictional Map

Figure 4. Aerial photograph, 1956. No evidence of wetland vegetation within the study area, most of which is in active use. No surrounding development has occurred yet.

Figure 5. Aerial photograph, 1980. Dark vegetation within study area suggests wetlands forming following construction of parking lot, which may have limited lateral movement of shallow groundwater.

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 570 Crespi Dr. City/County: Pacifica/San Mateo Sampling Date: 7/19/20

Applicant/Owner: Bay Work's Constr. Inc. State: CA Sampling Point: 1A

Investigator(s): C. Rogers / Wood Bio Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): None Slope (%): Ø

Subregion (LRR): A Lat: 37°35' 52.28" Long: 122°29'57.31" Datum: ______

Soil Map Unit Name: Candlestick-Barnabe NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___	Is the Sampled Area within a Wetland?	Mapped on boundary Yes X No ___
Hydric Soil Present? Yes X No ___		
Wetland Hydrology Present? Yes X No ___		

Remarks: All criteria met. Sample located near lowest topo where seasonal ponding used to occur.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 2MØ)			
1. Salix lasiolepis	20	Y	FACW
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 2MØ)			
1. Juncus balticus	25	Y	FACW
2. Potentilla anserina	10	N	OBL
3. Holcus lanatus	25	Y	FAC
4. Cirsium vulgare	8	N	FACU
5. Persicaria punctata	3	N	OBL
6. Rubus ursinus	2	N	FACU
7. Geranium dissectum	1	N	NL
8.			
9.			
10.			
11.			
	74	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 6

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	13	x 1 = 13
FACW species	45	x 2 = 90
FAC species	25	x 3 = 75
FACU species	10	x 4 = 40
UPL species	1	x 5 = 5
Column Totals:	94 (A)	223 (B)

Prevalence Index = B/A = 2.37

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: Sample point located near edge of increasingly dense wetland vegetation.

SOIL

Sampling Point: 1A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	N/A		N/A					Organic litter
2-11	2.5Y 3/3	75					sandy	
	10YR 3/2	25	not redox				Clay loam	
11-18+	2.5Y 4/4	80	2.5Y 4/1	18	RM	M	sandy clay	
			10YR 5/8	2	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes X No ____

Remarks: Redox in sandy horizon w/in 12" of Surface

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- X High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ______

Water Table Present? Yes ____ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ______

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Evidence of seasonal high water table in reduced and oxidized soil.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 570 Crespi Dr. City/County: Pacifica / San Mateo Sampling Date: 7/19/20

Applicant/Owner: Bayworks Constr. Inc. State: CA Sampling Point: 1B

Investigator(s): C. Rogers / Wood Biological Section, Township, Range: ____

Landform (hillslope, terrace, etc.): ____ Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): A Lat: 37°35'52.41" Long: -122°29'57.09" Datum: ____

Soil Map Unit Name: Candlestick-Barnabe (see note in Soils) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____	Is the Sampled Area within a Wetland?	Yes ____ No X
Hydric Soil Present? Yes ____ No X		
Wetland Hydrology Present? Yes ____ No X		

Remarks: May have been wetter before EQ basin. Some evidence of seasonal saturation below 9".

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 2 m Ø)			
1. Festuca perennis	35	Y	FAC
2. Potentilla anserina	5	N	OBL
3. Persicaria punctata	3	N	OBL
4. Rubus ursinus	1	N	FACU
5. Geranium dissectum	<1	N	NL
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	45		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 55			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	8	x 1 =	8
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	1	x 4 =	4
UPL species	1	x 5 =	5
Column Totals:	45 (A)		122 (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Non-dominant hydrophytes poss. remnant of previous wetter conditions before GW pumping during constr. of EQ basin. Facultative generalist Fest. per. becoming dominant.

SOIL

Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	N/A		N/A					organic, litter
2-9	10YR 2/1	90	—				Sandy Clay loam	
	10YR 3/3	10	not redox				sandy inclusions	
9-18+	2.5Y 4/2	95	7.5Y 5/8	5	C	M	Sand	aerated w/ earthworms

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ____ No X

Remarks: Redox too deep for S5, or F7. Relict of past GW; lower horizon drier than before, w/abund. earthworms, so Seasonal saturation at depth, at most.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Gently sloping toward lower topo and increasingly hydrophytic veg.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 570 Crespi Dr. City/County: Pacifica/San Mateo Sampling Date: 7/19/20

Applicant/Owner: Bayworks Constr. Inc. State: CA Sampling Point: 1C

Investigator(s): C. Rogers/Wood Biological Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): A Lat: 37°35'52.58" Long: 122°29'56.9" Datum: ______

Soil Map Unit Name: Candlestick-Barnabe (see note in soils) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes ___ No X	

Remarks: Lacks wetland hydrology; approximately 2 ft above low point that used to pond water. GW pumping for adjacent EQ basin may have lowered water table. Lacks wetl vegetation

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 2MØ)			
1. Holcus lanatus	30	Y	FAC
2. Festuca perennis	10	Y	FAC
3. Rubus ursinus	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	45	= Total Cover	

% Bare Ground in Herb Stratum 55

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	45 (A)		140 (B)

Prevalence Index = B/A = 3.1

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: Non-hydric vegetation, Marginal.

SOIL

Sampling Point: 1C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	N/A		N/A					Organic, litter
2-6	10YR 2/1	100	N/A				Clay loam	Loose friable, root zone
6-12	10YR 4/2	60	10YR 5/8	5	C	M	Sandy loam	3/4" ø willow root
	10YR 2/1	35						
12-18	2.5Y 5/3	?98	10YR 5/8	<2	C	M	sand	earthworms to 12"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes X No ____

Remarks: Exhibits remnant hydric indicators.

Soil mapped as Urban Land but more closely matches Cardlosfict-Barnabo complex, which is mapped on adjacent undeveloped land

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ______

Water Table Present? Yes ____ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ______

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 570 Crespi Drive City/County: Pacifica / San Mateo Sampling Date: 3/19/20

Applicant/Owner: BayWorks Constr. INC. State: CA Sampling Point: 2A

Investigator(s): C. Rogers / Wood Bio. Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): concave Slope (%): Ø

Subregion (LRR): A Lat: 37° 35' 51.91" Long: 122° 29' 58.16" Datum: ______

Soil Map Unit Name: Candlestick - Barnabe NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ______	Is the Sampled Area within a Wetland?	Yes X No ______
Hydric Soil Present? Yes X No ______		
Wetland Hydrology Present? Yes X No ______		

Remarks: Lowest wettest part of property.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 2MØ)			
1. Potentilla anserina	40	Y	OBL
2. Typha latifolia	15	Y	OBL
3. Juncus balticus	10	N	FACW
4. Agrostis pallens	15	Y	FACU
5. Rumex crispus	1	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	81		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 19			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	55	x 1 = 55
FACW species	10	x 2 = 20
FAC species	1	x 3 = 3
FACU species	15	x 4 = 60
UPL species	0	x 5 = 0
Column Totals:	81 (A)	138 (B)

Prevalence Index = B/A = 1.7

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: Veg in lowest area that used to pond is distinct from veg on slightly higher ground.

SOIL

Sampling Point: 2A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y 4/1	98	7.5YR 5/8	2	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes X No ___

Remarks: In lowest area, subject to past ponding.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ______

Water Table Present? Yes ___ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ______

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: In past, this area ponded annually. Appears to be drying, prob. following GW pumping for EQ basin.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 570 Crespi Dr. City/County: Pacifica/San Mateo Sampling Date: 4/19/20

Applicant/Owner: Bayworks Consts, Inc. State: CA Sampling Point: 2B

Investigator(s): C. Rogers / Wood Bio. Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): None Slope (%): 1%

Subregion (LRR): A Lat: 37°35'52.62" Long: 122°29'57.40" Datum: ______

Soil Map Unit Name: Candle Stick-Barnabe NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: Lacks hydrology. More than 2ft above low point that used to pond water.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 2M Ø)			
1. Atriplex prostrata	5	N	FAC
2. Potentilla anserina	12	Y	OBL
3. Holcus lanatus	29	Y	FAC
4. Rubus ursinus	5	N	FACU
5. Symphyotrichum chilense	1	N	FAC
6. Festuca perennis	3	N	FAC
7.			
8.			
9.			
10.			
11.			
= Total Cover	46		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 54

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	12	x 1 = 12
FACW species	0	x 2 = 0
FAC species	29	x 3 = 87
FACU species	5	x 4 = 20
UPL species	0	x 5 = 0
Column Totals:	46 (A)	119 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:

- __ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- __ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ 5 - Wetland Non-Vascular Plants[1]
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Sample point at upper topographic limit of Potentilla (OBL).

SOIL

Sampling Point: 2B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	N/A		N/A					Organic
1-8	10YR 2/1	50	7.5YR 4/6	2	C	M	Sandy clay loam	
	2.5Y 4/3	48	not redox				Sandy inclusions	
8-18+	2.5Y 4/4	60	2.5Y 4/1	40	RM	M	Sand w/ reduced matrix sandy clay	
								earthworms below 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes X No ____

Remarks: Marginally hydric; may be relictual water before EQ basin GW pumping.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of recent, ongoing shallow GW.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 570 Crespi Dr City/County: Pacifica/San Mateo Sampling Date: 7/19/20

Applicant/Owner: Bay Works Constr. Inc. State: CA Sampling Point: 2C

Investigator(s): C. Rogers / Wood Bio. Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): None Slope (%): 1%

Subregion (LRR): A Lat: 37° 35' 53.06" Long: 122° 29' 56.97" Datum: ______

Soil Map Unit Name: Candlestick - Barnabe NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	

Remarks: No indicators. Up-gradient part of property

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 2M Ø)			
1. Salix lasiolepis	5	N	FACW
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 2M Ø)			
1. Holcus lanatus	25	Y	FAC
2. Rubus ursinus	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum 65			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	5	x 2 = 10
FAC species	25	x 3 = 75
FACU species	10	x 4 = 40
UPL species	0	x 5 = 0
Column Totals:	40 (A)	125 (B)

Prevalence Index = B/A = 3.125

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: Non-hydrophytic veg.

SOIL

Sampling Point: 2C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	organic							
1-3	10YR 2/1	100	N/A				clay loam - loose, friable, no peds	
3-18	2.5Y 4/4	80	N/A				sandy - loose, friable	
	2.5Y 4/1	20	N/A				clay inclusions	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Loamy Mucky Mineral (F1) (**except MLRA 1**)
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

__ 2 cm Muck (A10)
__ Red Parent Material (TF2)
__ Very Shallow Dark Surface (TF12)
__ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes ____ No X

Remarks:

No indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1)
__ Sediment Deposits (B2)
__ Drift Deposits (B3)
__ Algal Mat or Crust (B4)
__ Iron Deposits (B5)
__ Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
__ Salt Crust (B11)
__ Aquatic Invertebrates (B13)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres along Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Stunted or Stressed Plants (D1) (**LRR A**)
__ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
__ Drainage Patterns (B10)
__ Dry-Season Water Table (C2)
__ Saturation Visible on Aerial Imagery (C9)
__ Geomorphic Position (D2)
__ Shallow Aquitard (D3)
__ FAC-Neutral Test (D5)
__ Raised Ant Mounds (D6) (**LRR A**)
__ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 570 Crespi Dr City/County: Pacifica / San Mateo Sampling Date: 7/19/20

Applicant/Owner: Baylworks Constr. Inc. State: CA Sampling Point: 3B

Investigator(s): C. Rogers / Wood Bio. Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): A Lat: 37°35'52.67" Long: 122°29'57.91" Datum: ______

Soil Map Unit Name: Candlestick-Barnabe NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ______	**Is the Sampled Area within a Wetland?** Yes X No ______
Hydric Soil Present?	Yes X No ______	
Wetland Hydrology Present?	Yes X No ______	

Remarks: All criteria met.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 2MØ)			
1. Salix lasiolepis	60	Y	FACW
2.			
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: 2MØ)			
1. Rubus ursinus	10	N	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum 30			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	60	x 2 = 120
FAC species	0	x 3 =
FACU species	10	x 4 = 40
UPL species	0	x 5 =
Column Totals:	70 (A)	160 (B)

Prevalence Index = B/A = 2.28

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: Dense willow scrub, covers majority of lower elev. part of property.

SOIL

Sampling Point: 3B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y3/2	90	10YR 5/8	10	C	M	Sandy loam	
10-18+	2.5Y 4/1	95	10YR5/8	5	C	M	Sandy clay, reduced	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes X No ____

Remarks: Reduced sandy soil w/ redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- X High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Evidence of seasonal high water table in reduced and oxidized shallow horizon

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 570 Crespi Dr City/County: Pacifica / San Mat Sampling Date: 7/19/20

Applicant/Owner: BayWorks Constr. Inc. State: ________ Sampling Point: 3C

Investigator(s): C. Rogers / Wood Biologic Section, Township, Range: ________

Landform (hillslope, terrace, etc.): ________ Local relief (concave, convex, none): None Slope (%): Ø

Subregion (LRR): A Lat: 37°35'53.19" Long: -122°29'57.52" Datum: ________

Soil Map Unit Name: Candlestick-Barnabe NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X	Is the Sampled Area within a Wetland?	Yes ____ No X
Hydric Soil Present? Yes X No ____		
Wetland Hydrology Present? Yes ____ No X		

Remarks: At edge of willows, appears to have had wetter soil in past, poss. before GW pumping for EQ basin.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ________)			
1. Hesperocyparis macrocarpa	70	Y	NL
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: ________)			
1. Salix lasiolepis	20	Y	FACW
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: ________)			
1. Rubus ursinus	15	Y	FACU
2. Cortaderia jubata	7	Y	FACU
3. Hedera helix	3	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25	= Total Cover	
Woody Vine Stratum (Plot size: ________)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum 55			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	20	x 2 = 40
FAC species	0	x 3 = 0
FACU species	25	x 4 = 100
UPL species	70	x 5 = 350
Column Totals:	115 (A)	490 (B)

Prevalence Index = B/A = 4.26

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Edge of willow scrub.

SOIL

Sampling Point: 3C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	N/A		N/A				Organic	
1-6	10YR 3/2	100	no redox				sandy loam	
6-18+	2.5Y 4/2	90	7.5YR 5/8	10	C	M	sand	very damp

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes X No ___

Remarks: Marginally hydric, poss. relict of wetter conditions before GW pumping during EQ basin construction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ______

Water Table Present? Yes ___ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ______

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Relictual evidence of high GW, not current.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 570 Crespi Dr. City/County: Pacifica / San Mateo Sampling Date: 2/19/20

Applicant/Owner: BayWorks Constr. Inc. State: CA Sampling Point: 3D

Investigator(s): C. Rogers / Wood Bio Section, Township, Range: ____

Landform (hillslope, terrace, etc.): ____ Local relief (concave, convex, none): None Slope (%): Ø

Subregion (LRR): A Lat: 37°35' 53.49" Long: 122°29'57.25" Datum: ____

Soil Map Unit Name: Candlestick-Barnabe NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: No indicators

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5M Ø)			
1. Hesperocyparis macrocarpa	40	Y	NL
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 2M Ø)			
1. Cortaderia jubata	10	N	FACU
2. Rubus ursinus	10	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: Ø (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: Ø (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	Ø	x 1 =
FACW species	Ø	x 2 =
FAC species	Ø	x 3 =
FACU species	20	x 4 = 80
UPL species	40	x 5 = 200
Column Totals:	60 (A)	280 (B)

Prevalence Index = B/A = 4.7

Hydrophytic Vegetation Indicators:

- __ 1 - Rapid Test for Hydrophytic Vegetation
- __ 2 - Dominance Test is >50%
- __ 3 - Prevalence Index is ≤3.0[1]
- __ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ 5 - Wetland Non-Vascular Plants[1]
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Non - hydrophytic veg.

SOIL

Sampling Point: 3D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y 4/4	90					Sandy	
	2.5Y 4/1	8	10YR 5/8	2	C	M	Sandy w/ clay inclusions	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ____ No X

Remarks:

Some relictual evidence of past high GW

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ______

Water Table Present? Yes ____ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ______

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators

Representative Photographs

▲ Sample point 1A in wetland.

▲ Sample point 1B in upland.

▲ Sample point 2A in wetland.

▲ Sample point 2B in upland.


▲ Sample point 3C in upland.


▲ Sample point 3D in upland.

Soils Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Mateo County, Eastern Part, and San Francisco County, California

July 28, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map

Map Scale: 1:1,910 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 25, 50, 100, 150

Feet: 0, 50, 100, 200, 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Mateo County, Eastern Part, and San Francisco County, California
Survey Area Data: Version 16, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 29, 2019—Jun 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
109	Candlestick-Barnabe complex, 30 to 50 percent slopes	4.4	56.7%
131	Urban land	3.0	38.2%
132	Urban land-Orthents, cut and fill complex, 0 to 5 percent slopes	0.4	5.1%
Totals for Area of Interest		**7.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Mateo County, Eastern Part, and San Francisco County, California

109—Candlestick-Barnabe complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: h9gq
Elevation: 80 to 1,200 feet
Mean annual precipitation: 20 to 30 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Candlestick and similar soils: 45 percent
Barnabe and similar soils: 25 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Candlestick

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Hard fractured residuum weathered from sandstone

Typical profile

H1 - 0 to 2 inches: fine sandy loam
H2 - 2 to 20 inches: loam
H3 - 20 to 24 inches: sandy clay loam
H4 - 24 to 28 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Barnabe

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile

H1 - 0 to 7 inches: very gravelly sandy loam
H2 - 7 to 12 inches: very gravelly sandy loam
H3 - 12 to 16 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Orthents, cut&fill

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 4 percent
Hydric soil rating: No

Kron

Percent of map unit: 4 percent
Hydric soil rating: No

Buriburi

Percent of map unit: 4 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 4 percent
Hydric soil rating: No

131—Urban land

Map Unit Setting

National map unit symbol: h9hf
Elevation: 10 to 320 feet
Mean annual precipitation: 15 to 30 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 275 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform position (two-dimensional): Toeslope

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Minor Components

Orthents, reclaimed

Percent of map unit: 7 percent
Hydric soil rating: No

Orthents, cut&fill

Percent of map unit: 7 percent
Hydric soil rating: No

132—Urban land-Orthents, cut and fill complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: h9hg
Elevation: 30 to 500 feet
Mean annual precipitation: 15 to 30 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 275 to 350 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 50 percent
Orthents and similar soils: 45 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Alluvial fans, marine terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Parent material: Alluvium

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Orthents

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8e
Hydric soil rating: No

Minor Components

Botella

Percent of map unit: 1 percent
Hydric soil rating: No

Orthents, reclaimed

Percent of map unit: 1 percent
Hydric soil rating: No

Sirdrak

Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

National Wetland Inventory Map

U.S. Fish and Wildlife Service

National Wetlands Inventory

National wetlands Inventory

August 20, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Appendix C

Geotechnical Investigation and Response to Geotechnical Investigation Peer Review

GEOTECHNICAL INVESTIGATION
FOR PROPOSED
NEW TOWNHOUSE COMPLEX
at the
Crespi Drive Property
570 Crespi Drive
Pacifica, California

Report Prepared for:

Mr. Brendan Murphy

Report Prepared by:

GeoForensics, Inc.

January 2016

GEOFORENSICS INC. Consulting Soil Engineering

561-D Pilgrim Drive, Foster City, CA 94404 Phone: (650) 349-3369 Fax: (650) 571-1878

File: 215247
January 5, 2016

Mr. Brendan Murphy
P.O. Box 301
San Mateo, CA 94401

Subject: **Crespi Drive Property**
570 Crespi Drive
Pacifica, California
GEOTECHNICAL INVESTIGATION FOR PROPOSED NEW TOWNHOUSE COMPLEX AND COMMERCIAL BUILDING

Dear Mr. Murphy:

In accordance with your authorization, we have performed a subsurface investigation into the geotechnical conditions present at the location of the proposed improvements. This report summarizes the conditions we measured and observed, and presents our opinions and recommendations for the design and construction of the proposed new townhouse complex and commercial building.

<u>Site Description</u>

The subject site is a relatively level, rectangularly-shaped parcel located on the south side of Crespi Drive (at the approximate location shown on Figure 1). For purposes of description in this report, it is assumed that the property faces north. The property is bounded by a commercial building to the east, the Pacifica Community Center to the west, developed single family residential lots to the south, and Crespi Drive to the north.

The site is currently occupied by a one-story, wood-framed residence situated on the northern end of the lot. There is an attached garage at the northwest corner of the house. The wooden house floors are supported above crawlspace areas, while the garage has a concrete slab-on-grade floor. A concrete driveway leads from the street to the garage.

The ground surface in the site vicinity has an overall gentle slope down towards the west (as shown on Figure 2). At the site, the ground also slopes gently down towards the west. Surface gradients range from level to 20:1 (horizontal:vertical, H:V).

The grounds around the residence are vegetated with a variety of small to medium sized bushes and shrubs, numerous small to large trees, and various other native plants and grasses. There is a concrete walkway across the front of the house.

Proposed Construction

We understand that the current development for the site proposes the demolition of the existing residence, and the subsequent construction of a new townhouse complex and a commercial building with upper level living space. The structures are to be of conventional, wood-framed construction. New foundation loads are expected to be typical for these types of structures (i.e. light).

Excavation work at the site is expected to be limited to crawlspace and foundation excavations. No significant fill placement is anticipated as part of this work. No significant retaining walls are anticipated for this scope of work. No basements are planned for the townhouses or commercial building.

INVESTIGATION

Scope and Purpose

The purpose of our investigation was to determine the nature of the subsurface soil conditions so that we could provide geotechnical recommendations for the construction of the proposed new townhouse complex and commercial building. In order to achieve this purpose, we have performed the following scope of work:

1 - visited the property to observe the geotechnical setting of the area to be developed;
2 - reviewed relevant published geotechnical maps;
3 - drilled three borings near the location of the proposed improvements;
4 - performed laboratory testing on collected soil samples;
5 - assessed the collected information and prepared this report.

The findings of these work items are discussed in the following sections of this report.

Site Observations

We visited the site on December 8, 2015 to observe the geotechnically relevant site conditions. During our visit, we noted the following conditions:

A - The existing house appears to be supported by a perimeter concrete footing with isolated interior wooden posts resting on concrete pedestals. The foundation system appeared to be in good condition, with no major cracks (as observed from the exterior).

B - We observed hairline to ¼ inch wide cracks in the concrete of the walkways and the driveway.

C - The exterior house walls were covered with wood siding. The wood siding walls were generally in a state of disrepair.

D - We consider the drainage around the house to be poor. The ground surface near the house, and over much of the lot, is flat without sufficient slope away from the house to adequately carry water away from the house. "Trapped" planters and low areas also exist near the house foundations. Additionally, there are no roof downspouts, as water is allowed to sheet flow onto the ground surface near the house foundations. Water which is discharged, collected, or trapped by the house foundations may seep into the crawlspace.

E - We would characterize the drainage over the majority lot to be sheet flow to the west.

Geologic Map Review

We reviewed the *Geology of the Onshore Part of San Mateo County, California: Derived from the Digital Database Open-File 98-137*, by Earl E. Brabb, R.W. Graymer, and D.L. Jones (1998). The relevant portion of the Brabb, Graymer, and Jones map has been reproduced in Figure 3.

The Brabb, Graymer, and Jones map indicate that the site is underlain by Alluvial Fan and Fluvial Deposits (map symbol "Qhaf") and Artificial Fill (map symbol "af").

Brabb, Graymer, and Jones describe Alluvial Fan and Fluvial Deposits as consisting of "brown or tan, medium dense to dense, gravelly sand or sandy gravel that generally grades upward to sandy or silty clay. Near the distal fan edges, the fluvial deposits are typically brown, medium dense sand that fines upward to sandy or silty clay."

Artificial Fill has been described as consisting of "loose to very well consolidated gravel, sand, silt, clay, rock fragments, organic matter, and man-made debris in various combinations. Thickness is variable and may exceed 30 meters in some places. Some is compacted and quite firm, but fill made before 1965 is nearly everywhere not compacted and consists simply of dumped materials."

Our subsurface exploration (see below) encountered silt, clay, sand, and organic materials which we judged to be consistent with the Artificial Fill mapping.

The active San Gregorio Fault is mapped approximately 2.0 miles (3.2 km) southwest of the site.

Subsurface Exploration

On December 8, 2015 we drilled three borings at the site at the locations shown on Figure 4. The borings were drilled using a Mobile B-24 truck-mounted drilling rig equipped with 4.0 inch diameter, helical flight augers. Logs of the soils encountered during drilling record our observations of the cuttings traveling up the augers and of relatively undisturbed samples collected from the base of the advancing holes. The final boring logs are based upon the field logs with occasional modifications made upon further laboratory examinations of the recovered samples and laboratory test results. The final logs are attached in Appendix A.

The relatively undisturbed samples were obtained by driving a 3.0 inch (outer diameter) Modified California Sampler and a Standard Penetration Sampler (as noted on logs) into the base of the advancing hole by repeated blows from a 140 pound hammer lifted 30 inches. On the logs, the number of blows required to drive the sampler the final 12 inches of the 18 inch drive, have been recorded as the Blow Counts. These blows have not been adjusted to reflect equivalent blows of any other type of sampler or hammer, or to account for the different samplers used.

Subsurface Conditions

Boring 1 first penetrated 4 feet of loose sand. This was underlain by clay with sand to a depth of 6.5 feet. Below this was soft to firm silt with an organic smell to 12.5 feet. At 12.5 feet, the boring encountered stiff silty clay with varying amounts of organics down to the terminated boring depth of 17.5 feet.

Borings 2 and 3 both penetrated 6 feet of loose to medium dense silty sand over soft silt with organics. This was underlain by stiff to very stiff silty clay with varying amounts of sand and rock fragments down to the terminated boring depths of 23.5 and 29.5 feet.

Please refer to Appendix A for a more detailed description of each boring.

Initially, groundwater was encountered at depths of 16 feet (Boring 1), 12.5 feet (Boring 2), and at 11 feet (Boring 3) during the drilling of the holes. In Boring 1, the level of the water rose to a depth of 13 feet after 3 hours. In Boring 2, the level of the water rose to 12 feet after 1.5 hours. However, during periods of heavy rain or late in the winter, groundwater seepage may exist at even shallower depths.

Laboratory Testing

The relatively undisturbed samples collected during the drilling process were returned to the laboratory for testing of engineering properties. In the lab, selected soil samples were tested for moisture content, density, plasticity, and consolidation. The results of the laboratory tests are attached to this report in Appendix B.

Organic Content Testing conducted on a sample of the site soils (Sample 2-2 @ 9 feet) indicated that 86.7 percent of the "soil" at this depth consists of organic matter. Due to the soils having greater than 50 percent organic matter, the testing lab and our office describe the soil as peat.

Plasticity Index (PI) testing performed on a sample of the site near surface materials (the sample of the peat at 9 feet) produced a PI result of 210. This testing showed that the peat has a very high liquid limit, which led to the high plasticity index of 210. Typically, a plasticity index of greater than about 30 correlates to a highly expansive soil. However, peat has a tendency to produce unusual test results. Therefore, this number does not necessarily indicate that the peat is highly expansive.

The Consolidation test conducted on a sample of the site soils (the sample of the peat at 9 feet) indicated that the soils have a preconsolidation pressure of about 1000 psf which is approximately the same as the overburden pressure currently pressing on top of these soils. Therefore, we consider the upper soils to be normally consolidated.

CONCLUSIONS AND RECOMMENDATIONS

General

Based upon our investigation, we believe that the proposed improvements can be safely constructed. Geotechnical development of the site is controlled by the presence of a layer of highly organic soils (peat) that is highly compressible. Therefore, it will be necessary to utilize a foundation system which derives its support from the deeper, more stable soils beneath the peat or use a stiff foundation system and accept some overall tilt of the structure. We recommend a mat slab supported by deep foundation elements be used to reach the more stable materials as the best alternative (avoiding settlements), or, alternatively, a waffle may be utilized under a mat slab if tilting is acceptable.

The recommendations in this report should be incorporated into the design and construction of the proposed new townhouse complex and commercial building.

Seismicity

The greater San Francisco Bay Area is recognized by Geologists and Seismologists as one of the most active seismic regions in the United States. Several major fault zones pass through the Bay Area in a northwest direction which have produced approximately 12 earthquakes per century strong enough to cause structural damage. The faults causing such earthquakes are part of the San Andreas Fault System, a major rift in the earth's crust that extends for at least 700 miles along western California. The San Andreas Fault System includes the San Andreas, San Gregorio, Hayward, Calaveras Fault Zones, and other faults.

During 1990, the U.S. Geological Survey cited a 67 percent probability that an earthquake of Richter magnitude 7, similar to the 1989 Loma Prieta Earthquake, would occur on one of the active faults in the San Francisco Bay Region in the following 30 years. Recently, this probability was increased to 70 percent, as a result of studies in the vicinity of the Hayward Fault. A 23 percent probability is still attributed specifically to the potential for a magnitude 7 earthquake to occur along the San Andreas Fault by the year 2020.

Ground Rupture - The lack of mapped active fault traces through the site, suggests that the potential for primary rupture due to fault offset on the property is low.

Ground Shaking - The subject site is likely to be subject to very strong to violent ground shaking during its life span due to a major earthquake in one of the above-listed fault zones. Current (2013) building code design may be followed by the structural engineer to minimize damages due to seismic shaking, using the following input parameters from the USGS Java Ground Motion Parameter Calculator based upon ASCE 7-10 design parameters:

Site Class - D	$SM_S = 2.065$	$SM_1 = 1.334$	$SD_S = 1.377$	$SD_1 = 0.889$

Landsliding - We note that the subject site and the surrounding area are generally level. Therefore, the hazard due to seismically-induced landsliding is, in our opinion, very low for the site.

Liquefaction - Liquefaction most commonly occurs during earthquake shaking in loose fine sands and silty sands associated with a high ground water table. These conditions were demonstrated to be absent in the upper 11 feet of site materials. Although there are some loose sand deposits at the site, they are not saturated, and hence are unlikely to be subject to liquefaction. Studies have found that when these soils are covered by at least 10 feet (3 meters) of non-liquefiable soils, the impacts of the liquefaction tend to be regional movements, rather than more dramatic localized problems. Although liquefaction is unlikely to have a significant effect on the subject property, the proposed rigid foundation should help to minimize any movements even further. Therefore, it is our opinion that the potential for any severe damages or collapse due to liquefaction at the site are very low.

Ground Subsidence - Ground subsidence may occur when poorly consolidated soils densify as a result of earthquake shaking. Since the proposed building site is underlain at shallow depths by resistant materials, the hazard due to ground subsidence is, in our opinion, considered to be low.

Lateral Spreading - Lateral spreading may occur when a weak layer of material, such as a sensitive silt or clay, loses its shear strength as a result of earthquake shaking. Overlying blocks of competent material may be translated laterally towards a free face. Free face conditions are not present proximate to the site, hence, the hazard due to lateral spreading is, in our opinion, considered to be low.

Site Preparation and Grading

All debris resulting from the demolition of existing improvements should be removed from the site and may not be used as fill. Any existing underground utility lines to be abandoned should be removed from within the proposed building envelope and their ends capped outside of the building envelope.

Any vegetation and organically contaminated soils should be cleared from the building area. All holes resulting from removal of tree stumps and roots, or other buried objects, should be overexcavated into firm materials and then backfilled and compacted with native materials.

The placement of fills at the site is expected to include: utility trench backfill, slab subgrade materials, and finished drainage and landscaping grading. These and all other fills should be placed in conformance with the following guidelines:

Fills may use organic-free soils available at the site or import materials. Import soils should be free of construction debris or other deleterious materials and be non-expansive. *A minimum of 3 days prior to the placement of any fill, our office should be supplied with a 30 pound sample (approximately a full 5 gallon bucket) of any soil or baserock to be used as fill (including native and import materials) for testing and approval.*

All areas to receive fills should be stripped of organics and loose or soft near-surface soils. Fills should be placed on level benches in lifts no greater than 6 inches thick (loose) and be compacted to at least 90 percent of their Maximum Dry Density (MDD), as determined by ASTM D-1557. In pavement (concrete or asphalt) areas to receive vehicular traffic, all baserock materials should be compacted to at least 95 percent of their MDD. Also, the upper 6 inches of soil subgrade beneath any pavements should be compacted to at least 95 percent of its MDD.

Unless additional work is done to strengthen and densify the upper 10 to 12 feet of site materials, the grades should not be increased more than 6 inches higher than existing site grades. Otherwise, excessive settlements of the underlying compressible soils may occur. If fills in excess of 6 inches are to be placed, our office should be contacted for further recommendations.

Temporary, dry-weather, vertical excavations should remain stable for short periods of time to heights of 3 feet. All excavations should be shored or sloped in accordance with OSHA standards. Cuts deeper than 11 feet may encounter groundwater and will require temporary (and perhaps permanent) dewatering.

Permanent cut and/or fill slopes should be no steeper than 2:1 (H:V). However, even at this gradient, minor sloughing of slopes may still occur in the future. Positive drainage improvements (e.g. drainage swales, catch basins, etc.) should be provided to prevent water from flowing over the tops of cut and/or fill slopes.

Townhouse and/or Commercial Building Foundation – Mat Slab with Piers

The townhouse and/or commercial building foundations may be supported by a mat slab supported by drilled piers, helix augers, or pipe piles founded in the deeper materials beneath the peat.

Drilled Piers - Piers should penetrate a minimum of 25 feet below lowest adjacent grade. The piers should have a minimum diameter of 16 inches and be nominally reinforced with a minimum of four #4 bars vertically. Piers should be spaced a maximum of 15 feet center to center, and be spaced no closer than 4 diameters, center to center.

Holes greater than 11 feet may encounter groundwater. The contractor should be prepared to tremmie the piers, drill and pour the piers, and/or case the piers in the event of caving.

Actual pier depth, diameter, reinforcement, and spacing should be determined by the structural engineer based upon the following design criteria:

A friction value of 500 psf may be assumed to act on that portion of the pier below a depth of 12 feet. Lateral support may be assumed to be developed along the length of the pier below 12 feet, using a passive pressure of 350 pcf Equivalent Fluid Weight (EFW). Passive resistance may be assumed to act over 1.5 projected pier diameters. Above 12 feet, no frictional or lateral support may be assumed. These design values may be increased 1/3 for transient loads (i.e. seismic and wind).

The upper 12 feet of the pier will experience down drag as the peat decomposes. We recommend that a down drag friction of 500 psf be used on the upper 11 feet of pier.

Even though piers are designed to derive their vertical resistance through skin friction, the bases of the piers holes should be clean and firm prior to setting steel and pouring concrete. If more than 6 inches of slough exists in the base of the pier holes after drilling, then the slough should be removed. If less than 6 inches of slough exists, the slough may be tamped to a stiff condition. Piers should not remain open for more than a few days prior to casting concrete. In the event of rain, shallow groundwater, or caving conditions it may be necessary to pour piers immediately.

All perimeter piers, and piers under load-bearing walls, should be connected by concrete grade beams. Perimeter grade beams should penetrate a minimum of 6 inches below crawlspace grade (unless a perimeter footing drain is installed to intercept water attempting to enter around the perimeter). Interior grade beams do not need to penetrate below grade. All other isolated floor supports must also be pier supported, however, they do not need to be connected by grade beams.

All improvements connected directly to any pier supported structure, also need to be supported by piers. This includes, but is not limited to: porches, decks, entry stoops and columns, etc. If the designer does not wish to pier support these items, then care must be taken to structurally isolate them (with expansion joints, etc.) from the pier supported structure.

If the above recommendations are followed, total foundation settlements should be less than 1 inch, while differential settlements should be less than ½ inches.

Pipe Piles – Pipe piles may be used in lieu of drilled concrete piers. If used, they should be driven into the ground until the required capacity for structural loading and down drag are achieved by the driving equipment, and then filled with grout. Actual pile depth, pipe diameter, and spacing should be determined by the structural engineer. However, we recommend the pipe piles should be driven a minimum of 25 feet below lowest adjacent grade.

Helical Piers - Helical piers (Chance Augers) consist of a solid metal shaft fitted with a metal plate (or series of plates) warped into a screw thread on the tip of the lead shaft. The auger is screwed down into the ground until the required torque is achieved, indicating that adequate bearing pressures are also available. The helix then will accept vertical loads from the foundations and transmit them to bearing pressures on the plates at the tip of the augers. The design process of these augers is based upon proprietary information developed by the Chance Company, and the calculations and designs can be prepared based upon the information contained in other sections and figures in this report.

Floor - The townhouse or commercial building floors should consist of a mat slab spanning between support elements. The entire slab should be underlain by at least 6 inches of clean, crushed drain rock. The drain rock should be covered by a moisture barrier which conforms to ASTM E1745-97 (e.g. Stego Wrap or an approved equivalent). Perforated collector pipes should be embedded within the drain rock around the perimeter of the slab and at 20 foot spacing (one-way) under the slab to carry any water which gathers within the drain rock to the drain discharge location. The need for any sand over the top of the vapor barrier should be determined by the slab designer or architect.

Alternative Townhouse and/or Commercial Building Foundation – Waffle System

Alternatively, the new foundation system may consist of a series of interlocking grade beams which will create a rigid system to support a structurally spanning slab for the new townhouse/commercial building. To provide the most rigid system, it will be important that long, narrow protrusions be minimized from the design in favor of the most rectangular (ideally square) footprint geometry possible. It should be noted that use of a waffle system may still result in differential settlements relative to the grades surrounding the townhouse complex or commercial building, resulting in elevation differences across building/garage entrances and thresholds, as well as an overall tilt to the building.

The grade beams should be a minimum of 36 inches tall and be capable of spanning or cantilevering the following distances and amounts:

Settlements - 20 foot diameter area anywhere in the interior; 10 feet of lost support along the perimeter; and, 5 feet of lost support at any corner.

The movements under the foundations must not result in a deflection of the foundation grade beam system in excess of a ratio of 1:360. To achieve this rigidity, it is anticipated that foundation grade beams will need to be on the order of 3 feet tall, a minimum of 18 inches wide, and spaced at no more than 17 feet in any direction. Ideally, grade beams should be located under all first story interior walls so as to maximize the rigidity under these walls.

The grade beams will all need to bear on stiff soils as identified by our office in the field. Should localized areas of expansive soils be encountered, we may direct the contractor to specially treat those areas to eliminate localized uplift. Such directions may include: the use of void form materials in sub-slab areas, over-excavation, or other methodology deemed appropriate by our engineer.

The grade beam system may be designed for a bearing capacity of 2000 psf may be used. For resistance to lateral forces, the embedded faces of the grade beams may be assumed to develop a passive resistance of 200 psf.

Due to the presence of the peat layer, the total dead load across the building footprint should not exceed 500 psf. If this value is exceeded, please contact our office for further recommendations.

Slabs-on-Grade

The townhouse garage/lower level floors and the commercial building floors should not consist of conventional concrete slabs-on-grade, however, may consist of mat slabs supported by piers or waffle foundation elements. The driveway, any sidewalks or patios may consist of conventional concrete slabs-on-grade, though it should be expected that some post-construction shifting of such slabs may occur. We have provided guidelines to help reduce post-construction movements, however, it is nearly impossible to economically eliminate all shifting.

To help reduce cracking, we recommend slabs be a minimum of 5 inches thick and be nominally reinforced with #4 bars at 18 inches on center, each way. Slabs which are thinner or more lightly reinforced may experience undesirable cosmetic cracking. However, actual reinforcement and thickness should be determined by the structural engineer based upon anticipated usage and loading.

In large non-interior slabs (e.g. patios, garage, etc.), score joints should be placed at a maximum of 10 feet on center. In sidewalks, score joints should be placed at a maximum of 5 feet on center. All slabs should be separated from adjacent improvements (e.g. footings, porches, columns, etc.) with expansion joints. Interior floor slabs will experience shrinkage cracking. These cosmetic cracks may be sealed with epoxy or other measures specified by the architect.

All interior slabs (including garage slab) should be underlain by 4 inches of clean ¾ inch crushed drain rock. The drain rock should be covered by a vapor barrier which conforms to ASTM E1745-97 (e.g. Stego Wrap or an approved equivalent). The architect or structural engineer should determine if sand is required over the vapor barrier.

Slabs which will be subject to light vehicular loads <u>and</u> through which moisture transmission is not a concern (e.g. driveway) should be underlain by at least 6 inches of compacted baserock, in lieu of any sand and gravel. Exterior landscaping flatwork (e.g. patios and sidewalks) may be placed directly on proof-rolled soil subgrade materials (e.g. no granular subgrade), however, they will be potentially subject to shifting and moisture transmission.

As stated previously, in pavement (concrete or asphalt) areas to receive vehicular traffic, all baserock materials should be compacted to at least 95 percent of their MDD. Also, the upper 6 inches of native soil subgrade beneath any pavements should be compacted to at least 95 percent of its MDD.

The townhouse garage/lower level slabs and commercial building slabs should be tied to the foundations to limit differential movements.

Drainage

Due to the flat nature of the site, it will be important to provide good drainage improvements at the property.

Surface Drainage - Adjacent to any buildings, the ground surface should slope at least 5 percent away from the foundations within 5 feet of the perimeter. Impervious surfaces should have a minimum gradient of 2 percent away from the foundation.

Surface water should be directed away from all buildings into drainage swales, or into a surface drainage system (i.e. catch basins and a solid drain line). "Trapped" planting areas should not be created next to any buildings without providing means for drainage (i.e. area drains).

All roof eaves should be lined with gutters. The downspouts may be connected to solid drain lines, or may discharge onto paved surfaces which drain away from the structure. The downspouts may be connected to the same drain line as any catch basins, but must not connect to any perforated pipe drainage system. If splash blocks are preferred, then a perimeter footing drain system **must** be installed.

Footing Drain - Due to the potential for changes to surface drainage provisions, it would be wise (though not required) to install a perimeter footing drain to intercept water attempting to enter under the garage/floor slab. If a footing drain is not installed, some moisture transmission up through the slab may occur. Such penetration should not be detrimental to the performance of the structure, but can possibly cause humidity and mildew problems within the townhouse and commercial building, or seepage up through the slab floors.

The footing drain system, if installed, should consist of a 12 inch wide gravel-filled trench, *dug at least 12 inches below the elevation of the adjacent slab subgrade*. The trench should be lined with a layer of filter fabric (Mirafi 140N or equivalent) to prevent migration of silts and clays into the gravel, but still permit the flow of water. Then 1 to 2 inches of drain rock (clean crushed rock or pea gravel) should be placed in the base of the lined trench. Next a perforated pipe (minimum 3 inch diameter) should be placed on top of the thin rock layer. The perforations in the pipe should be face down. The trench should then be backfilled with more rock to within 6 inches of finished grade. The filter fabric should be wrapped over the top of the rock. Above the filter fabric 6 inches of native soils should be used to cap the drain. If concrete slabs are to directly overlay the drain, then the gravel should continue to the base of the slab, without the 6 inch soil cap. This drain should not be connected to any surface drainage system.

If a floor slab is used, an under-slab drain system may also be installed, consisting of a perforated collector pipes spread no more than 20 feet apart, embedded within the sub-slab drain rock, to evacuate any water which gathers within the drain rock.

Drainage Discharge - The surface drain lines should discharge at least 15 feet away from the townhouse and commercial building, preferably at the street. The discharge location(s) may need to be protected by energy dissipaters to reduce the potential for erosion. Care should be taken not direct concentrated flows of water towards neighboring properties. This may require the use of multiple discharge points.

The footing drain lines (if installed) should discharge independently from the surface drainage systems. A sump pump may be required for the footing drain discharge systems. The surface and subsurface drain systems should not be connected to one another.

Drainage Materials - Drain lines should consist of hard-walled pipes (e.g. SDR 35 or Schedule 40 PVC). In areas where vehicle loading is not a possibility, SDR 38 or HDPE pipes may be used. Corrugated, flexible pipes may not be used in any drain system installed at the property.

Surface drain lines (e.g. downspouts, area drains, etc.) should be laid with a minimum 2 percent gradient (¼ inch of fall per foot of pipe). Any subsurface drain systems (e.g. footing drains) should be laid with a minimum 1 percent gradient (1/8 inch of fall per foot of pipe).

Utility Lines

Unless they pass through the perimeter footing drain system, all utility trenches should be backfilled with compacted on-site clay-rich materials within 5 feet of any buildings. This will help to prevent migration of surface water into trenches and then underneath the structures' perimeter. The rest of the trenches may be compacted with other native soils or clean imported fill. Only mechanical means of compaction of trench backfill will be allowed. Jetting of sands is not acceptable. Trench backfill should be compacted to at least 90 percent of its MDD. However, under pavements, concrete flatwork, and footings the upper 12 inches of trench backfill must be compacted to at least 95 percent of its MDD.

If deeply supported foundations are used, flexible pipeline connections should be used where the utilities enter/exit the structures. Where on-grade foundations are used, it would be prudent to provide drainage lines with greater than normal slope, or to install such lines where access to replace any sags or reverse slopes can be easily corrected.

Pavement

The new driveway may consist of concrete, interlocking pavers, or asphaltic concrete over Caltrans Class II aggregate base (baserock). The asphalt should have a minimum thickness of 2½ inches. The baserock should have a minimum thickness of 6 inches. All of the baserock and the upper 6 inches of soil subgrade should attain a minimum compaction of 95 percent of its MDD. Any fill below this layer should attain a minimum of 90 percent relative compaction.

Plan Review and Construction Observations

The use of the recommendations contained within this report is contingent upon our being contracted to review the plans, and to observe geotechnically relevant aspects of the construction. We should be provided with a full set of plans to review at the same time the plans are submitted to the building/planning department for review. A minimum of one working week should be provided for review of the plans.

At a minimum, our observations should include: compaction testing of fills and subgrades; footing excavations; pier drilling; installation of helix piers or pipe piles; slab and driveway subgrade preparation; installation of any drainage system (e.g. under-slab, footing, and surface), and final grading. A minimum of 48 hours notice should be provided for all construction observations.

LIMITATIONS

This report has been prepared for the exclusive use of the addressee, and their architects and engineers for aiding in the design and construction of the proposed development. It is the addressee's responsibility to provide this report to the appropriate design professionals, building officials, and contractors to ensure correct implementation of the recommendations.

The opinions, comments and conclusions presented in this report were based upon information derived from our field investigation and laboratory testing. Conditions between or beyond our borings may vary from those encountered. Such variations may result in changes to our recommendations and possibly variations in project costs. Should any additional information become available, or should there be changes in the proposed scope of work as outlined above, then we should be supplied with that information so as to make any necessary changes to our opinions and recommendations. Such changes may require additional investigation or analyses, and hence additional costs may be incurred.

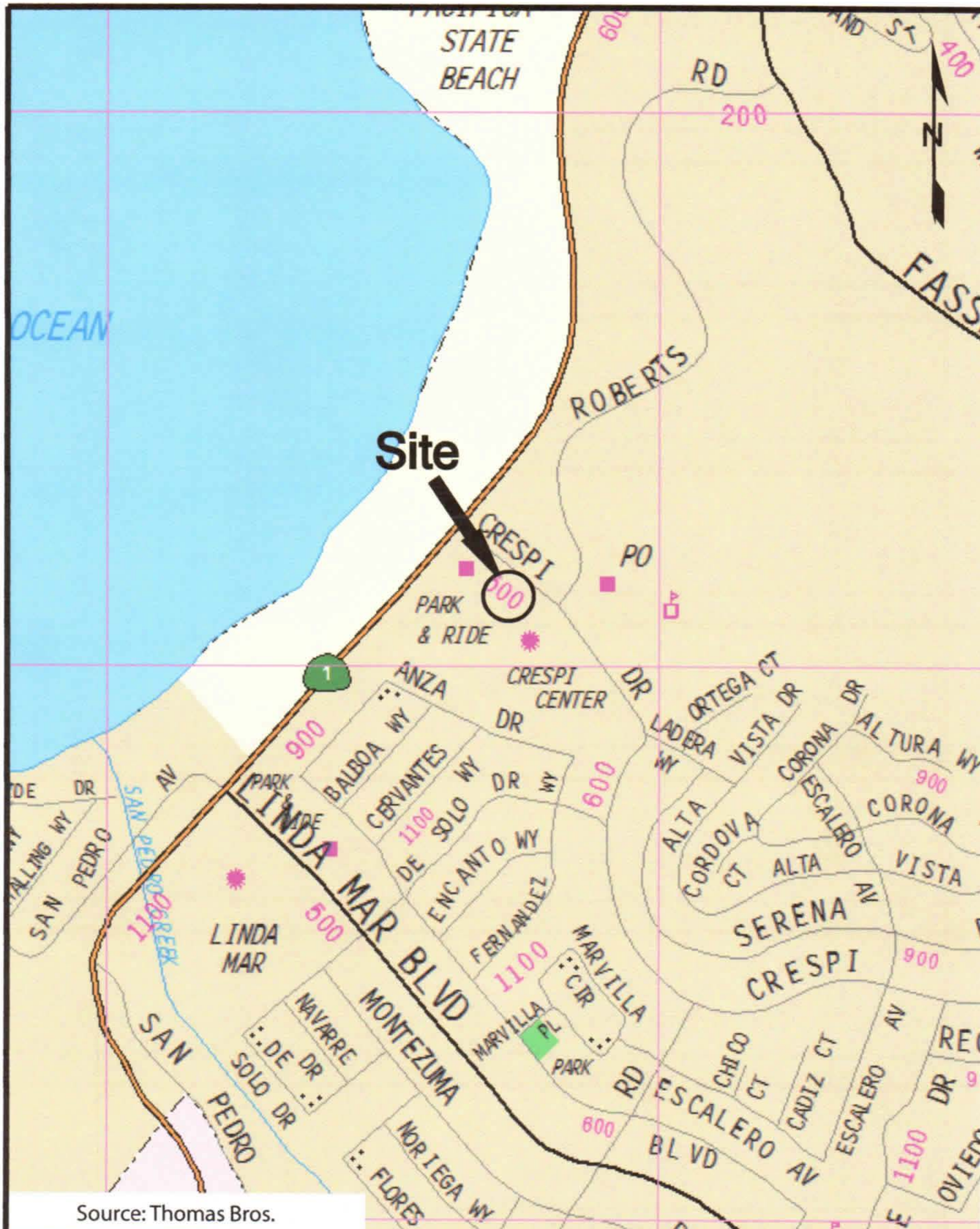
Our work has been conducted in general conformance with the standard of care in the field of geotechnical engineering currently in practice in the San Francisco Bay Area for projects of this nature and magnitude. We make no other warranty either expressed or implied. By utilizing the design recommendations within this report, the addressee acknowledges and accepts the risks and limitations of development at the site, as outlined within the report.

Respectfully Submitted;
GeoForensics, Inc.

Daniel F. Dyckman, PE, GE
Senior Geotechnical Engineer, GE 2145

Bernard A. Atendido
Field Engineer

cc: 5 to addressee



Geoforensics, Inc.

561 Pilgrim Dr., Suite D, Foster City, CA 94404

Tel: (650) 349-3369 Fax: (650) 571-1878

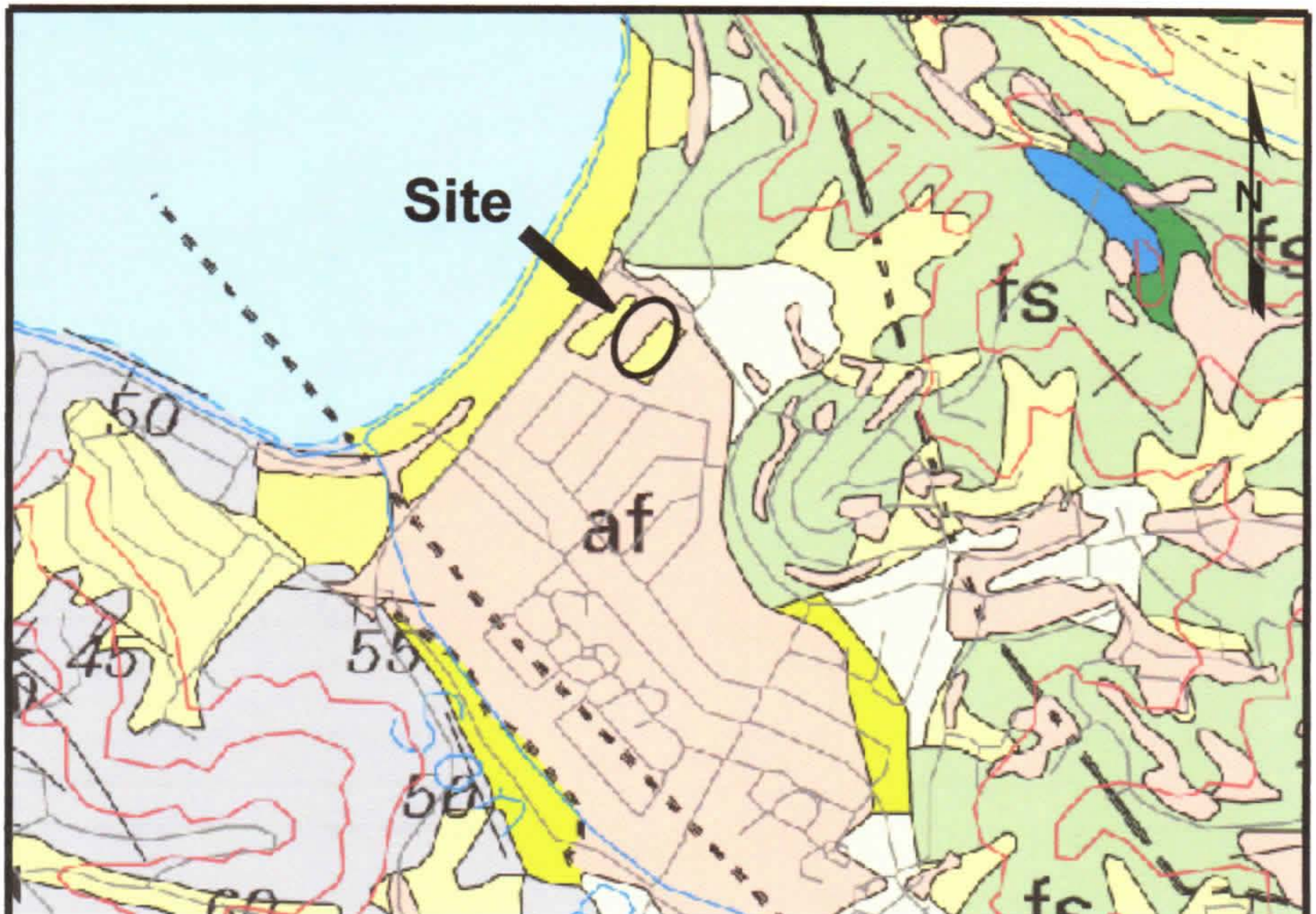
Figure 1 - Site Location

GEOFORENSICS, INC.

561 Pilgrim Dr., Suite D, Foster City, CA 94404

Tel: (650) 349-3369 Fax: (650) 571-1878

Figure 2 - Vicinity Topography



Artificial fill (Historic)—Loose to very well consolidated gravel, sand, silt, clay, rock fragments, organic matter, and man-made debris in various combinations. Thickness is variable and may exceed 30 m in places. Some is compacted and quite firm, but fill made before 1965 is nearly everywhere not compacted and consists simply of dumped materials

af

Alluvial fan and fluvial deposits (Holocene)—Alluvial fan deposits are brown or tan, medium dense to dense, gravely sand or sandy gravel that generally grades upward to sandy or silty clay. Near the distal fan edges, the fluvial deposits are typically brown, never reddish, medium dense sand that fines upward to sandy or silty clay

Qhaf

Source: Geology of the Onshore part of San Mateo County, California: derived from the digital database open-file 98-137. E.E.. Brabb, R.W. Graymer, and D.L. Jones (1998)

GEOFORENSICS, INC. 561 Pilgrim Dr., Suite D, Foster City, CA 94404 Tel: (650) 349-3369 Fax: (650) 571-1878	Figure 3 - Geologic Map

APPENDIX A - BORING LOGS

LOG OF BORING

DEPTH (ft)	SAMPLE NUMBER	SAMPLE LOC.	BLOW COUNTS (12 inches)	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE CONTENT (70)
				loemy SAND; dark brown; slightly moist (SM)		
	1-1	Mod. Cal Sampler	8	silty SAND; green brown; slightly moist; loose (SM)	101.2	11.0
5				silty CLAY with sand; greenish gray to dark gray; moist (CH)		
	1-2	Mod. Cal Sampler	6	SILT with organics; dark brown; moist; soft to firm (ML) (strong organic smell)	-	-
10	1-3	Mod. Cal Sampler	5	No recovery. Soil pulled out of sampler.	-	-
	1-4	SPT Sampler	9	silty CLAY with some organics; blue green; slightly moist; stiff (CH)	-	21.5
15	1-5	Mod. Cal Sampler	17	silty CLAY; blue green; slightly moist; stiff (CH)	-	21.3`
20						
25						
30						

Bottom of Boring at 17.5 feet

Groundwater initially encountered at 16 feet
Rose to 13 feet after 3 hours

Logged by: BA
Job# 215247
Drilled on 12/9/15

B-24 Truck Mounted Drilling Rig
140 Pound Hammer
Groundwater to 13 feet

Mod. Cal Sampler
SPT Sampler

GEOFORENSICS, INC.

561 Pilgrim Dr., Suite D, Foster City, CA 94404

Tel: (650) 349-3369 Fax: (650) 571-1878

Figure A1 - Log of Boring 1

LOG OF BORING

DEPTH (ft)	SAMPLE NUMBER	SAMPLE LOC.	BLOW COUNTS (12 inches)	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE CONTENT (70)
5	2-1		22	silty SAND; green brown; slightly moist; medium dense (SM)	109.7	8.0
10	2-2		5	SILT with organics; dark brown; slightly moist to moist; soft (ML) (strong organic smell)	-	-
15	2-3		11	silty CLAY; blue green; slightly moist; stiff (CH)	-	20.2
20	2-4		12	silty sandy CLAY with pockets of sand; green brown; slightly moist to moist; stiff (CL)	-	18.0
25	2-5		16	silty sandy CLAY with rock fragments; orange brown and green brown; slightly moist; very stiff (CL)	-	23.1
	2-6		15	silty sandy CLAY; orange brown and green brown; slightly moist; stiff to very stiff (CL)	-	20.6
30				**Bottom of Boring at 29.5 feet** **Groundwater initially encountered at 12.5 feet** **Rose to 12 feet after 1.5 hours**		

Logged by: BA
Job# 215247
Drilled on 12/9/15

B-24 Truck Mounted Drilling Rig
140 Pound Hammer
Groundwater to 12 feet

Mod. Cal Sampler
SPT Sampler

GEOFORENSICS, INC.
561 Pilgrim Dr., Suite D, Foster City, CA 94404
Tel: (650) 349-3369 Fax: (650) 571-1878

Figure A2 - Log of Boring 2

LOG OF BORING

DEPTH (ft)	SAMPLE NUMBER	SAMPLE LOC.	BLOW COUNTS (12 inches)	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE CONTENT (70)
	3-1		15	silty SAND; green brown; slightly moist; medium dense (SM)	-	9.6
5						
				SILT with organics; dark brown; moist (ML)		
10						
	3-2		12	silty sandy CLAY; blue green; slightly moist; stiff (CL)	-	18.3
15						
20						
	3-3		12	silty sandy CLAY; orange brown and green brown; slightly moist; stiff (CL)	-	19.1
25				**Bottom of Boring at 23.5 feet**		
				Groundwater encountered at 11 feet		
30						

Logged by: BA
Job# 215247
Drilled on 12/9/15

B-24 Truck Mounted Drilling Rig
140 Pound Hammer
Groundwater at 11 feet

Mod. Cal Sampler
SPT Sampler

GEOFORENSICS, INC.
561 Pilgrim Dr., Suite D, Foster City, CA 94404
Tel: (650) 349-3369 Fax: (650) 571-1878

Figure A3 - Log of Boring 3

APPENDIX B - LABORATORY TEST RESULTS

Moisture-Density-Porosity Report
Cooper Testing Labs, Inc. (ASTM D7263b)

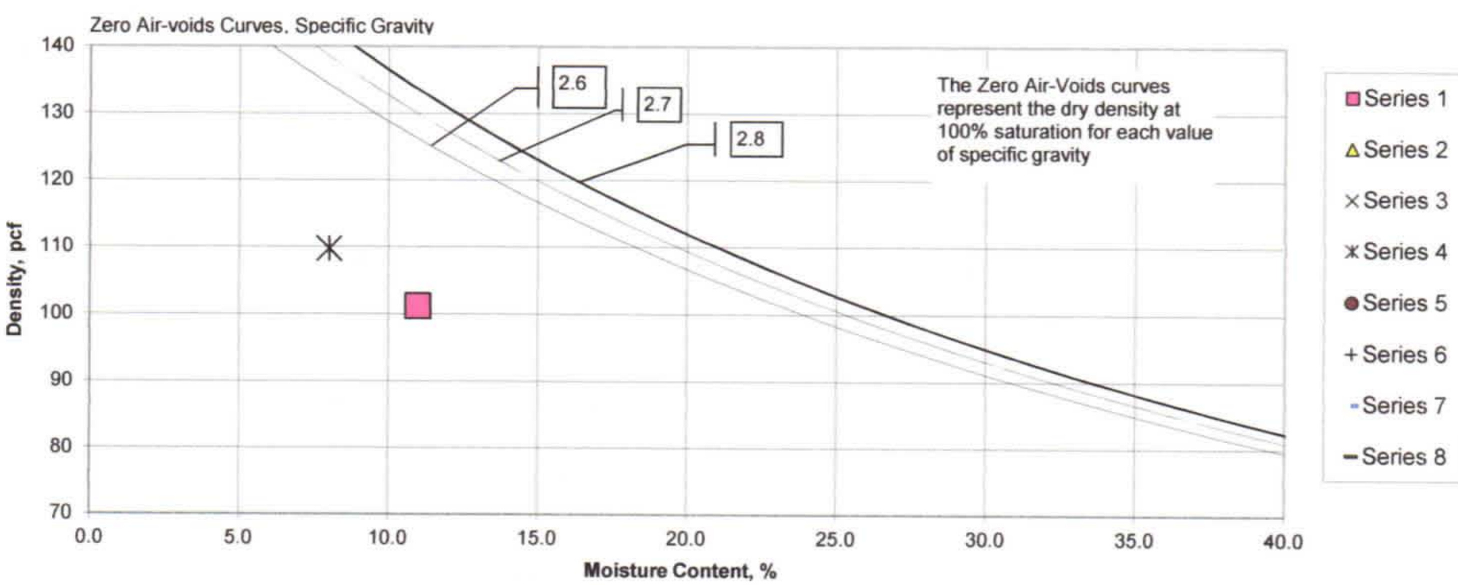
CTL Job No:	060-2387a	**Project No.**	215247
Client:	GeoForensics	**Date:**	12/16/15
Project Name:	Crespi	**Remarks:**	

By: RU

Boring:	1-1	1-4	1-5	2-1	2-3	2-4	2-5	2-6
Sample:								
Depth, ft:	2	14	17	4	14	1	24	29
Visual Description:	Olive Brown Clayey SAND w/ Gravel	Olive Gray CLAY w/ Sand	Olive Gray Sandy CLAY	Olive Brown Sandy CLAY	Olive Gray Sandy CLAY	Olive Brown Sandy CLAY	Olive Brown CLAY w/ Sand	Olive Brown CLAY w/ Sand
Actual G_s								
Assumed G_s	2.70			2.70				
Moisture, %	11.0	21.5	21.3	8.0	20.2	18.0	23.1	20.6
Wet Unit wt, pcf	112.3			118.5				
Dry Unit wt, pcf	101.2			109.7				
Dry Bulk Dens.ρb, (g/cc)	1.62			1.76				
Saturation, %	44.5			40.3				
Total Porosity, %	40.0			34.9				
Volumetric Water Cont,Θw,%	17.8			14.1				
Volumetric Air Cont., Θa,%	22.2			20.9				
Void Ratio	0.67			0.54				
Series	1	2	3	4	5	6	7	8

Note: All reported parameters are from the as-received sample condition unless otherwise noted. If an assumed specific gravity (Gs) was used then the saturation, porosities, and void ratio should be considered approximate.

Moisture-Density

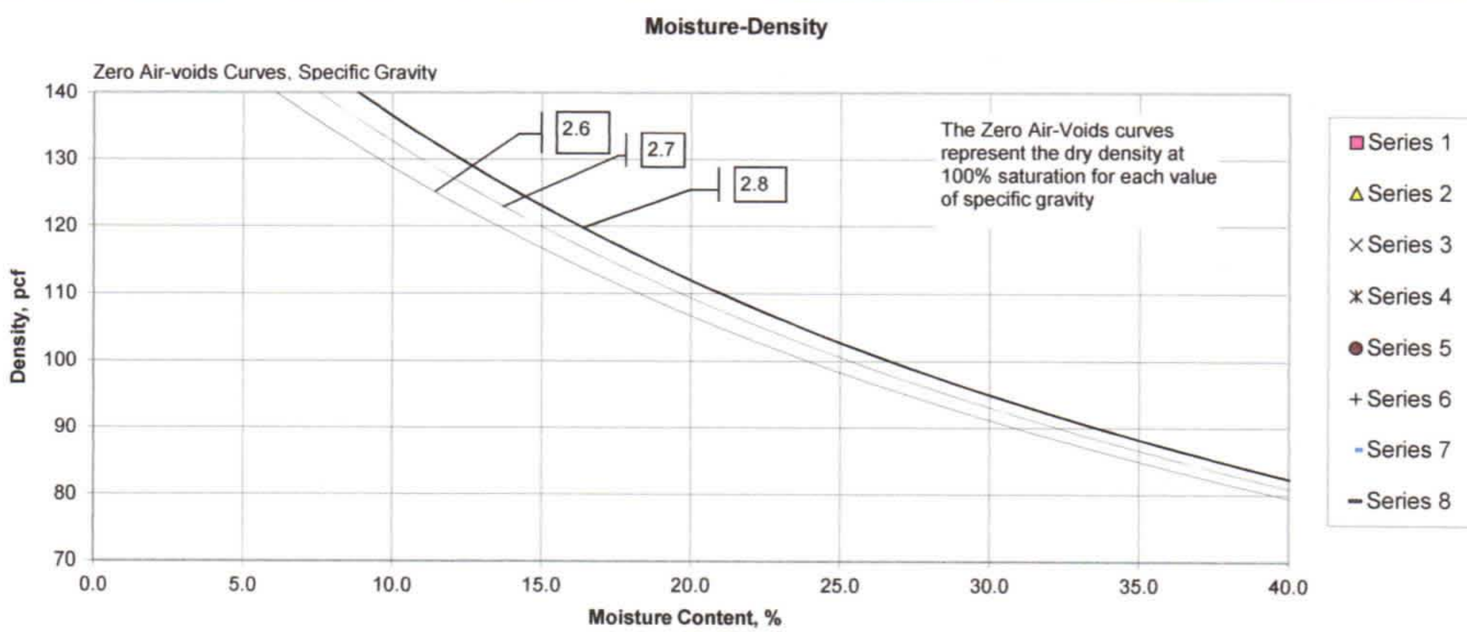


Moisture-Density-Porosity Report
Cooper Testing Labs, Inc. (ASTM D7263b)

CTL Job No: 060-2387b
Client: GeoForensics
Project Name: Crespi
Project No. 215247
By: RU
Date: 12/16/15
Remarks: 3-1 @ 3' - sample disturbed; m/c only.

Boring:	3-1	3-2	3-3					
Sample:								
Depth, ft:	3	13.5	23					
Visual Description:	Olive Brown Sandy CLAY	Olive Gray CLAY w/ Sand	Olive Brown Sandy CLAY					
Actual G_s								
Assumed G_s								
Moisture, %	9.6	18.3	19.1					
Wet Unit wt, pcf								
Dry Unit wt, pcf								
Dry Bulk Dens.ρb, (g/cc)								
Saturation, %								
Total Porosity, %								
Volumetric Water Cont, Θw, %								
Volumetric Air Cont., Θa, %								
Void Ratio								
Series	1	2	3	4	5	6	7	8

Note: All reported parameters are from the as-received sample condition unless otherwise noted. If an assumed specific gravity (Gs) was used then the saturation, porosities, and void ratio should be considered approximate.



COOPER TESTING LABORATORY

Organic Content Test
ASTM D 2974-00 (Method C - 440 °C)

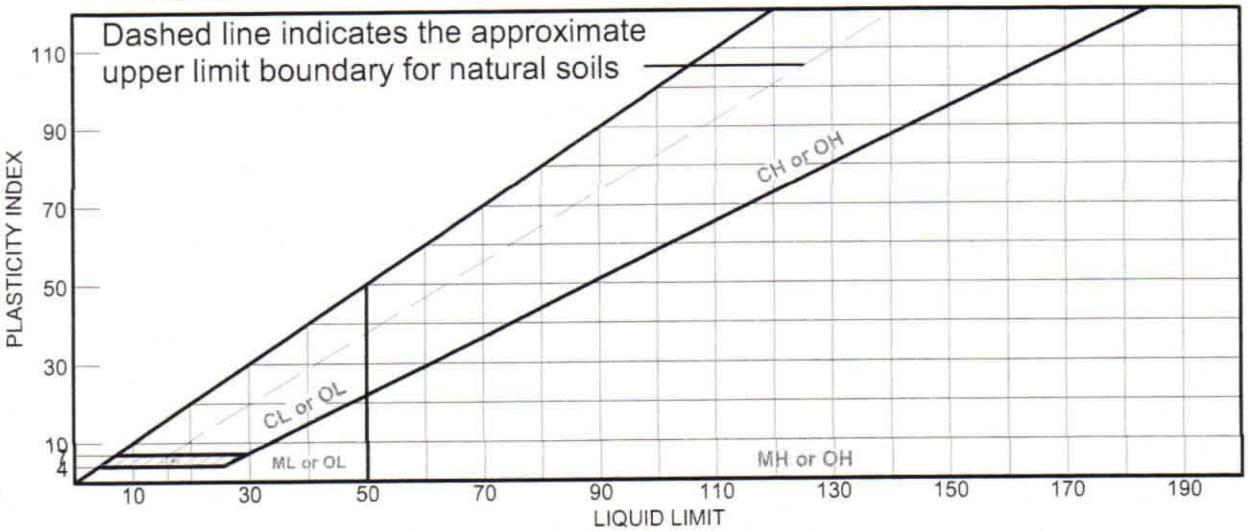
CTL JOB NO.	060-2387	PROJECT:	Crespi	DATE:	12/16/2015
CLIENT :	GeoForensics	PROJECT NO.:	215247	BY:	RU

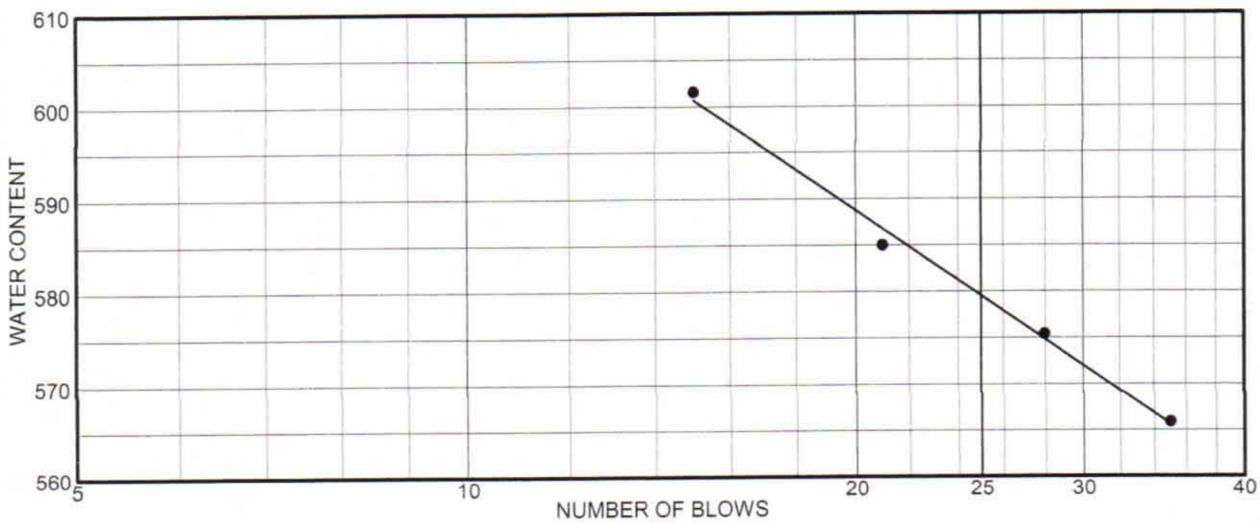
Boring :		1-2							
Sample :									
Depth (ft.):									
Visual Description:		Black Peat							
Dish No.									
Dish wt.,	gm	67.88							
Soil, Org, Dish & H_2O,	gm	128.79							
Oven Dry wt (105°C),	gm	78.29							
Furnace Dry wt. (440°C),	gm	69.26							
Moisture Content, % of Oven Dry Mass		485.1							
Organic Matter,	%	86.7							

Note: ASTM provides no guidelines for including information about the organic content of a sample in the description when the wet/dry liquid limit data is not available. CTL developed the following guidelines to fill this gap:

0-5%: The organics are either not mentioned or mentioned as being "trace".
5-15%: The soil is considered as inorganic and is classified, as per ASTM 2487, with "with organics" included in the desc
15-50%: The soil is considered as organic and is described, per ASTM 2487.
> 50%: The soil is described as "Peat".

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Black Peat	580	370	210			

Project No. 060-2387 **Client:** GeoForensics

Project: Crespi - 215247

● **Source:** 1-2

Remarks:

● Sample was prepared using the wet prep method.

LIQUID AND PLASTIC LIMITS TEST REPORT

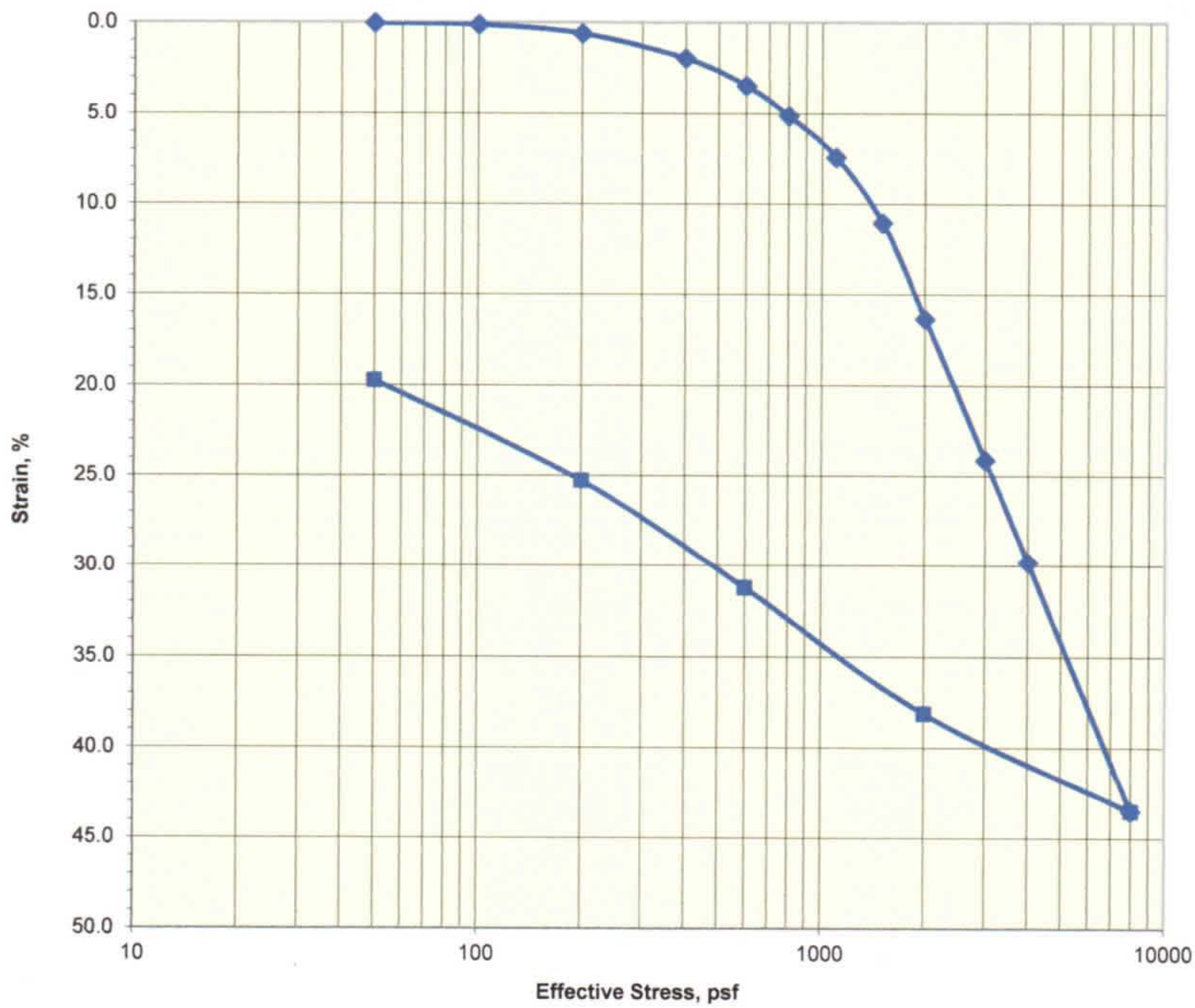
COOPER TESTING LABORATORY

Figure

Consolidation Test
ASTM D2435

Job No.:	060-2387	**Boring:**	2-2	**Run By:**	MD
Client:	GeoForensics	**Sample:**		**Reduced:**	PJ
Project:	Crespi - 215247	**Depth, ft.:**		**Checked:**	PJ/DC
Soil Type:	Black Peat			**Date:**	1/4/2016

Strain-Log-P Curve



Assumed Gs 2.2	Initial	Final
Moisture %:	313.6	275.4
Dry Density, pcf:	15.6	19.5
Void Ratio:	7.792	6.059
% Saturation:	88.5	100.0

Remarks:

GEOFORENSICS INC. **Consulting Soil Engineering**

303 Vintage Park Drive, Suite 220, Foster City, CA 94404 Phone: (650) 349-3369 Fax: (650) 571-1878

File: 215247
April 30, 2020

Mr. Brendan Murphy
P.O. Box 301
San Mateo, CA 94401

Subject: **Crespi Drive Property**
570 Crespi Drive
Pacifica, California
RESPONSE TO GEOTECHNICAL PEER REVIEW

Mr. Murphy:

This letter has been prepared to provide our responses to the issues raised in the March 2, 2020 Peer Review letter by Engeo. We have used the numbering system which starts on Page 3 of the report in order to avoid reproducing long sections of print.

1 – As noted in our report, any construction debris left on the site is to be removed from the site and may not be used as fill. While we concur that the old construction materials will need to be removed, it is our opinion that such work is best conducted during construction when the large equipment necessary to expose the site conditions is available, as opposed to doing massive disturbance to the site with localized backhoe test pits. Based upon our borings, the fills are relatively uniform at a thickness of 6 feet. This is consistent with subsurface information reported in the Construction Testing Services report (3/5/16) for the adjacent property at 540 Crespi Drive, who reported artificial fill to depths of 3 to 7 feet at their property.

2 – We have consulted with the project structural engineer who informs us that according to exception of Section 11.48 of ASCE 7-16, no site-specific response analysis is required. We have updated the values presented in our previous report to reflect current CBC (2019) and ASCE 7-16 values below:

Site Class	SM_S	S_1	SD_S	F_a	F_v	T_L	PGA_M
D	2.329	0.778	1.553	1.2	N/A	12	0.983

3 – From our review of the current civil plans, it appears that up to about 6 feet of fill is to be placed at the site, increasing in thickness from front to rear. Our calculations indicate that the placement of 6 feet of fill is likely to result in about 9.5 inches of total settlement, while 4 feet of fill is likely to result in roughly 8 inches of total settlement. We would therefore expect that differential settlements could be as great as 4 inches across the length of the building due to differential fill thicknesses and presence of peat (which tends to settle differentially to a greater degree than does bay mud). Building loads (assumed at a uniform 500 psf) would produce total settlements on the order of 8 inches. Differentials due to building loads would be dependent upon stiffness of foundation system.

4 – Our borings found a relatively level ground water table located between 11 and 13 feet below grade, which would place the ground water table at an elevation of approximately 1 foot. Water table measurements from the adjacent parcel borings report ground water at a depth of 3 feet, or elevation of

about 2 feet. Based upon that elevation of water table, the Peat materials and deeper soils would be saturated, but not the upper sandy fills. It is our belief that the Peat materials would not tend to be subject to liquefaction. However, the reviewer is correct, there could be some dry soil settlements associated with the upper relatively loose fill sands (note that the laboratory identified these materials as clayey sand or sandy clays, whereas we identified them as silty sands). The relatively high fines content will help to reduce seismic settlements for this relatively thin layer of fill to roughly 1 inch of potential differential settlement.

5 – While we have presented various options for foundation support, the review consultant has suggested the potential use of a mat slab over improved ground conditions. We concur that this is another viable option, particularly with the anticipated ground settlements to be spawned by the relatively thick amount of fill proposed for the site. The ground improvement may include the removal and recompaction of the upper 12 feet of soils as engineered fill (please note that excavations to this depth is likely to encounter ground water towards the base of the excavation). Based stabilization of the excavation would likely be required, and may consist of a 2 foot thick layer of drain rock, or control density fill (sand cement slurry), or other methods suggested by the contractor and approved by our office. Please note that only the existing sandy fills would be suitable for re-use as engineered fill (assuming that there is no construction debris included). Another alternative would be to use rammed stone displacement columns, soil concrete piers, or other methods to penetrate through the upper layers. These later options are typically design build options through various specialty contractors, so specific recommendations are not included in this letter, but the proposed design should be provided for our review prior to permitting.

Corrosion testing on the adjacent site (540 Crespi) was performed at depths of 15 feet, 20 feet, 76 feet, and 105 feet. None of the samples were considered to be corrosive. However, it is unlikely that the improvements at the subject site will be this deeply embedded. Further, the nature of the soils which may be used as fill is currently unknown. Hence we concur that once the foundation system and any remedial grading work has been determined, it would be wise to conduct corrosivity testing on the soils at the appropriate elevations (i.e. within the fills).

6 – Our pavement recommendations were provided assuming an R-value of 5, with a TI of 4. If the pavement will receive a higher traffic loading, please contact our office to revise the required pavement section. Also note that we have used a very low R-value, and depending upon the fill materials used to raise the grade, a better value may be achieved which could reduce the pavement section for any Traffic Index necessary.

Should you have any questions please contact the undersigned.

Respectfully Submitted;
GeoForensics, Inc.

Daniel F. Dyckman, PE, GE
Senior Geotechnical Engineer, GE 2145

REGISTERED PROFESSIONAL ENGINEER
Daniel F. Dyckman
No. 002145
Geotechnical
STATE OF CALIFORNIA

Email cc: 1 to addressee

Appendix D

Environmental Noise Assessment

Environmental Noise Assessment

570 Crespi Drive

City of Pacifica, California

October 1, 2021

Project # 200204

Prepared for:

Raney Planning and Management, Inc.
1501 Sports Drive
Sacramento, CA 95834

Prepared by:

Saxelby Acoustics LLC

Luke Saxelby, INCE Bd. Cert.
Principal Consultant
Board Certified, Institute of Noise Control Engineering (INCE)

(916) 760-8821
www.SaxNoise.com | Luke@SaxNoise.com
915 Highland Pointe Drive, Suite 250
Roseville, CA 95678

Table of Contents

Appendices

List of Figures

List of Tables

INTRODUCTION

The 570 Crespi Drive residential project is located along the south side of Crespi Drive, east of Highway 1 in the City of Pacifica, California. The project consists of the construction of 3 separate buildings containing 15 residential units and 3,165 s.f. of commercial space.

Figure 1 shows the project site plan. **Figure 2** shows an aerial photo of the project site.

ENVIRONMENTAL SETTING

BACKGROUND INFORMATION ON NOISE

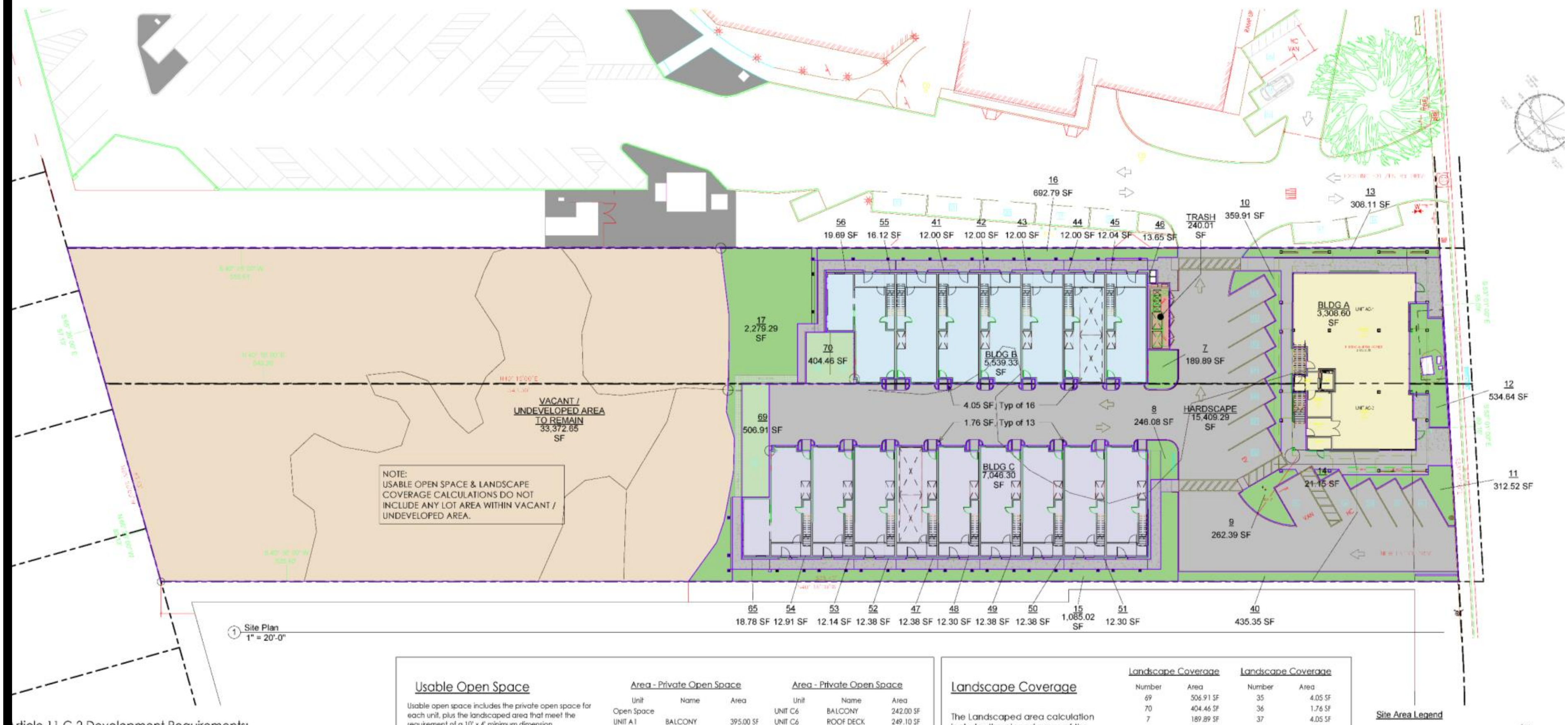
Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment.

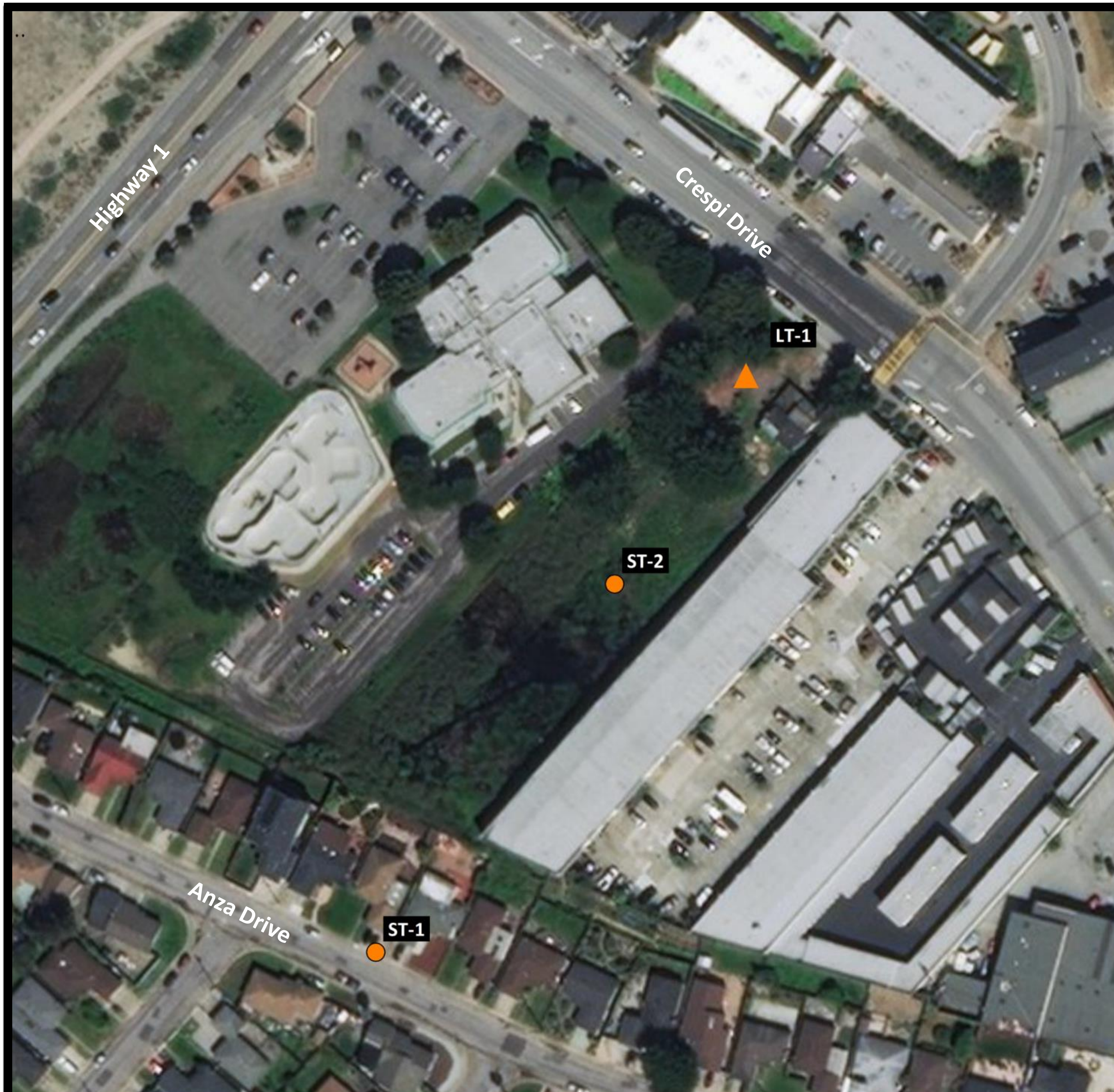


570 Crespi Drive

City of Pacifica, California

Figure 1

Project Site Plan



570 Crespi Drive
City of Pacifica, California

Figure 2

Noise Measurement Sites

Legend

▲ Noise Measurement - Long Term

● Noise Measurement - Short Term

0 ft 250 ft 500 ft 750 ft 1000 ft 1250 ft 1500 ft

Projection: State Plane (California Zone 3) / NAD83 / meters
Rev. Date: 04/13/2020

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

The decibel scale is logarithmic, not linear. In other words, two sound levels 10-dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10-dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (DNL or L_{dn}) is based upon the average noise level over a 24-hour day, with a +10-decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. **Appendix A** provides a summary of acoustical terms used in this report.

TABLE 1: TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft.)	--100--	
Gas Lawn Mower at 1 m (3 ft.)	--90--	
Diesel Truck at 15 m (50 ft.), at 80 km/hr. (50 mph)	--80--	Food Blender at 1 m (3 ft.) Garbage Disposal at 1 m (3 ft.)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft.)	--70--	Vacuum Cleaner at 3 m (10 ft.)
Commercial Area Heavy Traffic at 90 m (300 ft.)	--60--	Normal Speech at 1 m (3 ft.)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. September, 2013.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6-dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING NOISE AND VIBRATION ENVIRONMENTS

EXISTING NOISE RECEPTORS

Some land uses are considered more sensitive to noise than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

Sensitivity is a function of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities involved. In the vicinity of the project site, sensitive land uses include existing single-family residential uses located towards the southwest and multi-family residential uses located to the north and northeast.

EXISTING GENERAL AMBIENT NOISE LEVELS

The existing noise environment in the project area is primarily defined by traffic on Highway 1 and Crespi Drive.

To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted continuous (24-hr.) noise level measurements at one location on the project site and short term measurements at 2 locations in the project vicinity.

Noise measurement locations are shown on **Figure 2**. A summary of the noise level measurement survey results is provided in **Table 2**. **Appendix B** contains the complete results of the noise monitoring.

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max}, represents the highest noise level measured. The average value, denoted L_{eq}, represents the energy average of all the noise received by the sound level meter microphone during the monitoring period. The median value, denoted L_{50}, represents the sound level exceeded 50 percent of the time during the monitoring period.

Larson Davis Laboratories (LDL) model 820 and 831 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with a B&K Model 4230 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

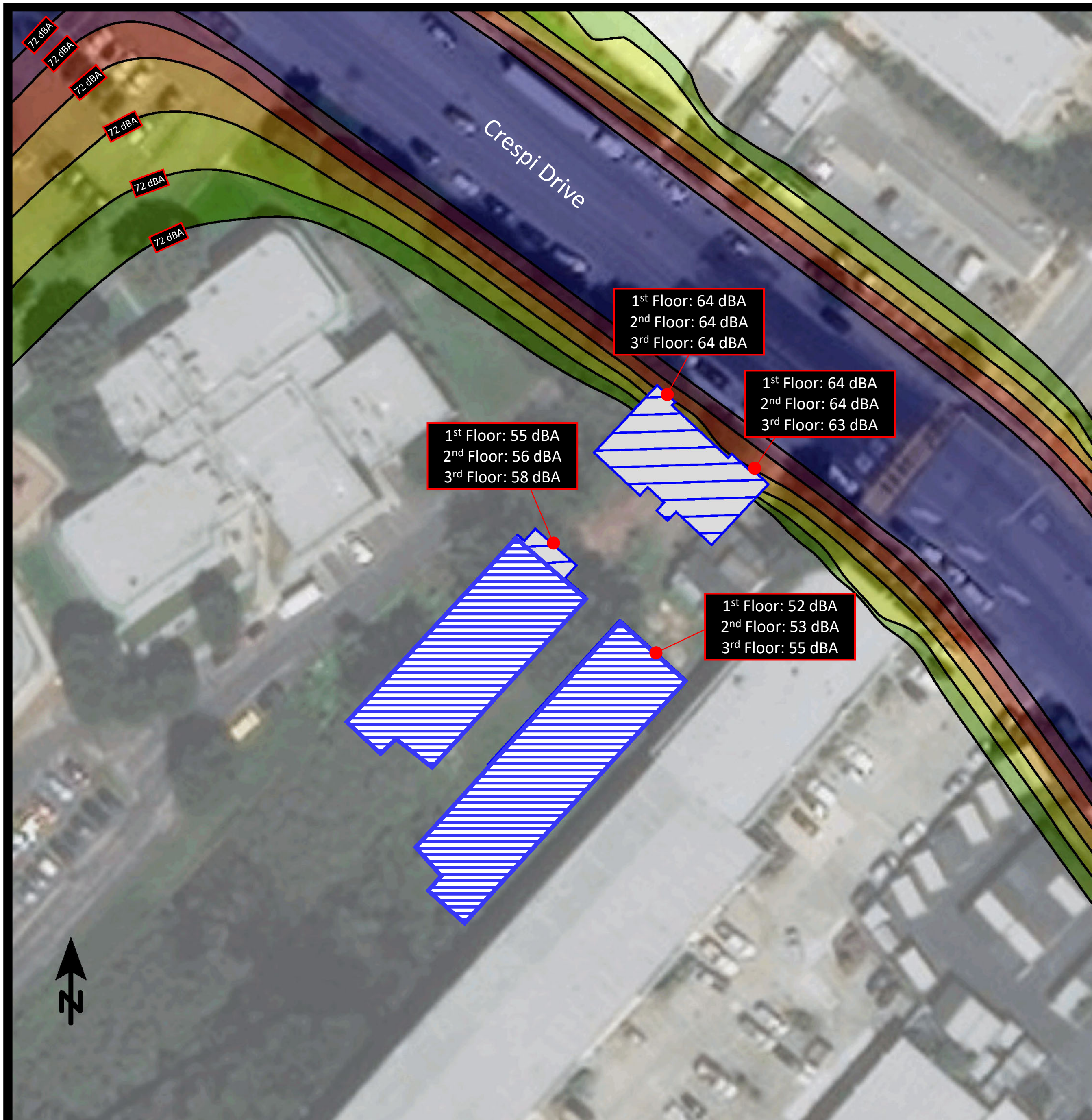
TABLE 2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

Site	Date	Average Measured Hourly Noise Levels, dBA						
		CNEL/L_{dn}	Daytime (7:00 am - 10:00 pm)			Nighttime (10:00 pm – 7:00 am)		
			L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
LT-1	04/09/20-04/10/20	58	54	51	73	51	45	67
ST-1	04/09/20-1:05 p.m.	N/A	55	44	93	N/A	N/A	N/A
ST-2	04/10/20-1:21 p.m.	N/A	48	47	58	N/A	N/A	N/A
Source: Saxelby Acoustics – 2020								

EVALUATION OF TRANSPORTATION NOISE SOURCES ON THE PROJECT SITE

ON-SITE TRANSPORTATION NOISE PREDICTION METHODOLOGY

Saxelby Acoustics used the SoundPLAN noise model to calculate traffic noise levels at the proposed residential uses due to traffic on Crespi Drive and Highway 1. The proposed project buildings and surrounding structures were input into the SoundPLAN model to determine the traffic noise exposure on the project site. Future (2041) traffic noise levels were calculated by assuming a 1% per year increase in traffic volumes on Highway 1 and Crespi Drive. The results of this analysis are shown on **Figure 3**. Based upon the SoundPLAN noise model, **Table 3** shows the maximum predicted traffic noise levels at the residential floors of the projects closest to Crespi Drive.



570 Crespi Drive

City of Pacifica, California

Figure 3

Project Noise Contours (dBA L_{dn})

Signs and symbols

Proposed Building

Levels in dB(A)

<= 60
60 - 61
61 - 62
62 - 63
63 - 64
64 - 65
> 65

1 : 900

0 4.5 9 18 27 36 m

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

TABLE 3: TRAFFIC NOISE LEVELS AT PROJECT FACADES

Location	Exterior Noise Level, L_{dn}	Estimated Interior Noise Level, L_{dn}[1]
Building A - Northwest	63.6 dBA	38.6 dBA
Building A - Northeast	63.2 dBA	38.2 dBA
Multifamily West	58.4 dBA	33.4 dBA
Multifamily East	54.9 dBA	29.9 dBA
[1] Assumes typical 25 dBA exterior-to-interior noise level reduction.		

FUTURE TRAFFIC NOISE ENVIRONMENT AT OFF-SITE RECEPTORS

OFF-SITE TRAFFIC NOISE IMPACT ASSESSMENT METHODOLOGY

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at sensitive receptors for existing and future, project and no-project conditions.

Existing, Background, and Cumulative noise levels due to traffic are calculated using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108). The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict traffic noise levels in terms of L_{dn}, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

Project trip generation volumes were provided by the project traffic engineer (RKH Civil and Transportation Engineering 2020), truck usage and vehicle speeds on the local area roadways were estimated from field observations. The predicted increases in traffic noise levels on the local roadway network for Existing, Baseline, and Cumulative conditions which would result from the project are provided in terms of L_{dn}.

Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. In some locations sensitive receptors may not receive full shielding from noise barriers, or may be located at distances which vary from the assumed calculation distance.

Table 4, 5, and 6 summarize the modeled traffic noise levels at the nearest sensitive receptors along each roadway segment in the Project area. **Appendix C** provides the complete inputs and results of the FHWA traffic modeling.

TABLE 4: EXISTING TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

Roadway	Segment	Predicted Exterior Noise Level (dBA L_{dn}) at Closest Sensitive Receptors		
		Existing No Project	Existing + Project	Change
Highway 1	Hwy 1 North to Reina Del Mar Ave	69.8	69.8	0.0
Highway 1	Reina Del Mar Ave to Fassler Ave	72.4	72.4	0.0
Highway 1	Fassler Ave to Crespi Dr	70.2	70.2	0.0
Highway 1	Crespi Dr to Linda Mar Blvd	66.3	66.3	0.0
Highway 1	Linda Mar Blvd to Hwy 1 South	66.6	66.6	0.0
Reina Del Mar Ave	Hwy 1 to Reina Del Mar Ave East	62.3	62.3	0.0
Fassler Ave	Hwy 1 to Fassler Ave East	61.2	61.2	0.1
Crespi Dr	East of Hwy 1	62.7	62.8	0.1

TABLE 5: BACKGROUND TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

Roadway	Segment	Predicted Exterior Noise Level (dBA L_{dn}) at Closest Sensitive Receptors		
		Background No Project	Background + Project	Change
Highway 1	Hwy 1 North to Reina Del Mar Ave	69.8	69.9	0.0
Highway 1	Reina Del Mar Ave to Fassler Ave	72.4	72.5	0.0
Highway 1	Fassler Ave to Crespi Dr	70.2	70.2	0.0
Highway 1	Crespi Dr to Linda Mar Blvd	66.3	66.3	0.0
Highway 1	Linda Mar Blvd to Hwy 1 South	66.6	66.6	0.0
Reina Del Mar Ave	Hwy 1 to Reina Del Mar Ave East	62.3	62.3	0.0
Fassler Ave	Hwy 1 to Fassler Ave East	61.2	61.3	0.1
Crespi Dr	East of Hwy 1	62.8	62.9	0.1

TABLE 6: CUMULATIVE TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

Roadway	Segment	Predicted Exterior Noise Level (dBA L_{dn}) at Closest Sensitive Receptors		
		Cumulative No Project	Cumulative + Project	Change
Highway 1	Hwy 1 North to Reina Del Mar Ave	69.9	69.9	0.0
Highway 1	Reina Del Mar Ave to Fassler Ave	72.5	72.5	0.0
Highway 1	Fassler Ave to Crespi Dr	70.2	70.3	0.0
Highway 1	Crespi Dr to Linda Mar Blvd	66.4	66.4	0.0
Highway 1	Linda Mar Blvd to Hwy 1 South	66.6	66.6	0.0
Reina Del Mar Ave	Hwy 1 to Reina Del Mar Ave East	62.3	62.3	0.0
Fassler Ave	Hwy 1 to Fassler Ave East	61.3	61.3	0.0
Crespi Dr	East of Hwy 1	62.7	62.8	0.1

CONSTRUCTION NOISE ENVIRONMENT

The Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM) was used to predict noise levels for standard construction equipment used for roadway improvement projects. The assessment of potential significant noise effects due to construction is based on the standards and procedures described in the Federal Transit Authority (FTA) guidance manual and FHWA's RCNM.

The RCNM is a Windows-based noise prediction model that enables the prediction of construction noise levels for a variety of construction equipment based on a compilation of empirical data and the application of acoustical propagation formulas. It enables the calculation of construction noise levels in more detail than the manual methods, which eliminates the need to collect extensive amounts of project-specific input data. RCNM allows for the modeling of multiple pieces of construction equipment working either independently or simultaneously, the character of noise emission, and the usage factors for each piece of equipment.

Construction noise varies depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week), and the duration of the construction work.

Noise sources in the RCNM database include actual noise levels and equipment usage percentages. This source data was used in this construction noise analysis. **Table 7** shows predicted construction noise levels for each of the project construction phases.

TABLE 7: CONSTRUCTION EQUIPMENT NOISE LEVELS FOR PRIMARY CONSTRUCTION PHASES

Equipment	Quantity	Usage (%)	Maximum, Lmax (dBA at 50 feet)	Hourly Average, Leq (dBA at 50 feet)
Site Preparation				
Graders	1	40	85	81
Rubber Tired Dozers	1	40	82	78
Tractors/Loaders/Backhoes	1	40	78	74
			Total:	**83**
Grading				
Graders	1	40	85	81
Rubber Tired Dozers	1	40	82	78
Tractors/Loaders/Backhoes	1	40	78	74
			Total:	**83**
Foundations				
Pile Driver	1	20	101	94
			Total:	**94**
Building Construction				
Cranes	1	16	81	73
Forklifts	1	40	83	79
Generator Sets	1	50	73	70
Tractors/Loaders/Backhoes	1	40	78	74
Welders	3	40	74	70
			Total:	**82**
Paving				
Cement and Mortar Mixers	1	40	79	75
Pavers	1	50	77	74
Paving Equipment	1	50	77	74
Rollers	1	20	80	73
Tractors/Loaders/Backhoes	1	40	78	74
			Total:	**81**
Architectural Coating				
Air Compressors	1	40	78	74
			Total:	**74**

Source: FHWA, Roadway Construction Noise Model (RCNM), January 2006.

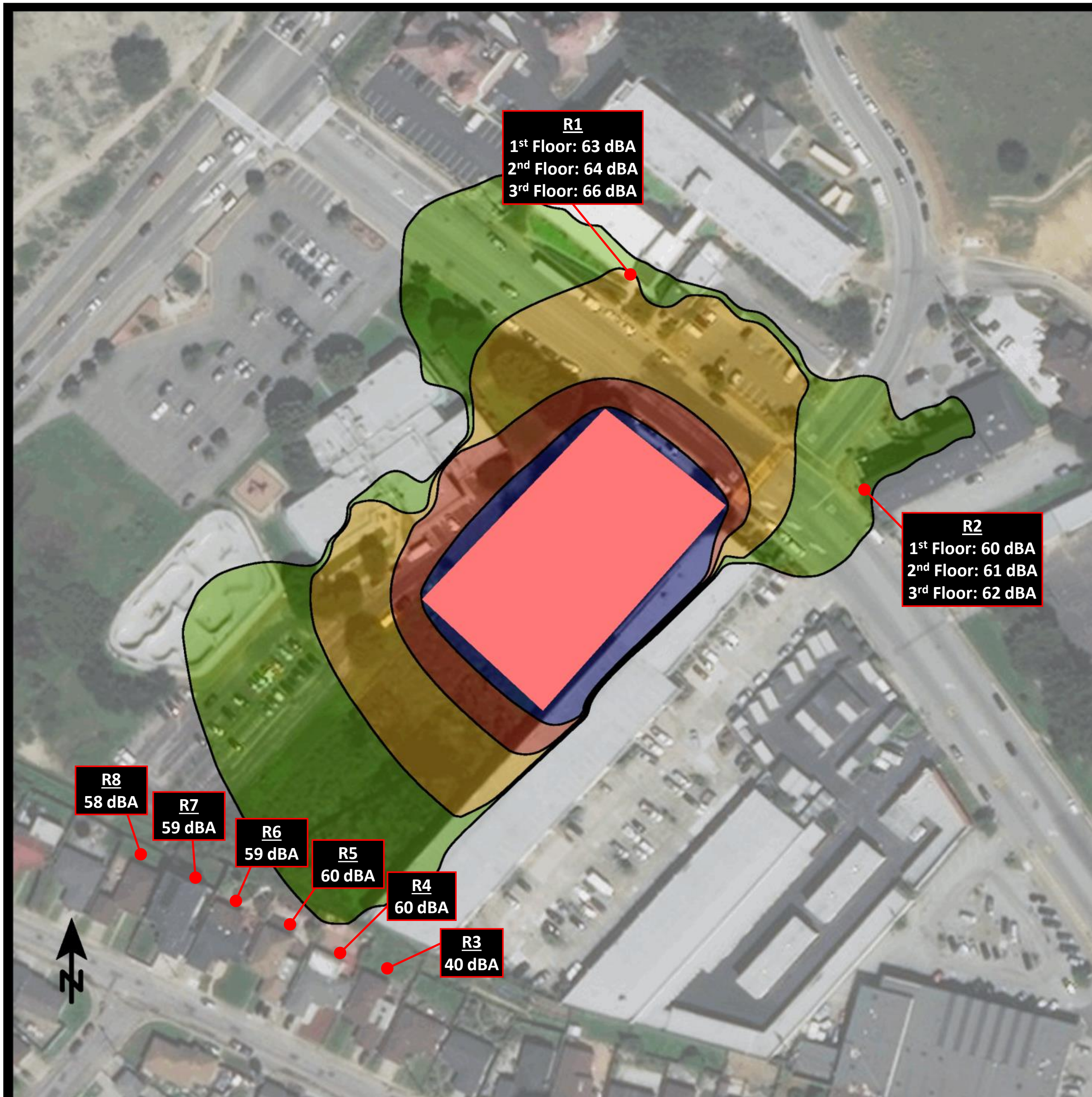
Based upon the **Table 7** data, the loudest phase of construction with an average noise exposure of 94 dBA Leq at 50 feet would occur during pile driving activities. The next loudest phase would be grading and site preparation at 83 dBA Leq at 50 feet. Saxelby Acoustics used the SoundPLAN noise model to calculate noise levels at the nearest sensitive receptors in terms of the City's day/night average (Ldn) noise level criterion. It should be noted that the Ldn calculation conservatively assumes twelve hours of continuous construction between the hours of 7:00 a.m. to 7:00 p.m. The results of the construction noise analysis are shown graphically on **Figure 4** (without pile driving) and **Figure 5** (with pile driving). A summary of the noise prediction results for each phase of construction are shown in **Table 8**.

TABLE 8: PREDICTED CONSTRUCTION NOISE LEVELS BY LOUDEST PHASES

Receiver (Use)	Measured Daytime Noise Level, L_{dn}[1]	Predicted Construction Noise Level, L_{dn}	Change
Site Preparation			
R1 (Residential)	58 dBA	66 dBA	+8 dBA
R2 (Residential)	58 dBA	62 dBA	+4 dBA
R3 (Residential)	52-58 dBA	40 dBA	+0 dBA
R4 (Residential)	52-58 dBA	60 dBA	+8 dBA
R5 (Residential)	52-58 dBA	60 dBA	+8 dBA
R6 (Residential)	52-58 dBA	59 dBA	+7 dBA
R7 (Residential)	52-58 dBA	59 dBA	+7 dBA
R8 (Residential)	52-58 dBA	58 dBA	+6 dBA
Grading			
R1 (Residential)	58 dBA	66 dBA	+8 dBA
R2 (Residential)	58 dBA	62 dBA	+4 dBA
R3 (Residential)	52-58 dBA	40 dBA	+0 dBA
R4 (Residential)	52-58 dBA	60 dBA	+8 dBA
R5 (Residential)	52-58 dBA	60 dBA	+8 dBA
R6 (Residential)	52-58 dBA	59 dBA	+7 dBA
R7 (Residential)	52-58 dBA	59 dBA	+7 dBA
R8 (Residential)	52-58 dBA	58 dBA	+6 dBA
Foundations (Pile Driving)			
R1 (Residential)	58 dBA	76 dBA	+18 dBA
R2 (Residential)	58 dBA	72 dBA	+14 dBA
R3 (Residential)	52-58 dBA	51 dBA	+0 dBA
R4 (Residential)	52-58 dBA	71 dBA	+19 dBA
R5 (Residential)	52-58 dBA	71 dBA	+19 dBA
R6 (Residential)	52-58 dBA	70 dBA	+18 dBA
R7 (Residential)	52-58 dBA	70 dBA	+18 dBA
R8 (Residential)	52-58 dBA	69 dBA	+17 dBA
Building Construction			
R1 (Residential)	58 dBA	65 dBA	+7 dBA
R2 (Residential)	58 dBA	61 dBA	+3 dBA
R3 (Residential)	52-58 dBA	39 dBA	+0 dBA
R4 (Residential)	52-58 dBA	59 dBA	+7 dBA

R5 (Residential)	52-58 dBA	59 dBA	+7 dBA
R6 (Residential)	52-58 dBA	58 dBA	+6 dBA
R7 (Residential)	52-58 dBA	58 dBA	+6 dBA
R8 (Residential)	52-58 dBA	57 dBA	+5 dBA
Paving			
R1 (Residential)	58 dBA	64 dBA	+6 dBA
R2 (Residential)	58 dBA	60 dBA	+2 dBA
R3 (Residential)	52-58 dBA	38 dBA	+0 dBA
R4 (Residential)	52-58 dBA	58 dBA	+6 dBA
R5 (Residential)	52-58 dBA	58 dBA	+6 dBA
R6 (Residential)	52-58 dBA	57 dBA	+5 dBA
R7 (Residential)	52-58 dBA	57 dBA	+5 dBA
R8 (Residential)	52-58 dBA	56 dBA	+4 dBA
Architectural Coating			
R1 (Residential)	58 dBA	57 dBA	+0 dBA
R2 (Residential)	58 dBA	53 dBA	+0 dBA
R3 (Residential)	52-58 dBA	31 dBA	+0 dBA
R4 (Residential)	52-58 dBA	51 dBA	+0 dBA
R5 (Residential)	52-58 dBA	51 dBA	+0 dBA
R6 (Residential)	52-58 dBA	50 dBA	+0 dBA
R7 (Residential)	52-58 dBA	50 dBA	+0 dBA
R8 (Residential)	52-58 dBA	49 dBA	+0 dBA

[1] As measured at Site LT-1.



570 Crespi Drive

City of Pacifica, California

Figure 3

Predicted Loudest Construction Noise Levels (dBA, Ldn)

Signs and symbols

Construction Area

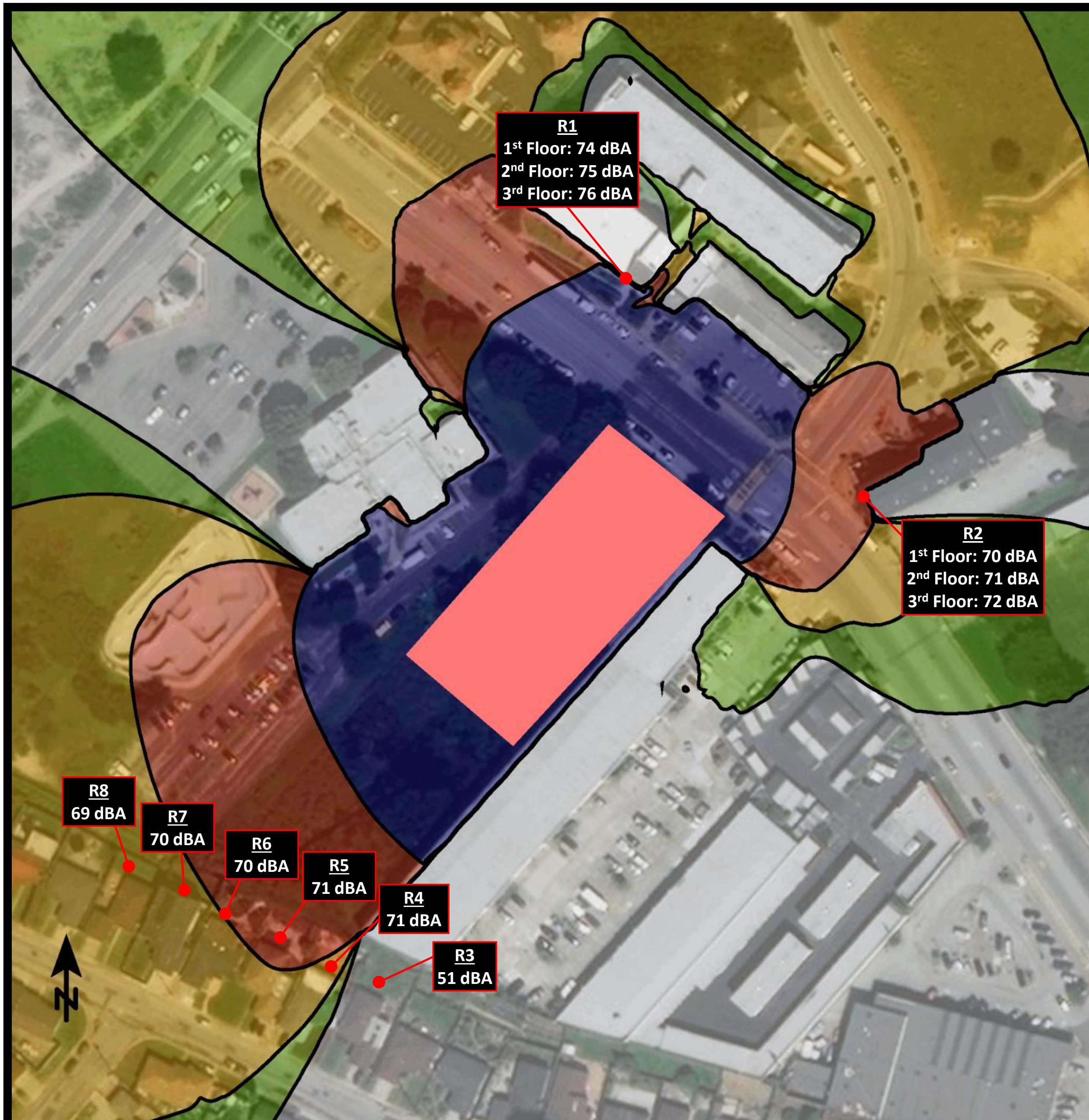
Levels in dB(A)

<= 60
60 - 65
65 - 70
70 - 75
> 75

1 : 1615

0 10 20 40 60 80 m

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration



570 Crespi Drive

City of Pacifica, California

Figure 5, Pile Driving Construction Noise Levels

Predicted Loudest Construction Noise Levels (dBA, Ldn)

Signs and symbols

Construction Area

Levels in dB(A)

<= 60
60 - 65
65 - 70
70 - 75
> 75

1 : 1615

0 10 20 40 60 80 m

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Construction Vibration Environment

The primary vibration-generating activities would occur during pile driving, grading, utilities placement, and parking lot construction. **Table 9** shows the typical vibration levels produced by construction equipment.

Table 9: Vibration Levels for Various Construction Equipment

Type of Equipment	Peak Particle Velocity at 25 feet (inches/second)	Peak Particle Velocity at 50 feet (inches/second)	Peak Particle Velocity at 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Pile Driving (impact)	0.644	0.228	0.081
Pile Driving (sonic)	0.170	0.060	0.023
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210 (Less than 0.20 at 26 feet)	0.074	0.026

Source: *Transit Noise and Vibration Impact Assessment Guidelines.* Federal Transit Administration. May 2006.

REGULATORY CONTEXT

FEDERAL

There are no federal regulations related to noise that apply to the Proposed Project.

STATE

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations, establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses, and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room. Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment.

LOCAL

City of Pacifica 1980 General Plan

The 1980 City of Pacifica General Plan has a Noise Element. However, that document suggests that 60 dB CNEL / Ldn is considered to be a "higher noise level". The City staff have used the 60 dB threshold as the test of significance when evaluating projects. The City of Pacifica is in the process of updating the General Plan. However, that General Plan Update and associated EIR have not been adopted.

City of Pacifica General Plan Update

The noise level standards and guiding policies in the City of Pacifica General Plan are consistent with the State of California guidelines for determining land use compatibility and are similar to those used throughout the State. The thresholds for community land use compatibility which are contained within the proposed General Plan Noise Element are shown in **Table 10**. For proposed land uses in areas where noise exposure may be expected to be greater than the “normally acceptable” threshold, maximum allowable noise exposure with noise mitigation measure is defined in **Table 11**. **Table 12** provides noise emission standards for new stationary noise sources. Listed below are the noise goals, policies, and implementation measures that would be applicable to the proposed project:

Community Noise Exposure

Table 9-1 presents the community noise exposure matrix, establishing criteria the City can use to evaluate land use compatibility based on noise levels. This matrix is adapted from guidelines provided by the Office of Planning and Research. Noise exposure levels are classified as being “normally acceptable," "conditionally acceptable," "normally unacceptable," or "clearly unacceptable" for different land use types.

Normally Acceptable

- **Indoor Uses:** Either the activities associated with the land use are inherently noisy or standard construction methods will sufficiently attenuate exterior noise to an acceptable level; for land use types that are compatible because of inherent noise levels, sound attenuation must be provided for associated office, retail, and other noise-sensitive indoor spaces sufficient to reduce exterior noise to an interior maximum of 50 dB CNEL.
- **Outdoor Uses:** Outdoor activities associated with the land use may be carried out with minimal interference.

Conditionally Acceptable

- **Indoor Uses:** Noise reduction measures must be incorporated into the design of the project to attenuate exterior noise to the indoor noise levels listed in Table 9-2
- **Outdoor Uses:** Noise reduction measures must be incorporated into the design of the project to attenuate exterior noise to the outdoor noise levels listed in Table 9-2. Acceptability is dependent upon characteristics of the specific use

Normally Unacceptable

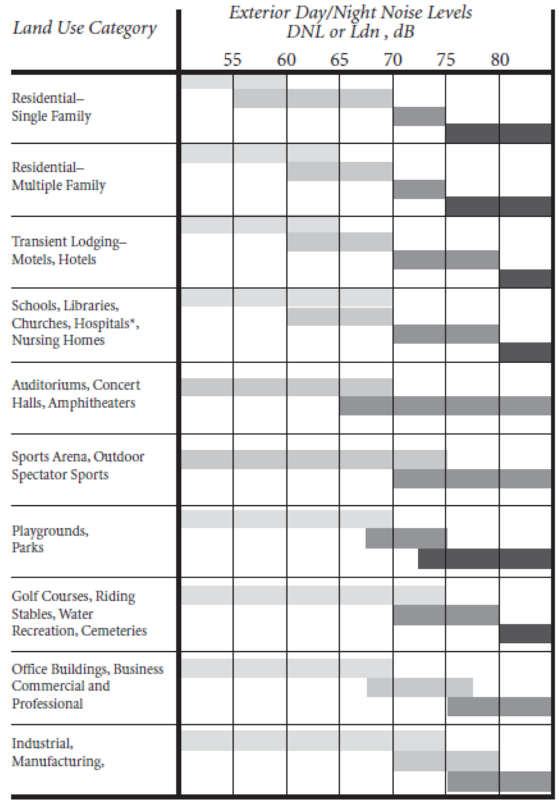
- **Indoor Uses:** Extensive mitigation techniques are required to make the indoor environment accept- able for indoor activities. Noise level reductions necessary to attenuate exterior noise to the indoor noise levels listed in Table 9-2 are difficult to achieve and may not be feasible.
- **Outdoor Uses**: Severe noise interference makes the outdoor environment unacceptable for out- door activities. Noise level reductions necessary to attenuate exterior noise to the outdoor noise levels listed in Table 9-2 are difficult to achieve and may not be feasible.

Clearly Unacceptable

- New construction or development should generally not be undertaken.

TABLE 10: PROPOSED GENERAL PLAN UPDATE LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS

TABLE 9-1: LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



Source: Office of Planning and Research, State of California General Plan Guidelines, Appendix A: Guidelines for the Preparation and Content of the Noise Element of the General Plan,

*Because hospitals are often designed and constructed with high noise insulation properties, it is possible for them to be satisfactorily located in noisier areas.

INTERPRETATION

Normally Acceptable:
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

Normally Unacceptable:
New construction or development should generally 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 the design.

Clearly Unacceptable:
New construction or development clearly should not be undertaken.

TABLE 11: PROPOSED GENERAL PLAN UPDATE ALLOWABLE NOISE EXPOSURE

TABLE 9-2: ALLOWABLE NOISE EXPOSURE

Noise-Sensitive Land Use	Outdoor Activity Areas[1]	Interior Spaces	
	DNL/CNEL[2], dB	DNL/CNEL2, dB	Leq dB[3]
Residential	65	45	–
Transient Lodging (Hotels, Motels)	65	45	–
Hospitals, Nursing Homes	65	45	–
Theaters, Auditoriums, Music Halls	–	–	35
Churches, Meeting Halls	65	–	45
Office Buildings	–	–	45
Schools, Libraries, Museums	–	–	45

1 Outdoor activity areas generally include backyards of single-family residences and outdoor patios, decks or common recreation areas of multi-family developments.
2 The CNEL is used for quantification of aircraft noise exposure as required by CAC Title 21.
3 As determined for a typical worst-case hour during periods of use.

TABLE 12: PROPOSED GENERAL PLAN NOISE LEVEL PERFORMANCE STANDARDS FOR STATIONARY NOISE SOURCES

TABLE 9-3: NOISE LEVEL PERFORMANCE STANDARDS FOR STATIONARY NOISE SOURCES[1]

	Daytime (7:00 a.m. – 10:00 p.m.)	Nighttime (10:00 p.m. – 7:00 a.m.)
Hourly Equivalent Sound Level (Leq), dBA	50	45
Maximum Sound Level (Lmax), dBA	70	65

1 As determined at the property line of the receiving noise-sensitive use.

Guiding Policies

NO-G-1 Coordination with Other Agencies
Continue to work with other agencies, airports and jurisdictions to reduce noise levels in Pacifica created by their operations.

NO-G-2 Acceptable Noise Environment
Strive to achieve an acceptable noise environment for the environmental, health and safety needs of present and future residents of Pacifica.

NO-G-3 Sensitive Land Uses
Protect noise sensitive land uses, such as schools, hospitals, and senior care facilities, from encroachment of and exposure to excessive levels of noise.

Implementing Policies

NO-I-1 Community Noise Level Standards
Use the Community Noise Level Exposure Standards, shown in Table 9-1, as review criteria for new land uses. Require all new development that would be exposed to noise greater than the "normally accept- able" noise level range to reduce interior noise through design, sound insulation, or other measures.

NO-I-2 Design Features for Noise Reduction
Require noise-reducing mitigation to meet allowable outdoor and indoor noise expo- sure standards in Table 9-2. Noise mitigation measures that may be approved to achieve these noise level targets include but are not limited to the following:

- Construct façades with substantial weight and insulation;
- Use sound-rated windows for primary sleeping and activity areas;
- Use sound-rated doors for all exterior entries at primary sleeping and activity areas;
- Use minimum setbacks and exterior barriers;
- Use acoustic baffling of vents for chimneys, attic and gable ends;
- Install a mechanical ventilation system that provides fresh air under closed window conditions.

Alternative acoustical designs that achieve the prescribed noise level standards may be approved, provided that a qualified Acoustical Consultant submits information demonstrating that the alternative designs will achieve and maintain the specific targets for outdoor activity areas and interior spaces.

NO-I-3 Best Available Control Technology
Require new, fixed noise sources (e.g. mechanical equipment) to use best avail- able control technology (BACT) to minimize noise and vibration.

Noise from mechanical equipment can often be reduced by applying soundproofing materials, mufflers, or other controls provided by the manufacturer.

NO-I-4 Mechanical Equipment for New Residential Development
Ensure that building regulations require that noise-generating appliances serving new multi-family or mixed-use residential development are located or adequately insulated to protect residents from the noise.

NO-I-5 Noise Criteria for City Equipment
Develop noise criteria for new equipment purchased by the City.

NO-I-6 Construction Noise
Continue to limit hours for certain construction and demolition work to reduce construction-related noises.

NO-I-7 Noise from Highways and Buses
Work with Caltrans and Sam Trans to mitigate transportation-related noise impacts on residential areas and sensitive uses. This may include encouraging installation of sound barriers or bus stop relocation in selected locations.

NO-I-8 Airport Noise Disclosure Requirements
Update the Municipal Code to ensure that special disclosure requirements concerning airport noise refer to the most current CNEL noise contours developed for San Francisco International Airport.

NO-I-9 Airport Noise Abatement Program
Continue to work with the airport in improving and implementing its noise abatement program.

NO-I-10 Residential Sound Insulation Program
If the airport's federally-approved 65 dB CNEL annual noise contour is mapped within the City, request that the San Fran- cisco Airport's Residential Sound Insulation Program allocate available federal and airport funding to sensitive, noise-affected properties in Pacifica.

NO-I-11 Noise Ordinance
Update the noise ordinance to implement General Plan policies and noise standards.

NO-I-12 Noise Enforcement
Establish a Noise Abatement Unit made up of members of the Police and other departments to enforce the City's noise regulations and assign primary responsibility for coordinating overall noise control effort to one City department.

City of Pacifica Municipal Code

The City of Pacifica Municipal Code - Section 8-1.08 limits hours of construction to 7:00 a.m. to 7:00 p.m. on weekdays, and 9:00 a.m. to 5:00 p.m. on weekends.

Criteria for Acceptable Vibration

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. **Table 13**, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

Table 13 indicates that the threshold for architectural damage to structures is 0.20 in/sec p.p.v. A threshold of 0.20 in/sec p.p.v. is considered to be a reasonable threshold for short-term construction projects.

TABLE 13: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

Peak Particle Velocity		Human Reaction	Effect on Buildings
mm/second	in/second		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: *Transportation Related Earthborne Vibrations.* Caltrans. TAV-02-01-R9601. February 20, 2002.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. Significance criteria for noise impacts are drawn from CEQA Guidelines Appendix G (Items XI [a-c]).

Would the project:

a. Generate 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?

b. Generate excessive groundborne vibration or groundborne noise levels?

c. 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, would the project expose people residing or working in the project area to excessive noise levels?

The proposed project is not located within two miles of a public or private airport, therefore item "c" is not discussed any further in this study.

The City of Pacifica General Plan Noise Element does not establish any specific criteria for evaluating noise level increases. Therefore, the following increase criteria are recommended.

Noise Level Increase Criteria for Long-Term Project-Related Noise Level Increases

The California Environmental Quality Act (CEQA) guidelines define a significant impact of a project if it "increases substantially the ambient noise levels for adjoining areas." Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in traffic noise from the project is a factor in determining significance. Research into the human perception of changes in sound level indicates the following:

- A 3-dB change is barely perceptible,
- A 5-dB change is clearly perceptible, and
- A 10-dB change is perceived as being twice or half as loud.

A limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project-noise conditions. **Table 14** is based upon recommendations made by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been accepted that they are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the L_{dn}.

TABLE 14: SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE

Ambient Noise Level Without Project, Ldn	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON)

Based on the **Table 14** data, an increase in the traffic noise level of 5 dB or more would be significant where the pre-project noise levels are less than 60 dB Ldn, or 3 dB or more where existing noise levels are between 60 to 65 dB Ldn. Extending this concept to higher noise levels, an increase in the traffic noise level of 1.5 dB or more may be significant where the pre-project traffic noise level exceeds 65 dB Ldn. The rationale for the **Table 14** criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause annoyance.

Noise Level Increase Criteria for Short-Term Noise Level Increases

For short-term noise associated with project construction, Saxelby Acoustics recommends use of the Caltrans increase criteria of 12 dBA (Caltrans 2011).

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

IMPACT 1: WOULD THE PROJECT GENERATE 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?

Exterior noise at New Sensitive Receptors

Based upon ambient noise measurements conducted on the project site, exterior noise levels ranged between 52-63 dBA Ldn. This exceeds the City of Pacifica existing General Plan standard of 60 dBA Ldn but complies with the proposed General Plan update standard of 65 dBA Ldn.

The City of Pacifica general plan requires that where noise levels exceed 60 dBA, noise reduction measures must be incorporated into the design of the project to attenuate exterior noise levels listed in Table 9-2. For residential land uses, the interior noise level must be 45 dBA or less. Standard construction methods typically yield a 25 dBA noise reduction. Where noise levels reach 63 dBA L_{dn} the interior noise level would be 38 dBA. This complies with City of Pacifica allowable traffic noise exposure limits. This is a **less-than-significant** impact and no mitigation is required.

Traffic Noise Increases

The CEQA guidelines specify criteria to determine the significance of traffic noise impacts. Where existing traffic noise levels are greater than 65 dB L_{dn}, at the outdoor activity areas of noise-sensitive uses, a +1.5 dB L_{dn} increase in roadway noise levels will be considered significant. The maximum increase is traffic noise at the nearest sensitive receptor is predicted to be 0.1 dBA.

Therefore, impacts resulting from increased traffic noise would be considered ***less-than-significant***.

Construction Noise

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. Based upon the **Table 8** data, the proposed project is predicted to generate construction noise levels ranging between 38-66 dBA L_{dn} at the nearest noise-sensitive receptors (excluding use of pile drivers). Measured ambient noise levels were found to be between 52-58 dBA L_{dn} in the vicinity of these uses. Therefore, the proposed project construction could result in periods of typical construction noise +0 to +8 dBA higher than ambient noise in the project area. However, pile driving activities during foundation construction would result in substantially higher noise levels with increases in ambient noise of approximately 14-19 dBA.

The City of Pacifica Noise Ordinance exempts construction activities from the noise standards, provided that they take place between the hours of 7:00 AM and 6:00 PM Monday through Saturday and 9:00 AM and 6:00 PM Sundays and holidays.

Construction activities (excluding pile driving) could result in periods of noise which exceed existing noise levels by up to 8 dBA. This complies with the 12 dBA increase criteria. However, pile driving is predicted to result in noise level increases of 14-19 dBA, thereby exceeding the 12 dBA increase criteria.

Although construction activities are temporary in nature and would occur during normal daytime working hours, construction-related noise, especially pile driving, could result in sleep interference at existing noise-sensitive land uses in the vicinity of the construction if construction activities were to occur outside the normal daytime hours. Therefore, impacts resulting from noise levels temporarily exceeding the threshold of significance due to construction would be considered ***significant***.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

MM1: *Prior to issuance of a grading permit, the project applicant shall prepare a construction noise management plan that identifies measures to be taken to minimize construction noise on surrounding sensitive land uses and include specific noise management measures to be included within the project plans and specifications, subject to review and approval by the City Planning Division. The project applicant shall demonstrate, to the satisfaction of the City that the project complies with the following:*

- *Construction activities shall only take place between the hours limited 7:00 a.m. to 6:00 p.m. on weekdays, and 9:00 a.m. to 6:00 p.m. on Saturday and Sunday.*
- *All heavy construction equipment used on the proposed project shall be maintained in good operating condition, with all internal combustion, engine-driven equipment fitted with intake and exhaust mufflers that are in good condition.*

- *All mobile or fixed noise producing equipment used on the proposed project that is regulated for noise output by a local, state, or federal agency shall comply with such regulations while in the source of project activity.*
- *Where feasible, electrically-powered equipment shall be used instead of pneumatic or internal combustion powered equipment.*
- *All stationary noise-generating equipment shall be located as far away as possible from neighboring property lines.*
- *Signs prohibiting unnecessary idling of internal combustion engines shall be posted.*
- *A truck route haul plan shall be created to avoid residential areas.*
- *The use of noise-producing signals, including horns, whistles, alarms and bells shall be for safety warning purposes only.*
- *Notify neighbors within 500 feet of the construction site of the construction schedule and that there could be noticeable vibration levels resulting from pile driving.*
- *Foundation pile holes shall be pre-drilled to minimize the number of impacts required to seat the pile.*
- *Jet or partially jet piles into place to minimize the number of impacts required to seat the pile.*
- *For impact pile driving, multiple-pile drivers shall be considered to expedite construction. Although noise levels generated by multiple pile drivers would be higher than the noise generated by a single pile driver, the total duration of pile driving activities would be reduced.*
- *For impact pile driving, temporary noise control blanket barriers shall shroud pile drivers or be erected in a manner to shield the adjacent land uses.*
- *A noise complaint coordinator shall be retained amongst the construction crew to be responsible for responding to any local complaints about construction noise. When a complaint is received, the coordinator shall notify the City within 24 hours of the complaint and determine the cause of the noise complaint and shall implement reasonable measures to resolve the compliant, as deemed acceptable by the City.*

IMPACT 2: WOULD THE PROJECT GENERATE EXCESSIVE GROUNDBORNE VIBRATION OR GROUNDBORNE NOISE LEVELS?

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural.

The **Table 9** data indicate that construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distances of 26 feet (excluding pile driving). Sensitive receptors which could be impacted by construction related vibrations, especially vibratory compactors/rollers, are located approximately 26 feet, or further, from typical construction activities. At these distances construction vibrations are not predicted to exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours.

For pile driving activities, uses located within approximately 50-100 feet could experience levels of vibration exceeding 0.2 in/sec PPV. Therefore, this impact is **significant**.

<u>Mitigation Measure(s)</u>
Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

MM2: *A construction vibration monitoring plan shall be implemented to document conditions prior to, during, and after pile driving. The construction vibration monitoring plan should be implemented to include the following tasks:*

- *Identification of sensitivity to ground-borne vibration of nearby structures. A vibration survey (generally described below) would need to be performed.*
- *Performance of a photo survey, elevation survey, and crack monitoring survey for each of these structures. Surveys shall be performed prior to any pile driving activity, in regular interval during pile driving, and after completion and shall include internal and external crack monitoring in structures, settlement, and distress and shall document the condition of foundations, walls and other structural elements in the interior and exterior of said structures.*
- *Development of a vibration monitoring and construction contingency plan to identify structures where monitoring would be conducted, set up a vibration monitoring schedule, define structure-specific vibration limits, and address the need to conduct photo, elevation, and crack surveys to document before and after pile driving. Alternative construction methods would be identified for when vibration levels approach safe limits.*
- *If vibration levels approach limits, suspend construction and implement alternative construction methods to either lower vibration levels or secure the affected structures.*

- *Conduct post-survey on structures where either monitoring has indicated high levels or complaints of damage has been made. Make appropriate repairs or compensation where damage has occurred as a result of construction activities.*

IMPACT 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, WOULD THE PROJECT EXPOSE PEOPLE RESIDING OR WORKING IN THE PROJECT AREA TO EXCESSIVE NOISE LEVELS?

There are no airports in the project vicinity. Therefore, this impact is not applicable to the proposed project.

REFERENCES

American National Standards Institute. (1998). *[Standard] ANSI S1.43-1997 (R2007): Specifications for integrating-averaging sound level meters*. New York: Acoustical Society of America.

American Standard Testing Methods, *Standard Guide for Measurement of Outdoor A-Weighted Sound Levels, American Standard Testing Methods (ASTM) E1014-08*, 2008.

ASTM E1014-12. *Standard Guide for Measurement of Outdoor A-Weighted Sound Levels*. ASTM International. West Conshohocken, PA. 2012.

ASTM E1780-12. *Standard Guide for Measuring Outdoor Sound Received from a Nearby Fixed Source.* ASTM International. West Conshohocken, PA. 2012.

Barry, T M. (1978). *FHWA highway traffic noise prediction model* (FHWA-RD-77-108). Washington, DC: U.S. Department of transportation, Federal highway administration, Office of research, Office of environmental policy.

California Department of Transportation (Caltrans), *Technical Noise Supplement, Traffic Noise Analysis Protocol*, September 2013.

California Department of Transportation (Caltrans), *Traffic Noise Analysis Protocol*, May 2011.

Egan, M. D. (1988). Architectural acoustics. United States of America: McGraw-Hill Book Company.

Federal Highway Administration. *FHWA Roadway Construction Noise Model User's Guide.* FHWA-HEP-05-054 DOT-VNTSC-FHWA-05-01. January 2006.

Hanson, Carl E. (Carl Elmer). (2006). *Transit noise and vibration impact assessment*. Washington, DC: U.S. Department of Transportation, Federal Transit Administration, Office of Planning and Environment.

International Electrotechnical Commission. Technical committee 29: Electroacoustics. International Organization of Legal Metrology. (2013). *Electroacoustics: Sound level meters*.

International Organization for Standardization. (1996). *Acoustic - ISO 9613-2: Attenuation of sound during propagation outdoors. Part 2: General methods of calculation*. Ginevra: I.S.O.

Miller, L. N., Bolt, Beranek, & and Newman, Inc. (1981). *Noise control for buildings and manufacturing plants*. Cambridge, MA: Bolt, Beranek and Newman, Inc.

SoundPLAN. SoundPLAN GmbH. Backnang, Germany. http://www.soundplan.eu/english/

Appendix A: Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
ASTC	Apparent Sound Transmission Class. Similar to STC but includes sound from flanking paths and correct for room reverberation. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by +5 dBA and nighttime hours weighted by +10 dBA.
DNL	See definition of Ldn.
IIC	Impact Insulation Class. An integer-number rating of how well a building floor attenuates impact sounds, such as footsteps. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one-hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
NIC	Noise Isolation Class. A rating of the noise reduction between two spaces. Similar to STC but includes sound from flanking paths and no correction for room reverberation.
NNIC	Normalized Noise Isolation Class. Similar to NIC but includes a correction for room reverberation.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
RT60	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train pass by, that compresses the total sound energy into a one-second event.
SPC	Speech Privacy Class. SPC is a method of rating speech privacy in buildings. It is designed to measure the degree of speech privacy provided by a closed room, indicating the degree to which conversations occurring within are kept private from listeners outside the room.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations. The STC rating is typically used to rate the sound transmission of a specific building element when tested in laboratory conditions where flanking paths around the assembly don't exist. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix B: Continuous and Short-Term Ambient Noise Measurement Results

Appendix B1: Continuous Noise Monitoring Results

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Thursday, April 9, 2020	12:00	55	70	53	49
Thursday, April 9, 2020	13:00	55	77	51	47
Thursday, April 9, 2020	14:00	54	66	52	48
Thursday, April 9, 2020	15:00	53	70	51	48
Thursday, April 9, 2020	16:00	56	81	52	49
Thursday, April 9, 2020	17:00	55	76	51	48
Thursday, April 9, 2020	18:00	53	68	51	47
Thursday, April 9, 2020	19:00	54	84	48	44
Thursday, April 9, 2020	20:00	49	66	46	43
Thursday, April 9, 2020	21:00	48	71	45	42
Thursday, April 9, 2020	22:00	47	66	43	41
Thursday, April 9, 2020	23:00	47	68	42	39
Friday, April 10, 2020	0:00	46	70	42	40
Friday, April 10, 2020	1:00	44	57	43	40
Friday, April 10, 2020	2:00	45	60	43	42
Friday, April 10, 2020	3:00	54	77	45	42
Friday, April 10, 2020	4:00	51	70	45	42
Friday, April 10, 2020	5:00	53	70	50	45
Friday, April 10, 2020	6:00	54	69	52	49
Friday, April 10, 2020	7:00	54	72	52	49
Friday, April 10, 2020	8:00	55	71	53	49
Friday, April 10, 2020	9:00	55	72	52	48
Friday, April 10, 2020	10:00	55	76	52	47
Friday, April 10, 2020	11:00	52	70	50	47

Statistics	Leq	Lmax	L50	L90
Day Average	54	73	51	47
Night Average	51	67	45	42
Day Low	48	66	45	42
Day High	56	84	53	49
Night Low	44	57	42	39
Night High	54	77	52	49
Ldn	58	Day %		78
CNEL	58	Night %		22

Site: LT-1

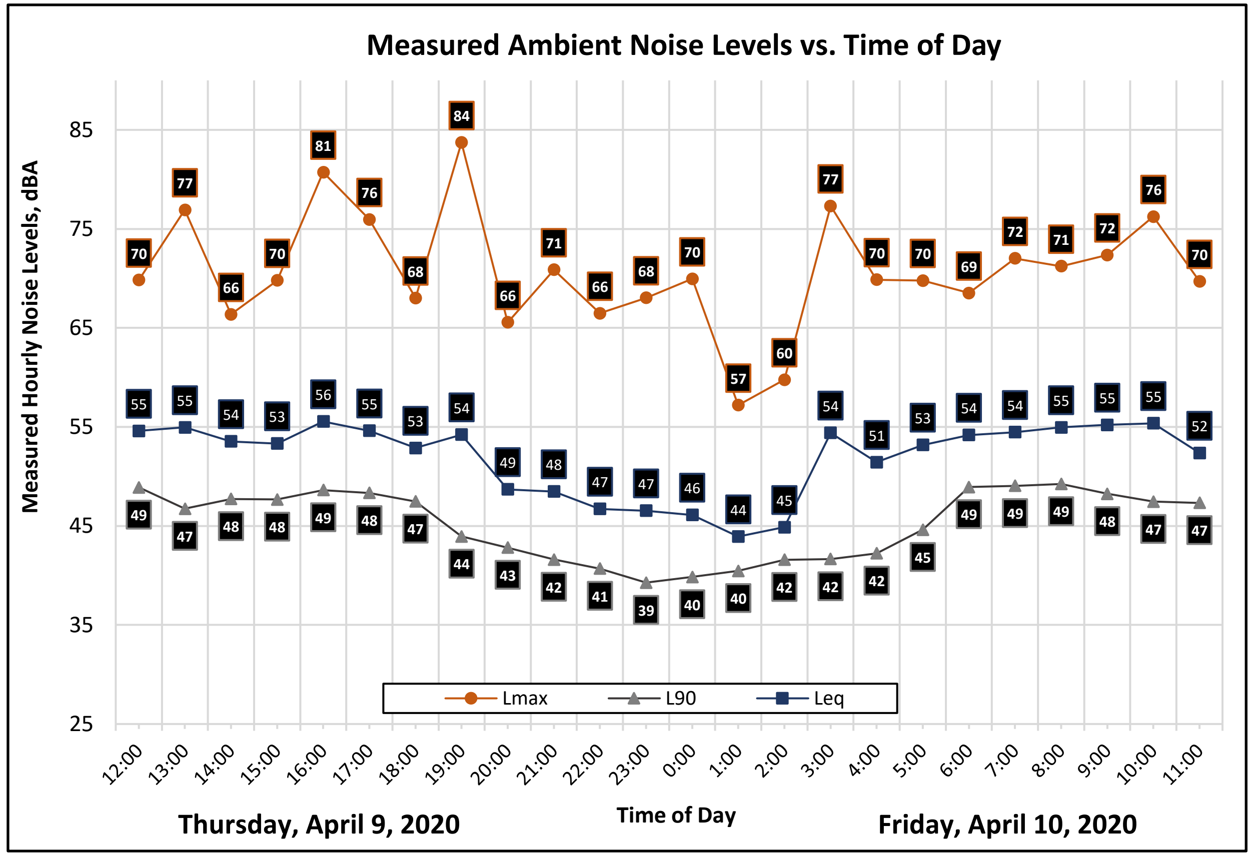
Project: 570 Crespi Drive IS

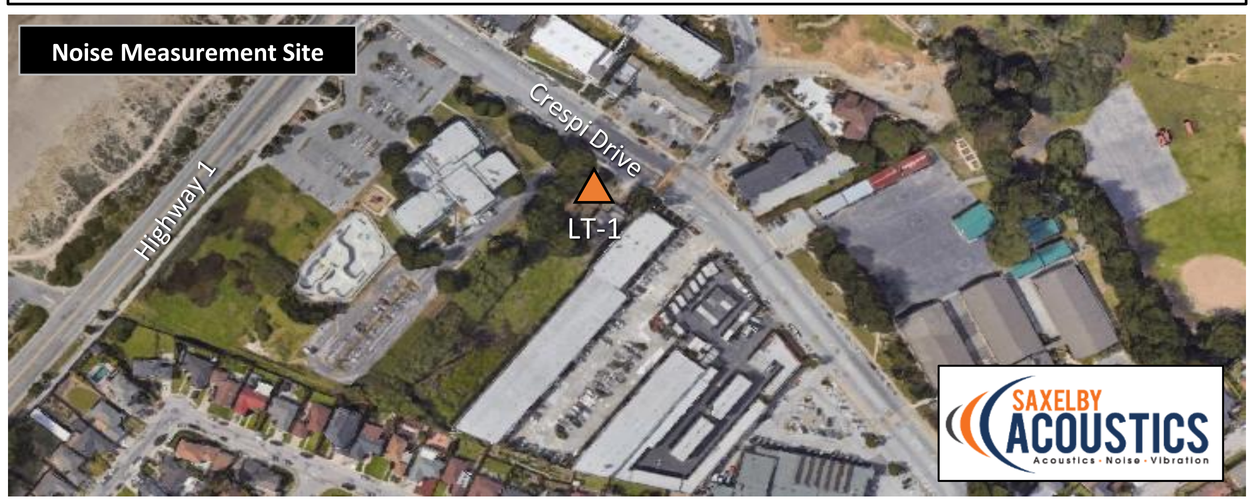
Meter: LDL 820-1

Location: Northern Project Boundary

Calibrator: CAL200

Coordinates: 37.5984580°, -122.4989071°





Appendix B2: Short Term Noise Monitoring Results

Site: ST-1
Project: 570 Crespi Drive
Location: South of Project Site
Coordinates: 37.5970769°, -122.4999696°
Meter: LDL 831-4
Calibrator: CAL200

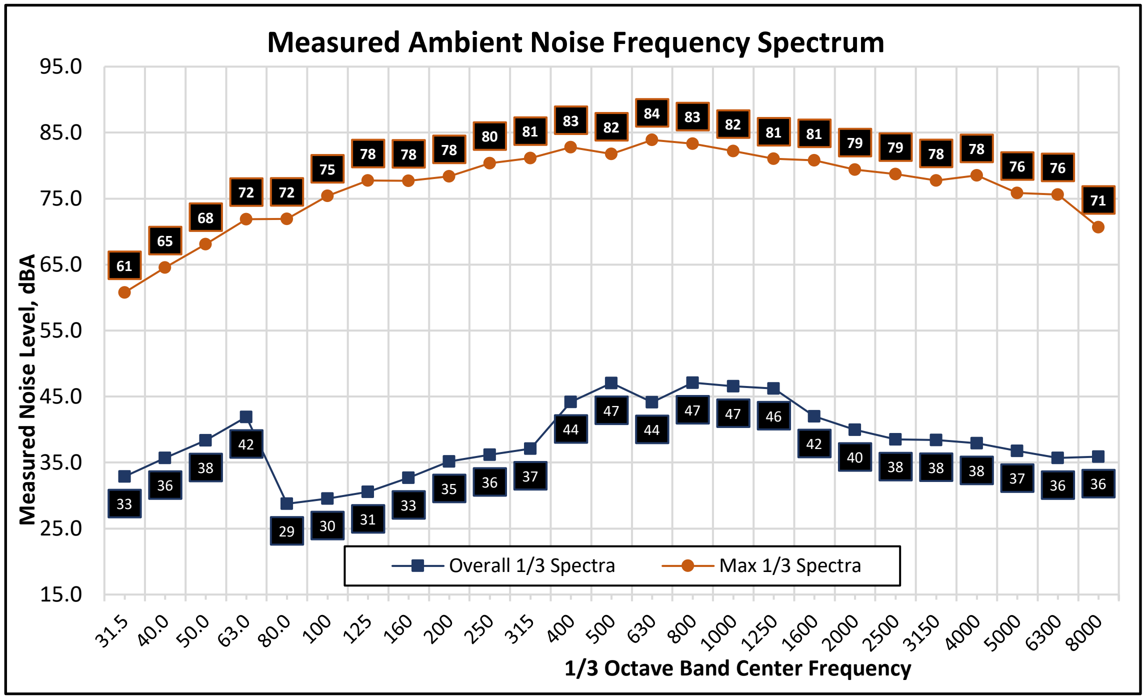
Start: 2020-04-09 13:05:52
Stop: 2020-04-09 13:15:52
SLM: Model 831
Serial: 2893

Measurement Results, dBA

Duration:	0:10
L_{eq}:	55
L_{max}:	93
L_{min}:	40
L_{50}:	44
L_{90}:	42

Notes

Highway 1 audible. Lmax caused by passing cars on Anza Drive.



Appendix B3: Short Term Noise Monitoring Results

Site: ST-2
Project: 570 Crespi Drive
Location: Center of Project Site
Coordinates: 37.5979586°, -122.4992836°
Meter: LDL 831-4
Calibrator: CAL200

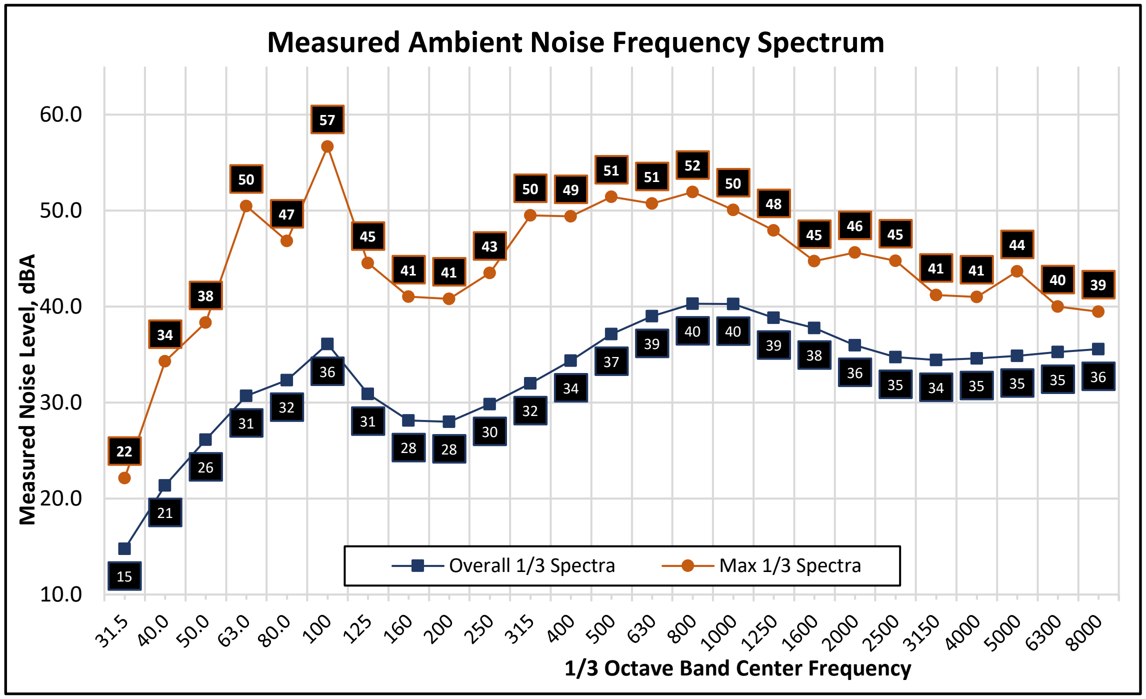
Start: 2020-04-10 13:21:54
Stop: 2020-04-10 13:31:54
SLM: Model 831
Serial: 2893

Measurement Results, dBA

Duration:	0:10
L_{eq}:	48
L_{max}:	58
L_{min}:	43
L_{50}:	47
L_{90}:	45

Notes

Highway 1 is primary noise source. Lmax caused by passing vehicle on Crespi Drive.



Appendix C: Traffic Noise Calculation Inputs and Results

Appendix C-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 200204
Description: 570 Crespi Drive IS - Existing
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset: 60 dBA	65 dBA	70 dBA	Level, dBA
1	Highway 1	Hwy 1 North to Reina Del Mar Ave	42,230	78	0	22	1.0%	1.0%	45	100	0	451	209	97	69.8
2	Highway 1	Reina Del Mar Ave to Fassler Ave	40,210	78	0	22	1.0%	1.0%	45	65	0	437	203	94	72.4
3	Highway 1	Fassler Ave to Crespi Dr	29,740	78	0	22	1.0%	1.0%	45	75	0	357	166	77	70.2
4	Highway 1	Crespi Dr to Linda Mar Blvd	24,620	78	0	22	1.0%	1.0%	45	120	0	315	146	68	66.3
5	Highway 1	Linda Mar Blvd to Hwy 1 South	14,250	78	0	22	1.0%	1.0%	45	80	0	219	102	47	66.6
6	Reina Del Mar Ave	Hwy 1 to Reina Del Mar Ave East	5,260	78	0	22	1.0%	1.0%	25	35	0	50	23	11	62.3
7	Fassler Ave	Hwy 1 to Fassler Ave East	11,500	78	0	22	1.0%	1.0%	25	70	0	84	39	18	61.2
8	Crespi Dr	East of Hwy 1	7,080	78	0	22	1.0%	1.0%	25	40	0	61	28	13	62.7
9	Linda Mar Blvd	Hwy 1 to Peralta Rd	15,440	78	0	22	1.0%	1.0%	30	45	0	130	60	28	66.9

SAXELBY ACOUSTICS
Acoustics • Noise • Vibration

Appendix C-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 200204
Description: 570 Crespi Drive IS - Existing Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Highway 1	Hwy 1 North to Reina Del Mar Ave	42,520	78	0	22	1.0%	1.0%	45	100	0	453	210	98	69.8
2	Highway 1	Reina Del Mar Ave to Fassler Ave	40,500	78	0	22	1.0%	1.0%	45	65	0	439	204	95	72.4
3	Highway 1	Fassler Ave to Crespi Dr	29,980	78	0	22	1.0%	1.0%	45	75	0	359	167	77	70.2
4	Highway 1	Crespi Dr to Linda Mar Blvd	24,740	78	0	22	1.0%	1.0%	45	120	0	316	147	68	66.3
5	Highway 1	Linda Mar Blvd to Hwy 1 South	14,270	78	0	22	1.0%	1.0%	45	80	0	219	102	47	66.6
6	Reina Del Mar Ave	Hwy 1 to Reina Del Mar Ave East	5,260	78	0	22	1.0%	1.0%	25	35	0	50	23	11	62.3
7	Fassler Ave	Hwy 1 to Fassler Ave East	11,650	78	0	22	1.0%	1.0%	25	70	0	84	39	18	61.2
8	Crespi Dr	East of Hwy 1	7,260	78	0	22	1.0%	1.0%	25	40	0	62	29	13	62.8
9	Linda Mar Blvd	Hwy 1 to Peralta Rd	15,530	78	0	22	1.0%	1.0%	30	45	0	131	61	28	66.9

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix C-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 200204
Description: 570 Crespi Drive IS - Background
Ldn/CNEL: Ldn
Hard/Soft: Soft

												Contours (ft.) - No Offset			
Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	60 dBA	65 dBA	70 dBA	Level, dBA
1	Highway 1	Hwy 1 North to Reina Del Mar Ave	42,520	78	0	22	1.0%	1.0%	45	100	0	453	210	98	69.8
2	Highway 1	Reina Del Mar Ave to Fassler Ave	40,500	78	0	22	1.0%	1.0%	45	65	0	439	204	95	72.4
3	Highway 1	Fassler Ave to Crespi Dr	29,980	78	0	22	1.0%	1.0%	45	75	0	359	167	77	70.2
4	Highway 1	Crespi Dr to Linda Mar Blvd	24,740	78	0	22	1.0%	1.0%	45	120	0	316	147	68	66.3
5	Highway 1	Linda Mar Blvd to Hwy 1 South	14,270	78	0	22	1.0%	1.0%	45	80	0	219	102	47	66.6
6	Reina Del Mar Ave	Hwy 1 to Reina Del Mar Ave East	5,260	78	0	22	1.0%	1.0%	25	35	0	50	23	11	62.3
7	Fassler Ave	Hwy 1 to Fassler Ave East	11,650	78	0	22	1.0%	1.0%	25	70	0	84	39	18	61.2
8	Crespi Dr	East of Hwy 1	7,260	78	0	22	1.0%	1.0%	25	40	0	62	29	13	62.8
9	Linda Mar Blvd	Hwy 1 to Peralta Rd	15,530	78	0	22	1.0%	1.0%	30	45	0	131	61	28	66.9

Appendix C-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 200204
Description: 570 Crespi Drive IS - Background Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

												Contours (ft.) - No Offset			
Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	60 dBA	65 dBA	70 dBA	Level, dBA
1	Highway 1	Hwy 1 North to Reina Del Mar Ave	42,810	78	0	22	1.0%	1.0%	45	100	0	455	211	98	69.9
2	Highway 1	Reina Del Mar Ave to Fassler Ave	40,790	78	0	22	1.0%	1.0%	45	65	0	441	205	95	72.5
3	Highway 1	Fassler Ave to Crespi Dr	30,220	78	0	22	1.0%	1.0%	45	75	0	361	168	78	70.2
4	Highway 1	Crespi Dr to Linda Mar Blvd	24,860	78	0	22	1.0%	1.0%	45	120	0	317	147	68	66.3
5	Highway 1	Linda Mar Blvd to Hwy 1 South	14,290	78	0	22	1.0%	1.0%	45	80	0	219	102	47	66.6
6	Reina Del Mar Ave	Hwy 1 to Reina Del Mar Ave East	5,260	78	0	22	1.0%	1.0%	25	35	0	50	23	11	62.3
7	Fassler Ave	Hwy 1 to Fassler Ave East	11,800	78	0	22	1.0%	1.0%	25	70	0	85	39	18	61.3
8	Crespi Dr	East of Hwy 1	7,440	78	0	22	1.0%	1.0%	25	40	0	63	29	13	62.9
9	Linda Mar Blvd	Hwy 1 to Peralta Rd	15,620	78	0	22	1.0%	1.0%	30	45	0	131	61	28	67.0

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix C-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 200204
Description: 570 Crespi Drive IS - Cumulative
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Highway 1	Hwy 1 North to Reina Del Mar Ave	42,860	78	0	22	1.0%	1.0%	45	100	0	456	212	98	69.9
2	Highway 1	Reina Del Mar Ave to Fassler Ave	40,840	78	0	22	1.0%	1.0%	45	65	0	441	205	95	72.5
3	Highway 1	Fassler Ave to Crespi Dr	30,210	78	0	22	1.0%	1.0%	45	75	0	361	168	78	70.2
4	Highway 1	Crespi Dr to Linda Mar Blvd	25,140	78	0	22	1.0%	1.0%	45	120	0	319	148	69	66.4
5	Highway 1	Linda Mar Blvd to Hwy 1 South	14,300	78	0	22	1.0%	1.0%	45	80	0	219	102	47	66.6
6	Reina Del Mar Ave	Hwy 1 to Reina Del Mar Ave East	5,260	78	0	22	1.0%	1.0%	25	35	0	50	23	11	62.3
7	Fassler Ave	Hwy 1 to Fassler Ave East	11,760	78	0	22	1.0%	1.0%	25	70	0	85	39	18	61.3
8	Crespi Dr	East of Hwy 1	7,130	78	0	22	1.0%	1.0%	25	40	0	61	28	13	62.7
9	Linda Mar Blvd	Hwy 1 to Peralta Rd	15,990	78	0	22	1.0%	1.0%	30	45	0	133	62	29	67.1

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix C-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 200204
Description: 570 Crespi Drive IS - Cumulative Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Highway 1	Hwy 1 North to Reina Del Mar Ave	43,010	78	0	22	1.0%	1.0%	45	100	0	457	212	98	69.9
2	Highway 1	Reina Del Mar Ave to Fassler Ave	40,990	78	0	22	1.0%	1.0%	45	65	0	442	205	95	72.5
3	Highway 1	Fassler Ave to Crespi Dr	30,360	78	0	22	1.0%	1.0%	45	75	0	362	168	78	70.3
4	Highway 1	Crespi Dr to Linda Mar Blvd	25,170	78	0	22	1.0%	1.0%	45	120	0	320	148	69	66.4
5	Highway 1	Linda Mar Blvd to Hwy 1 South	14,310	78	0	22	1.0%	1.0%	45	80	0	219	102	47	66.6
6	Reina Del Mar Ave	Hwy 1 to Reina Del Mar Ave East	5,260	78	0	22	1.0%	1.0%	25	35	0	50	23	11	62.3
7	Fassler Ave	Hwy 1 to Fassler Ave East	11,760	78	0	22	1.0%	1.0%	25	70	0	85	39	18	61.3
8	Crespi Dr	East of Hwy 1	7,310	78	0	22	1.0%	1.0%	25	40	0	62	29	13	62.8
9	Linda Mar Blvd	Hwy 1 to Peralta Rd	16,010	78	0	22	1.0%	1.0%	30	45	0	133	62	29	67.1

Appendix E

Transportation Impact Analysis

RKH
Civil and Transportation Engineering

TRAFFIC IMPACT ANALYSIS
570 CRESPI DRIVE
PACIFICA, CALIFORNIA

August 13, 2019
Rev. November 8, 2021

Prepared for -
Brendan Murphy
P.O. Box 301
San Mateo, CA 94401

837 Columba Lane • Foster City, CA 94404 • (650)212-0837 • FAX(650)212-3150

Table of Contents

Section **Page**

List of Figures

Figure **Page**

List of Tables

Table **Page**

INTRODUCTION
SECTION 1.

STUDY PURPOSE

The purpose of this study is to quantify and analyze the traffic impacts of a proposed mixed use development consisting of 19 multifamily dwelling units and 3,165 square feet of commercial floor space on Crespi Drive in the City of Pacifica. See Figure 1, Location Map, page 2.

ANALYSIS METHODOLOGIES

Four intersections have been designated for analysis in this study. They are –

1) Route 1 & Linda Mar Boulevard/San Pedro Avenue
2) Route 1 & Crespi Drive
3) Route 1 & Fassler Avenue/Rockaway Beach Avenue
4) Route 1 & Reina Del Mar Avenue

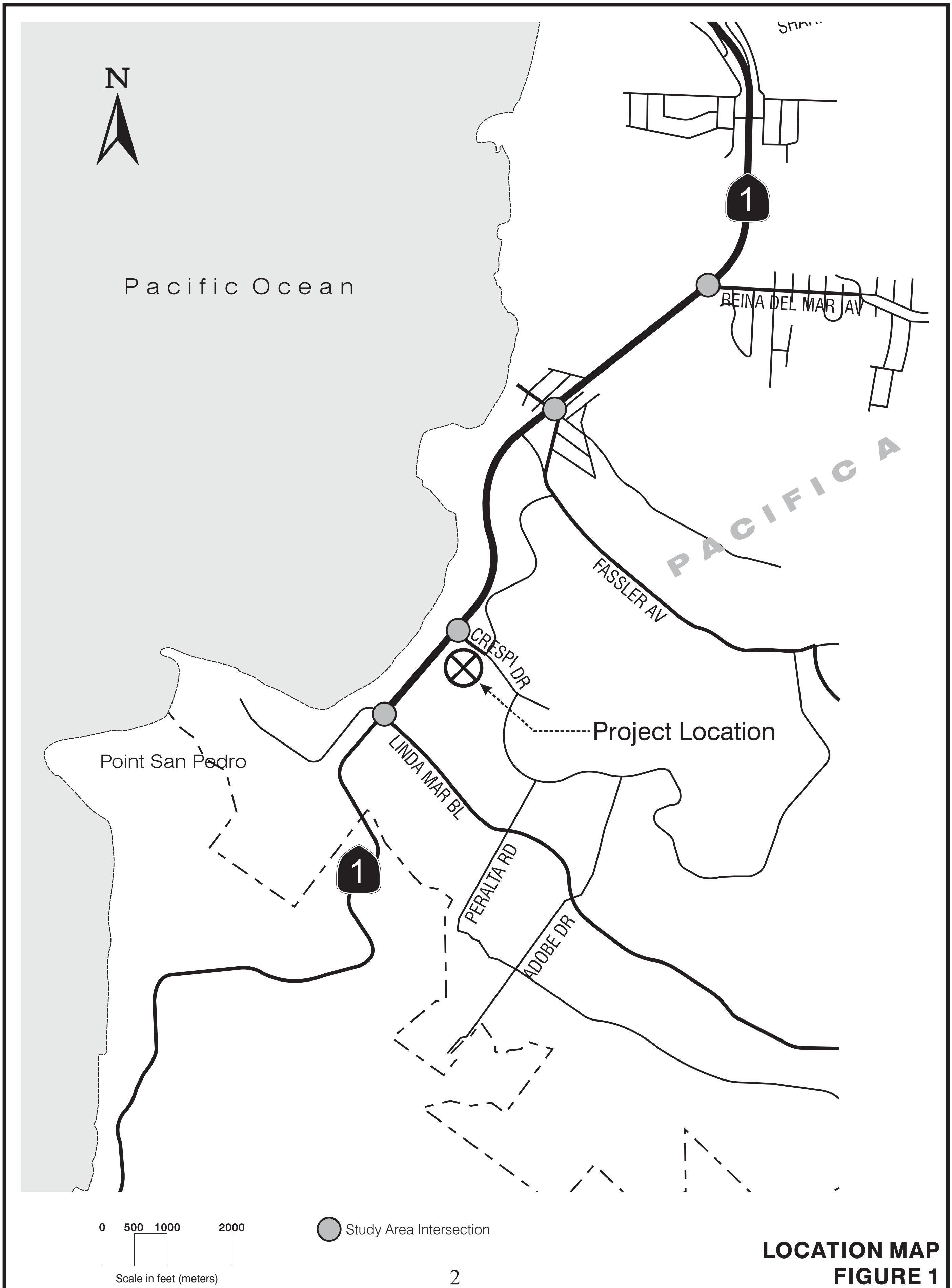
The four designated study area intersections have been analyzed according to the methodologies contained in the 2010 edition of the *Highway Capacity Manual.* Using the PTV VISTRO 7.00-06 [1] network modeling program a traffic network model was created to analyze the streets and intersections within the project study area.

ANALYSIS SCENARIOS

Six scenarios have been developed and analyzed in this study.

1. **Existing Conditions.** Current (2019) traffic volumes within the study area.
2. **Background Conditions (Existing + Approved Projects).** Background traffic is that traffic expected to be present at the time the project is ready for occupancy. It consists of existing traffic plus traffic to be generated by those developments that are anticipated to be built and occupied by the time the project is ready for occupancy.
3. **Project Conditions. (Existing + Approved + Project)** Project trips are estimated based on the proposed land use and are then added to Background Conditions traffic in order to obtain the Project Conditions traffic scenario.

1 PTV America, VISTRO 7.00-06 © 2019



LOCATION MAP
FIGURE 1

RKH

4. **Existing + Project Conditions.** Because of a California Supreme Court decision, traffic impact analyses must now include an existing + project conditions scenario.

5. **Cumulative Conditions. (Existing + Approved + Future Development)** Cumulative traffic is that traffic expected to be present within five years of completion of this development. It consists of existing traffic plus trips from Approved Projects plus trips from future development projects within the study area.

6. **Cumulative + Project Conditions.** Scenario #5 with the addition of the project itself.

EXISTING CONDITIONS
SECTION 2.

ROADWAY NETWORK

State Route 1. Route 1 through the project study area is a 4-lane, divided highway running generally north-south through the project study area.

Crespi Drive. Crespi Drive is classified as a collector street in the Pacifica General Plan. Between Route 1 and Roberts Road it is a four-lane street running east-west. East of Roberts Road it is a two-lane street with parking generally allowed on both sides of the street.

INTERSECTION LANE CONFIGURATIONS

The lane configurations and controls of the four study area intersections are shown on Figure 2, Existing Intersection Lane Configurations, page 5.

EXISTING TRAFFIC VOLUMES

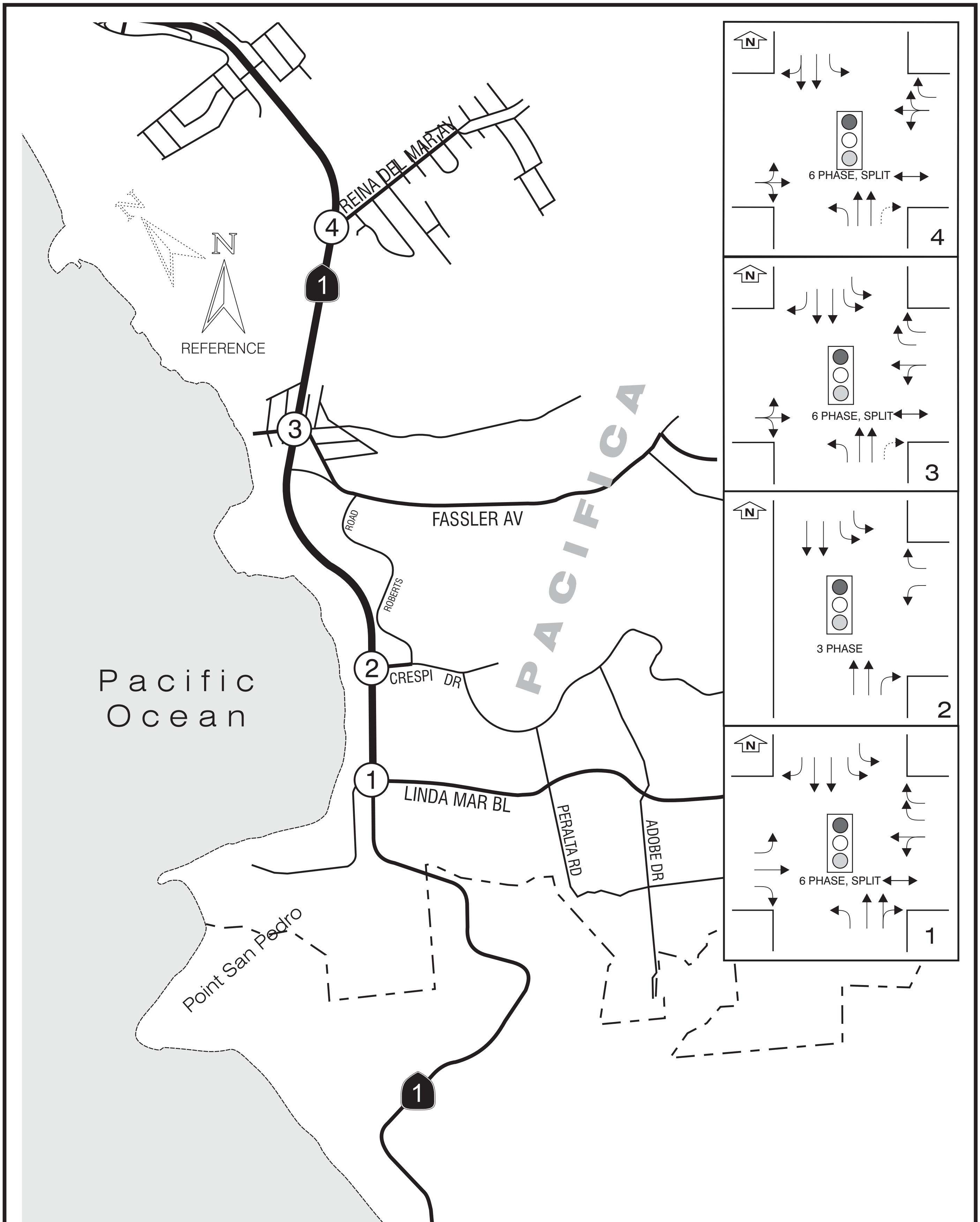
Existing 2019 peak hour traffic volumes through the study area intersections are shown on Figure 3, Existing Peak Hour Traffic Volumes, page 6. Peak hours for purposes of this study are those that occur between 7 and 9 a.m. and between 4 and 6 p.m. on an average weekday. See Appendix A for traffic count data. Also, see Appendix C for a comparison of traffic count data from 2013 and 2019 for the four intersections on Route 1 included in this analysis.

LEVELS OF SERVICE DEFINED

LOS (Levels of Service) methodologies are described in Section 1. Levels of Service define how well or how poorly a traffic facility (a street or an intersection) is operating. There are by definition six Levels of Service. These definitions are presented in Table A on page 7.

LEVELS OF SERVICE STANDARDS

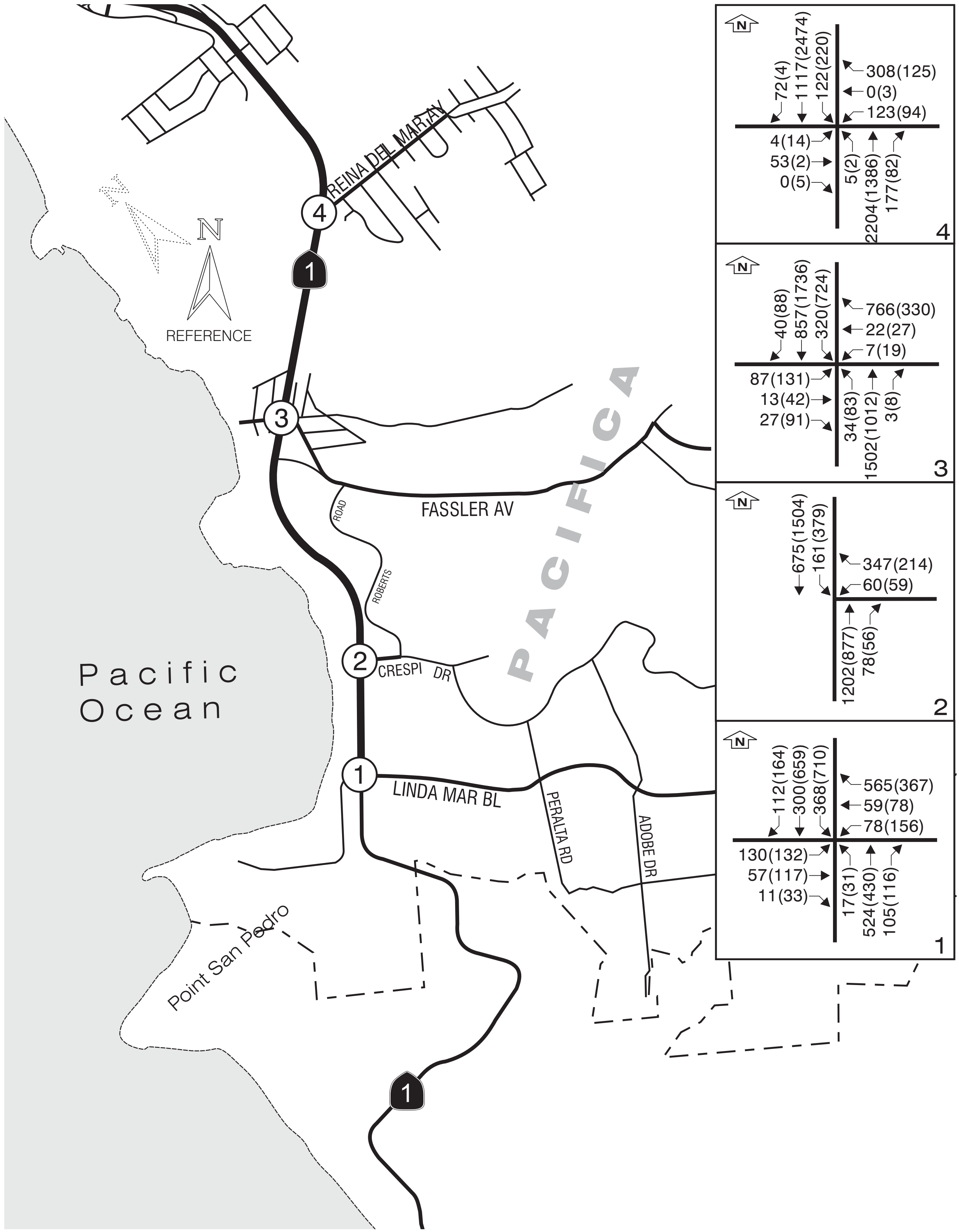
The San Mateo County Congestion Management Program has set Levels of Service standards for major roadways and intersections within the County. Route 1 through Pacifica is a designated CMP roadway. The CMP designated LOS standard for Route 1 in Pacifica is E. While none of the four study area intersections along Route 1 is a designated CMP intersection, the CMP



NOTE: Intersections are oriented according to their placement in the VISTRO traffic network model. North orientation in VISTRO model is Reference North on this diagram.

EXISTING INTERSECTION LANE CONFIGURATIONS
FIGURE 2

RKH



KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

EXISTING PEAK HOUR TRAFFIC VOLUMES
FIGURE 3

standards for intersections on designated CMP roadways is appropriate:

> " . . .the (intersection) standard is set to be LOS E to correspond to the standard established for the adjacent roadway segment."[2]

For the City of Pacifica the LOS Standard is "D" for all public streets. See Appendix C for additional information regarding the definition of significant impact.

TABLE A: Levels of Service Definitions for Signalized Intersections

Level of Service	Traffic Flow Conditions	Control Delay per Vehicle (sec./veh)
A	Conditions of free flow; speed is controlled by driver's desires, stipulated speed limits, or physical roadway conditions.	$\leq$10
B	Conditions of stable flow; operating speeds beginning to be restricted; little or no restrictions on maneuverability from other vehicles.	>10-20
C	Conditions of stable flow; speeds and maneuverability more closely restricted; occasional backups behind left-turning vehicles at intersections.	>20-35
D	Conditions approach unstable flow; tolerable speeds can be maintained but temporary restrictions may cause extensive delays; little freedom to maneuver; comfort and convenience low; at intersections some motorists, especially those making left turns, may wait through one or more signal changes.	>35-55
E	Conditions approach capacity; unstable flow with stoppages of momentary duration; maneuverability severely limited.	>55-80
F	Forced flow conditions; stoppages for long periods; low operating speeds. Delays at intersections average 60 seconds or more.	>80

Source: Exhibit 18-4, *Highway Capacity Manual 2010*.

EXISTING CONDITIONS LEVELS OF SERVICE

Levels of Service have been calculated for the existing conditions scenario using the analysis methods contained in the *2010 Highway Capacity Manual*. The results of the LOS calculations are summarized in Table B on page 8. The calculation worksheets are provided in Appendix B.

The LOS calculations do not necessarily reflect the extensive queuing that occurs on westbound Fassler Avenue and northbound Route 1 during the morning peak traffic period. The LOS calculations are based on the actual volumes entering the intersections and not on the volumes that could enter the intersections if adequate capacity was in place. The City of Pacifica and the

[2] San Mateo County Congestion Management Program LOS Standard for Intersections, 5.e.

San Mateo County Transportation Authority are planning on widening Route 1 between Fassler Avenue/Rockaway Beach Avenue and Reina Del Mar Avenue from four lanes to six lanes. The project is still in the planning stages of development. Once completed, that project will significantly reduce the queuing that presently occurs on Route 1in the northbound direction during the morning peak traffic period.

TABLE B: Intersection Levels of Service Existing Conditions

Signal Controlled Intersections	Peak Hour	V/C	Delay	LOS
1- Route 1 & Linda Mar Blvd.	AM	0.660	29.0	C
	PM	0.667	28.3	C
2- Route 1 & Crespi Drive	AM	0.440	16.1	B
	PM	0.639	11.9	B
3 - Route 1 & Fassler Ave./ Rockaway Bch.	AM	0.935	66.8	E
	PM	0.889	48.1	D
4 - Route 1 & Reina Del Mar Avenue	AM	0.912	39.2	D
	PM	0.835	23.2	C

Delay is Average Control Delay in seconds per vehicle.

V/C is the volume-to-capacity ratio.

LOS is Level of Service. See Table A for definitions.

BACKGROUND CONDITIONS
SECTION 3.

Background Conditions are those traffic conditions which are expected to occur immediately prior to the completion and occupancy of the proposed subdivision. Traffic from developments that are approved and/or ones that are expected to be completed and occupied prior to the proposed project is added to existing traffic volumes to create this traffic analysis scenario.

APPROVED PROJECTS

For purposes of this study there are two projects that could be completed prior to occupancy of this project. They are:

1) A seven unit residential condominium development at 1335 Adobe Drive.

2) A 24 unit residential condominium development at 801 Fassler Avenue.

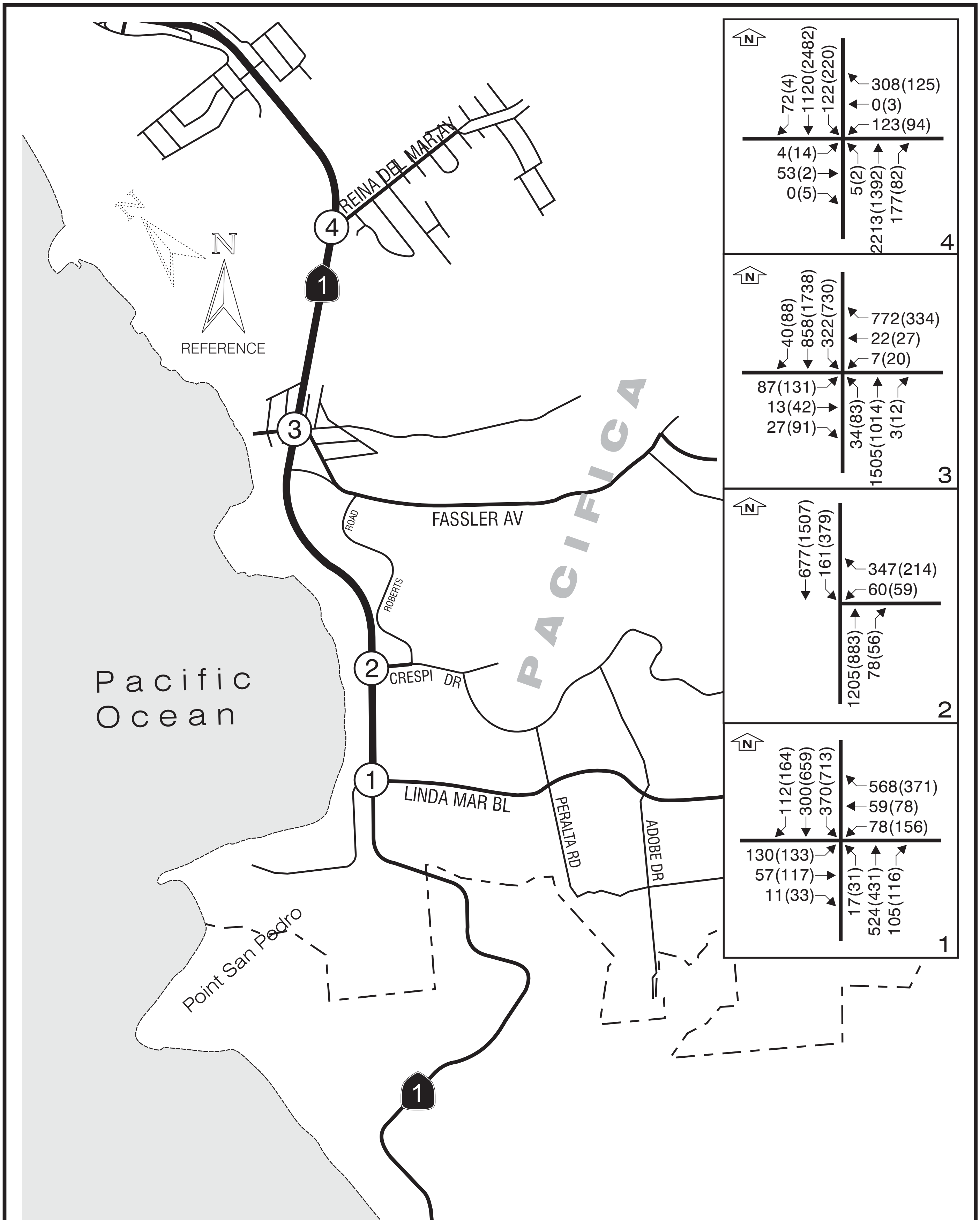
Projections of vehicle trip generation for these developments are provided in Appendix C.

BACKGROUND CONDITIONS PEAK HOUR TRAFFIC VOLUMES

Morning and afternoon street peak hour traffic volumes at the four designated intersections are shown on Figure 4 page 10, for the Background Conditions scenario.

BACKGROUND CONDITIONS LEVELS OF SERVICE

Levels of Service have been calculated for the background conditions scenario using the analysis methods contained in the *2010 Highway Capacity Manual*. The results of the LOS calculations are summarized in Table C on page 11. The calculation worksheets are provided in Appendix B.



KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

BACKGROUND CONDITIONS PEAK HOUR TRAFFIC VOLUMES
FIGURE 4

RKH

TABLE C: Intersection Levels of Service Background Conditions							
Signal Controlled Intersections	Peak Hour	Existing Conditions			Background Conditions		
		V/C	Delay	LOS	V/C	Delay	LOS
1- Route 1 & Linda Mar Blvd./San Pedro Rd.	AM	0.660	29.0	C	0.662	29.1	C
	PM	0.667	28.3	C	0.670	28.4	C
2 - Route 1 & Crespi Drive	AM	0.440	16.1	B	0.441	16.1	B
	PM	0.639	11.9	B	0.640	11.9	B
3 - Route 1 & Fassler Ave./ Rockaway Beach Ave.	AM	0.935	66.8	E	0.939	68.4	E
	PM	0.889	48.1	D	0.890	48.7	D
4 - Route 1 & Reina Del Mar Avenue	AM	0.912	39.2	D	0.914	39.7	D
	PM	0.835	23.2	C	0.836	23.4	C

Delay is Average Control Delay in seconds per vehicle.

V/C is the volume-to-capacity ratio.

LOS is Level of Service. See Table A definitions.

Only a slight change in delay or V/C ratio results when approved project trips are added to the roadway network.

PROJECT CONDITIONS
SECTION 4.

PROJECT DESCRIPTION

The project will construct 19 multifamily dwelling units and 3,165 square feet of commercial floor space on a 1.68 acre lot at 570 Crespi Drive.

PROJECT VEHICLE TRIP GENERATION

The estimate of vehicle trips to be generated by the project is shown in Table D below. The estimate is based on data contained in *Trip Generation.*[3] The AM Street Peak Hour is generally between 7 a.m. and 9 a.m. and the PM Street Peak Hour is generally between 4 p.m. and 6 p.m. A detailed trip generation table can be found in Appendix C.

Table D: Project Vehicle Trip Generation

			AM Street Peak Hour			PM Street Peak Hour		
Land Use	Size	Units	In	Out	Total	In	Out	Total
Multifamily Housing	19	DU	2	8	10	8	5	13
Medical/Dental Office*	3.165	KSF	8	2	10	4	9	13

* Highest probable use given size and location.

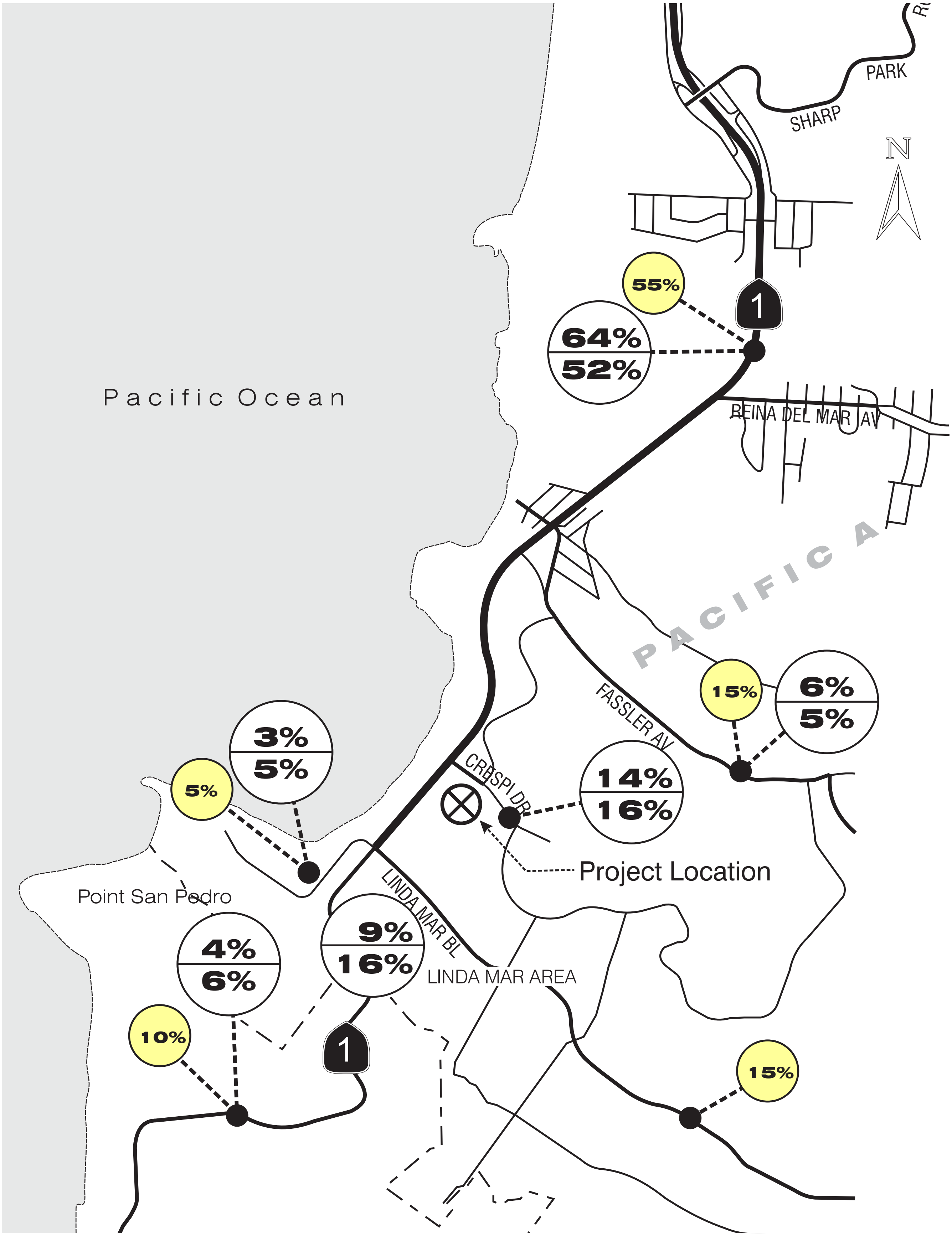
PROJECT VEHICLE TRIP DISTRIBUTION

Project vehicle trips have been distributed on the basis of current travel patterns and traffic volumes. The assumed vehicle trip distribution is shown on Figure 5, Project Vehicle Trip Distribution, page 13.

PROJECT PEAK HOUR TRAFFIC VOLUMES

The Project Conditions (Existing + Approved + Project) peak hour traffic volumes at the four study area intersections are shown on Figure 6, Project Conditions Peak Hour Traffic Volumes, page 14.

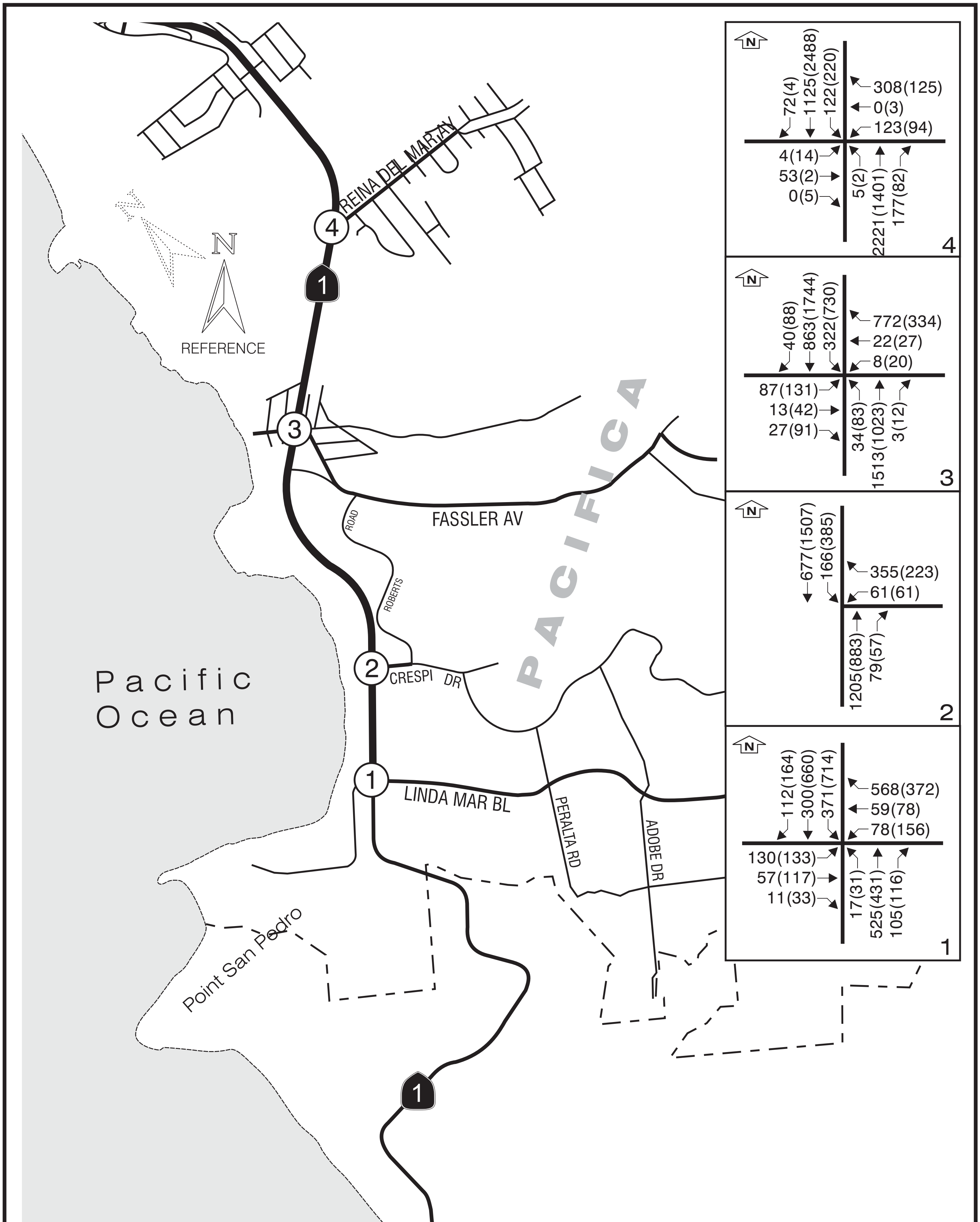
[3] Institute of Transportation Engineers, 10th Edition, © 2019.



KEY:
RESIDENTIAL
20% ----AM Street Peak Hour
18% ----PM Street Peak Hour
20% COMMERCIAL

PROJECT VEHICLE TRIP DISTRIBUTION
FIGURE 5

RKH



KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

PROJECT CONDITIONS PEAK HOUR TRAFFIC VOLUMES
FIGURE 6

RKH

PROJECT CONDITIONS LEVELS OF SERVICE

Levels of Service have been calculated for the project conditions scenario using the analysis methods contained in the *2010 Highway Capacity Manual*. The results of the LOS calculations are summarized in Table E below. The calculation worksheets are provided in Appendix B.

TABLE E: Intersection Levels of Service
Project Conditions

Signal Controlled Intersections	Peak Hour	Background Conditions			Project Conditions		
		V/C	Delay	LOS	V/C	Delay	LOS
1- Route 1 & Linda Mar Blvd./San Pedro Rd.	AM	0.662	29.1	C	0.663	29.1	C
	PM	0.670	28.4	C	0.671	28.4	C
2 - Route 1 & Crespi Drive	AM	0.441	16.1	B	0.442	16.5	B
	PM	0.640	11.9	B	0.645	12.0	B
3 - Route 1 & Fassler Ave./ Rockaway Beach Ave.	AM	0.939	68.4	E	0.941	69.5	E
	PM	0.890	48.7	D	0.890	49.2	D
4 - Route 1 & Reina Del Mar Avenue	AM	0.914	39.7	D	0.917	40.1	D
	PM	0.836 5	23.4	C	0.837	23.6	C

Delay is Average Control Delay in seconds per vehicle.

V/C is the volume-to-capacity ratio.

LOS is Level of Service. See Table A definitions.

Project generated traffic adds minimally to the delay at some intersections. The increase in delay does not significantly worsen the LOS over that of the Background Conditions scenario and project added traffic does not precipitate a significant impact at any of the four study area intersections.

EXISTING + PROJECT CONDITIONS LEVELS OF SERVICE

Levels of Service have been calculated for the existing + project conditions scenario using the analysis methods contained in the *2010 Highway Capacity Manual*. The results of the LOS calculations are summarized in Table F below. The calculation worksheets are provided in Appendix B.

TABLE F: Intersection Levels of Service
Project Conditions

Signal Controlled Intersections	Peak Hour	Existing + Project Conditions			Project Conditions		
		V/C	Delay	LOS	V/C	Delay	LOS
1- Route 1 & Linda Mar Blvd./San Pedro Rd.	AM	0.661	29.0	C	0.663	29.1	C
	PM	0.668	28.3	C	0.671	28.4	C
2 - Route 1 & Crespi Drive	AM	0.441	16.5	B	0.442	16.5	B
	PM	0.644	12.0	B	0.645	12.0	B
3 - Route 1 & Fassler Ave./ Rockaway Beach Ave.	AM	0.938	67.8	E	0.941	69.5	E
	PM	0.890	48.5	D	0.890	49.2	D
4 - Route 1 & Reina Del Mar Avenue	AM	0.914	39.6	D	0.917	40.1	D
	PM	0.836	23.4	C	0.837	23.6	C

Delay is Average Control Delay in seconds per vehicle.

V/C is the volume-to-capacity ratio.

LOS is Level of Service. See Table A definitions.

The Existing + Project Conditions scenario results in delays the same or slightly less than for the Project Conditions scenario.

CUMULATIVE CONDITIONS

SECTION 5.

CUMULATIVE CONDITIONS SCENARIO

The Cumulative Conditions scenario for purposes of this study are those that are expected to within five years of completion of this development. Eight developments have been identified that could occur subsequent to the development of this project within this near-term cumulative scenario. They are -

1) Hillside Meadows, an 18 unit multifamily housing development on a new street off of Higgins Way in the Linda Mar area + 18 Accessory Dwelling Units
2) Harmony @ One, a four unit single family detached development.
3) Three single family detached dwelling units on Oddstad Way.
4) A 125 unit residential development at the end of Higgins Way
5) 1300 Danmann Ave. six residential units plus3,050 SF of commercial space.
6) Pacifica Highlands, a 54 unit single family detached development off of Cabrillo Hwy.
7) Cabrillo Hiway, a mixed use development with 89 multifamily dwelling units and 1,760 SF of commercial space.
8) 930 Oddstad Blvd., a 70 unit workforce housing development

Projections of vehicle trip generation are provided in Appendix C.

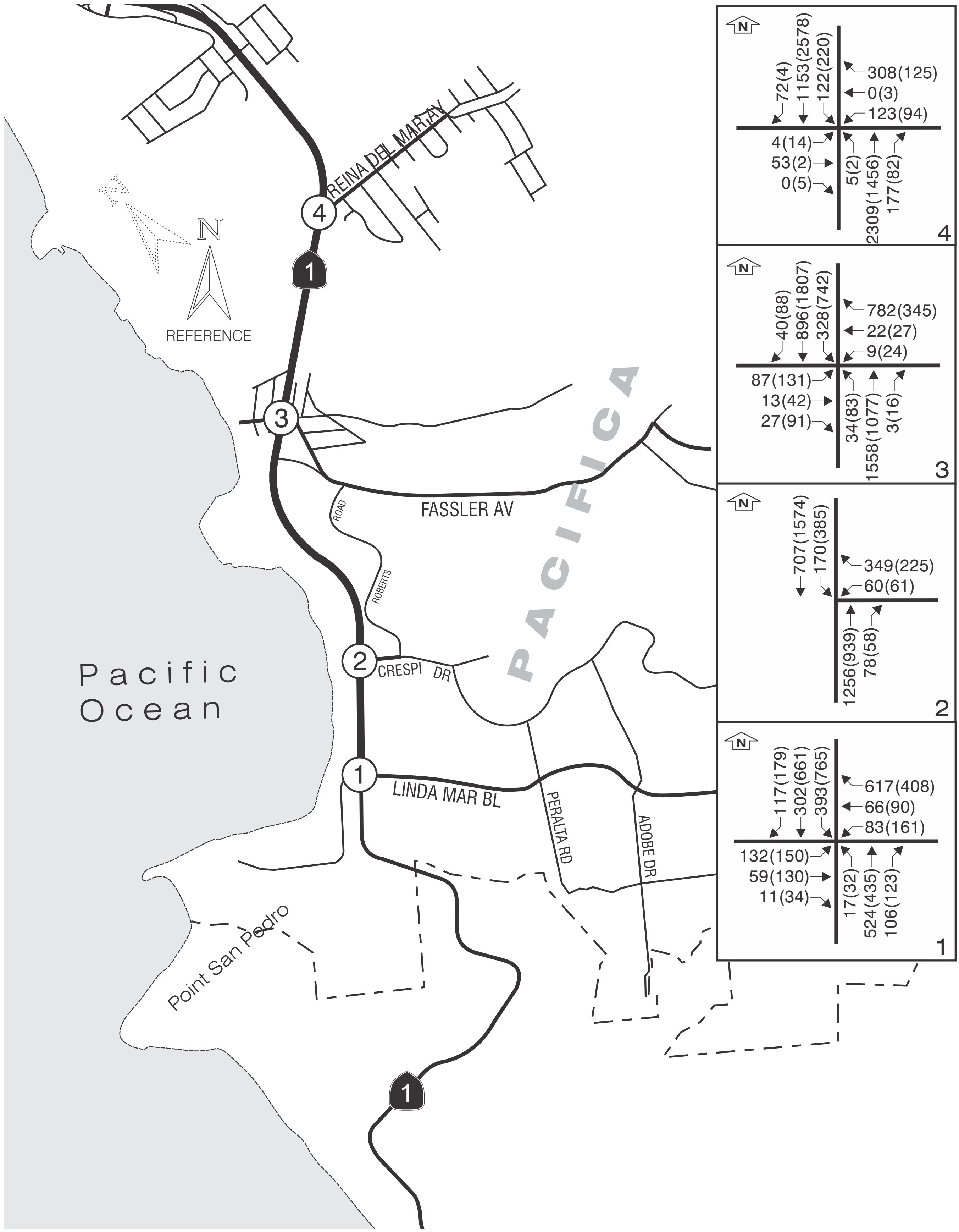
BACKGROUND GROWTH

In a comparison of peak hour traffic counts at the four intersections on Route 1 from 2013 to 2019 it was found that for the morning peak hour the counts reduced by 0.56% and for the afternoon peak hour the counts reduced by 1.49%. This is well within the 10% variance of traffic volumes on a day to day basis for weekday traffic[4]. It indicates that traffic volumes through the study area have not changed significantly in the past six years. For this analysis it is assumed that the background growth in traffic for the next five years will remain stagnant. See Appendix C for details.

CUMULATIVE CONDITIONS PEAK HOUR TRAFFIC VOLUMES

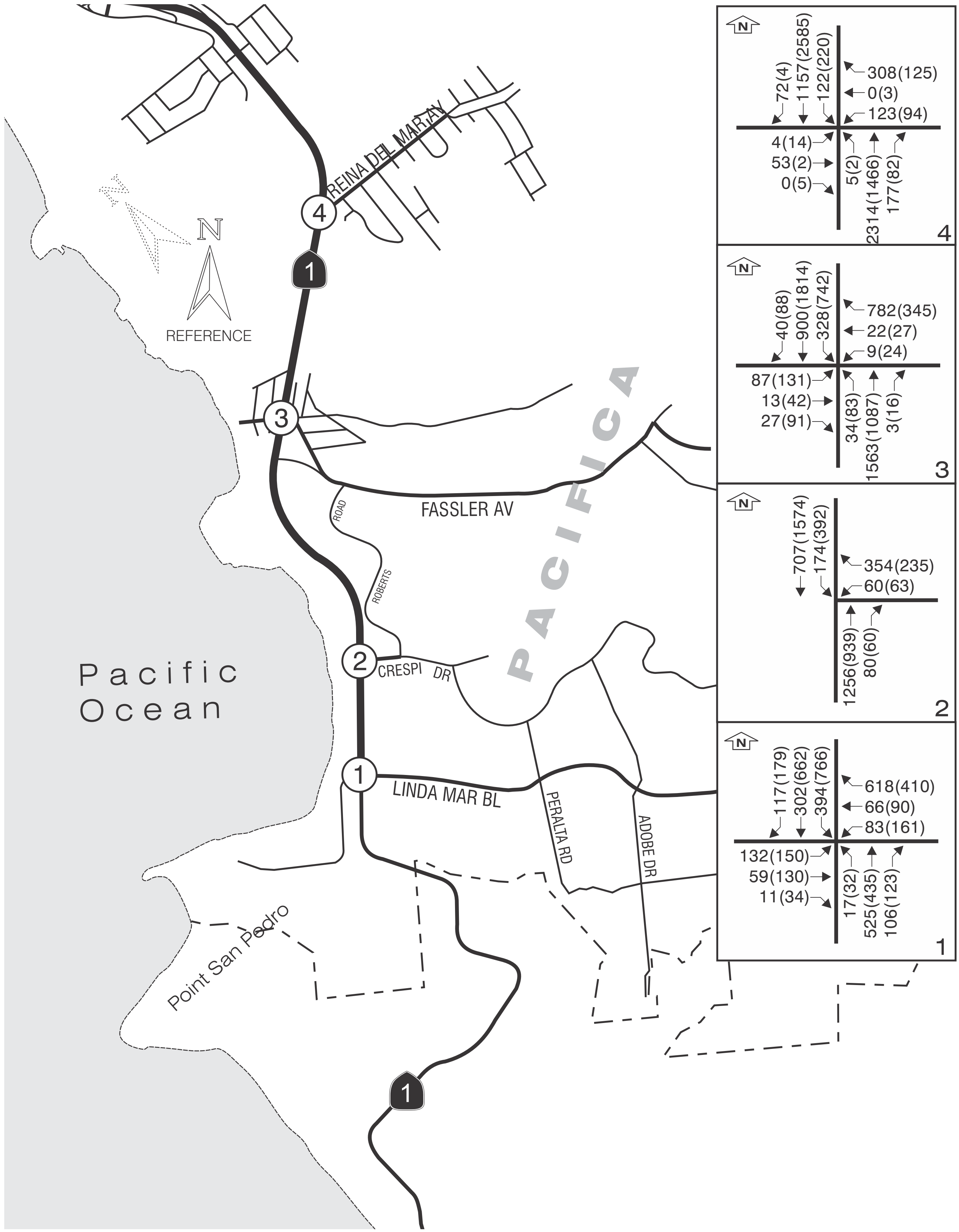
The cumulative traffic volumes are shown on Figure 7, Cumulative Conditions Peak Hour Traffic Volumes, page 18.

[4] Federal Highway Administration, *Traffic Monitoring Guide, Table 3-4, Day of Week for Urban, Rural and Recreational Sites,* © 2016



KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

CUMULATIVE CONDITIONS PEAK HOUR TRAFFIC VOLUMES
FIGURE 7



KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

CUMULATIVE + PROJECT CONDITIONS
PEAK HOUR TRAFFIC VOLUMES
FIGURE 8

CUMULATIVE CONDITIONS LEVELS OF SERVICE

Levels of Service have been calculated for the cumulative conditions scenario using the analysis methods contained in the *2010 Highway Capacity Manual*. The results of the LOS calculations Are summarized in Table G below.

CUMULATIVE + PROJECT CONDITIONS

Cumulative + Project scenario traffic volumes are shown on Figure 8, Cumulative + Project Peak Hour Traffic Volumes, page 19, and the Cumulative + Project LOS are shown in Table G below. LOS calculation sheets are provided in Appendix B.

TABLE G: Intersection Levels of Service
Cumulative Conditions

Signal Controlled Intersections	Peak Hour	Cumulative Conditions			Cumulative + Project Conditions		
		V/C	Delay	LOS	V/C	Delay	LOS
1- Route 1 & Linda Mar Blvd./San Pedro Rd.	AM	0.686	30.5	C	0.687	30.6	C
	PM	0.710	30.3	C	0.711	30.4	C
2 - Route 1 & Crespi Drive	AM	0.649	17.0	B	0.651	17.3	B
	PM	0.667	12.2	B	0.673	12.2	B
3 - Route 1 & Fassler Ave./ Rockaway Beach Ave.	AM	0.960	78.0	E	0.962	78.7	E
	PM	0.906	55.3	E	0.907	55.9	E
4 - Route 1 & Reina Del Mar Avenue	AM	0.943	46.4	D	0.945	46.8	D
	PM	0.855	26.2	C	0.856	26.4	C

Delay is Average Control Delay in seconds per vehicle.

V/C is the critical movement volume-to-capacity ratio.

LOS is Level of Service. See Table A definitions.

Project added traffic will not create a significant impact at any of the four study area intersections under cumulative traffic conditions.

SITE ACCESS, CIRCULATION AND PARKING
SECTION 6.

SITE PLAN

The development plan is shown on Figure 9, Site Plan, page 22.

SITE ACCESS

Access into the site will be via a driveway off of Crespi Drive. Egress from the site will be by way of a connection to the existing driveway for the City of Pacifica Community Center and then back onto Crespi Drive. Driveway corner sight distance is good in both directions.

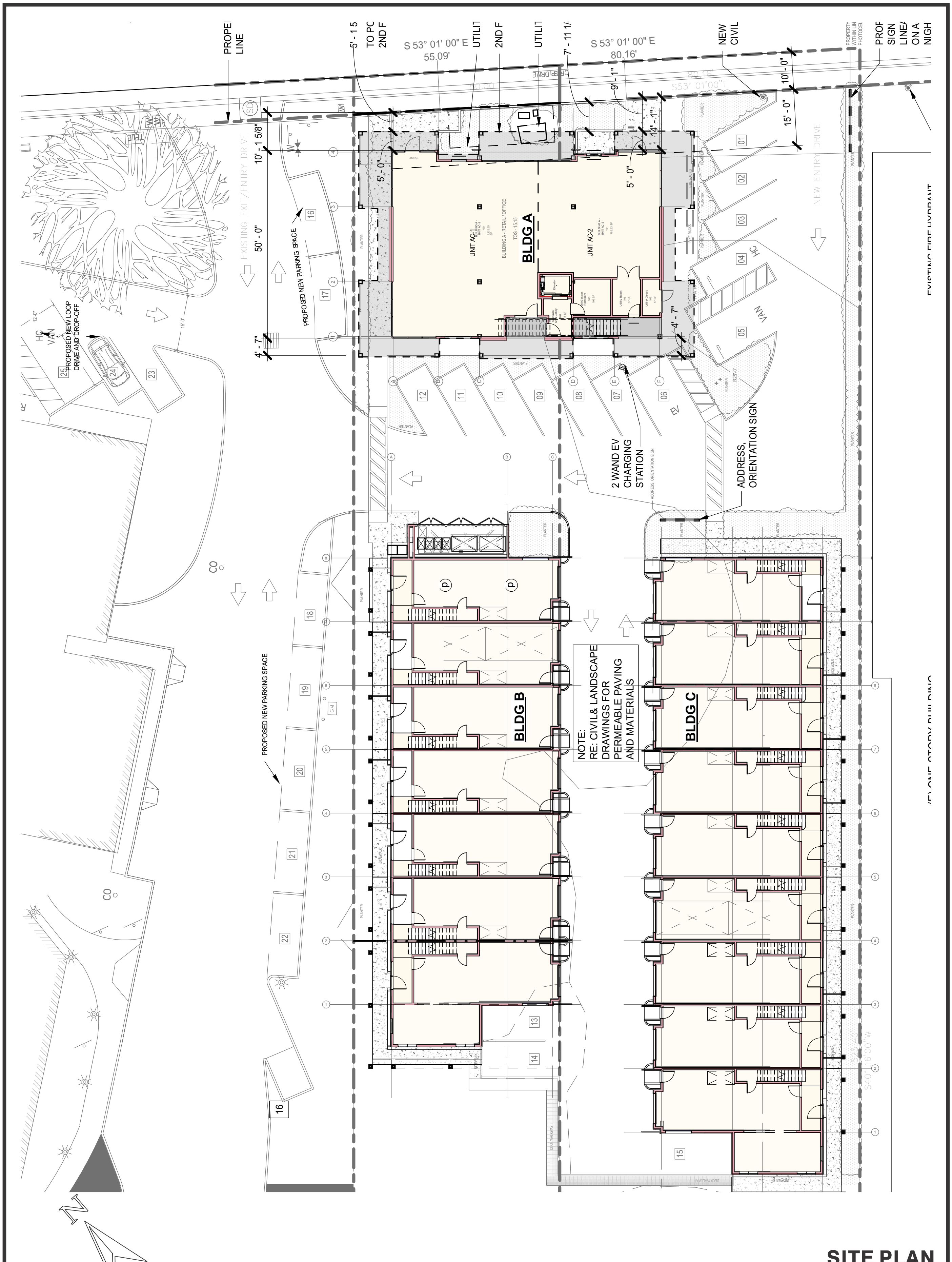
PARKING

Sixteen of the residential units will each have a 2-car tandem garage. There will be 15 open parking spaces on the site. The three apartment units and the commercial space will share the open spaces along with the guest parking for the townhouse units. The amount of parking provided is less than Zoning Code required parking. See Table H below.

TABLE H: Parking

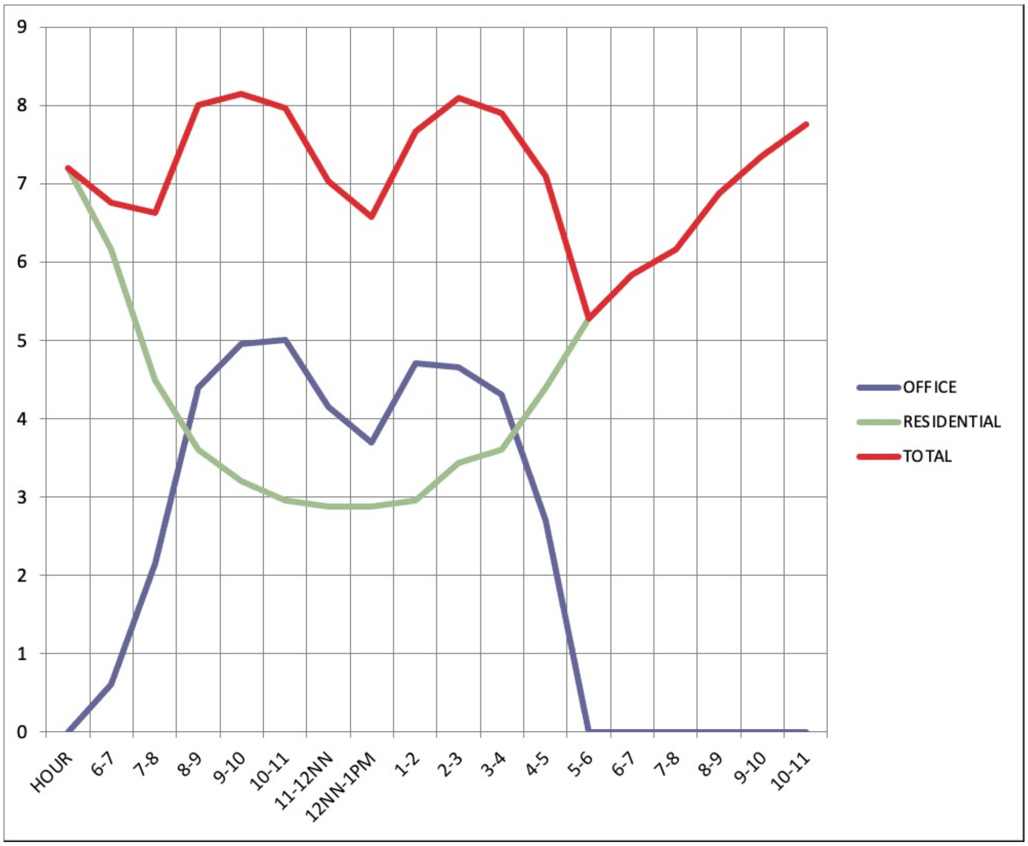
Land Use	Quantity	Zoning Code Requirement	Required Spaces	ITE Parking Generation 5th Ed.	Unshared Parking Demand
One Bedroom Apartment	3	1.75 spaces per DU*	6	Multi-family Low Rise	4
2-Bedroom Townhouse	16	2.25 spaces per DU*	36	Multi-family Low Rise	18
Commercial Space (Medical Office)	3,165 SF	One space per 200 SF	16	Medical-Dental Office	5
		Total	58		27

* Including guest parking



SITE PLAN
FIGURE 9

The townhouses have two enclosed parking spaces per unit. If you conservatively consider that the 32 enclosed spaces will be for residents only, the four guest parking spaces required for the townhouse units will have to be shared with the apartments and the commercial space. The ITE publication, *Parking Generation*, 5th Edition © 2019 provides time of day parking demand for the various land uses included in that document. Typically residential land uses have their highest parking demand in the evening and overnight hours while office uses, including medical-dental offices, have their highest parking demand during the middle of the day. The chart below shows the time of day parking demand for the three apartments, the medical office, and the four guest parking spaces for the townhouse units.



As the chart shows, the peak parking demand of eight spaces is seven spaces less than the total of 15 open parking spaces. From this analysis it appears that the 15 open parking spaces will accommodate the parking demands of the site. The shared parking analysis is included in Appendix C.

The draft Development Agreement allows the proposed development to lease parking spaces from the adjacent community center. Up to 17 spaces could be included in the lease. These additional parking spaces would allow activities in the development to use the community center parking spaces should the on-site spaces become fully occupied.

CONCLUSIONS AND RECOMMENDATIONS
SECTION 7.

CONCLUSIONS

The 570 Crespi Drive mixed use development is estimated to generate 20 new vehicle trip ends during the morning peak hour and 26 new vehicle trip ends during the afternoon peak traffic hour. The project will not create a significant impact at any of the four study area intersections nor will it change the Levels of Service at these intersections.

RECOMMENDATIONS

Off-site:

1) None.

On-site:

2) None.

Richard K Hopper

Richard K. Hopper, P.E.

REGISTERED PROFESSIONAL ENGINEER
RICHARD K. HOPPER
No. 1425
Exp. 12/31/22
TRAFFIC
STATE OF CALIFORNIA

APPENDICES

A. Traffic Count Data

B. Levels of Service Calculation Worksheets

C. Traffic Analysis Worksheets

A. Traffic Count Worksheets

TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

CITY OF PACIFICA

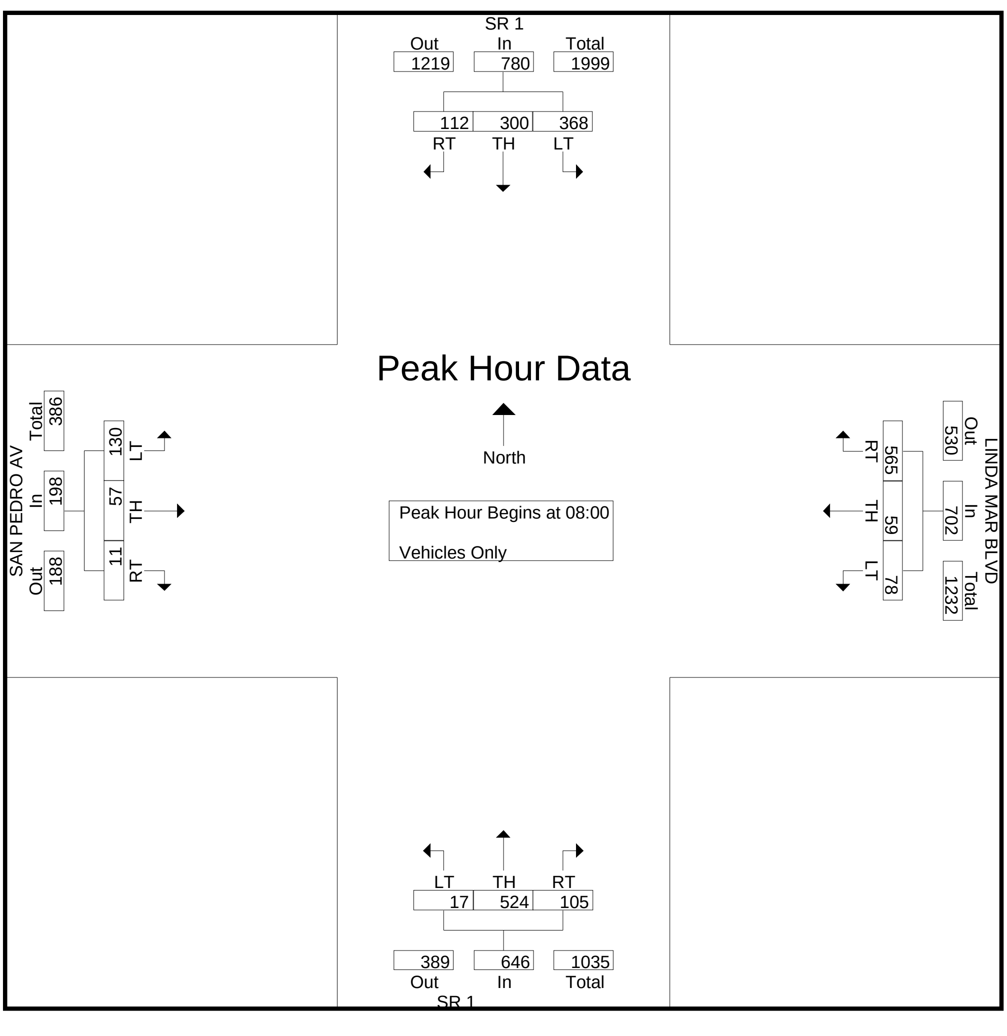
Latitude: 37.595948
Longitude: -122.503820

File Name : sr1-linda mar-a
Site Code : 4
Start Date : 6/5/2019
Page No : 1

Groups Printed- Vehicles Only

	SR 1 Southbound				LINDA MAR BLVD Westbound				SR 1 Northbound				SAN PEDRO AV Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	15	39	37	91	147	4	14	165	16	127	1	144	2	7	21	30	430
07:15	12	62	49	123	145	7	15	167	14	163	3	180	0	4	21	25	495
07:30	10	63	47	120	141	4	22	167	19	168	7	194	4	6	19	29	510
07:45	26	70	62	158	130	9	10	149	18	147	2	167	1	12	28	41	515
Total	63	234	195	492	563	24	61	648	67	605	13	685	7	29	89	125	1950
08:00	19	57	73	149	172	11	20	203	21	122	1	144	2	15	37	54	550
08:15	25	68	87	180	108	20	22	150	38	167	7	212	4	14	29	47	589
08:30	40	-68	101	73	167	15	19	201	22	119	4	145	1	12	26	39	458
08:45	28	243	107	378	118	13	17	148	24	116	5	145	4	16	38	58	729
Total	112	300	368	780	565	59	78	702	105	524	17	646	11	57	130	198	2326
Grand Total	175	534	563	1272	1128	83	139	1350	172	1129	30	1331	18	86	219	323	4276
Apprch %	13.8	42	44.3		83.6	6.1	10.3		12.9	84.8	2.3		5.6	26.6	67.8		
Total %	4.1	12.5	13.2	29.7	26.4	1.9	3.3	31.6	4	26.4	0.7	31.1	0.4	2	5.1	7.6	

	SR 1 Southbound				LINDA MAR BLVD Westbound				SR 1 Northbound				SAN PEDRO AV Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	19	57	73	149	**172**	11	20	**203**	21	122	1	144	2	15	37	54	550
08:15	25	68	87	180	108	**20**	**22**	150	**38**	**167**	**7**	**212**	**4**	14	29	47	589
08:30	**40**	**68**	101	73	167	15	19	201	22	119	4	145	1	12	26	39	458
08:45	28	**243**	**107**	**378**	118	13	17	148	24	116	5	145	4	**16**	**38**	**58**	**729**
Total Volume	112	300	368	780	565	59	78	702	105	524	17	646	11	57	130	198	2326
% App. Total	14.4	38.5	47.2		80.5	8.4	11.1		16.3	81.1	2.6		5.6	28.8	65.7		
PHF	.700	.309	.860	.516	.821	.738	.886	.865	.691	.784	.607	.762	.688	.891	.855	.853	.798



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

CITY OF PACIFICA

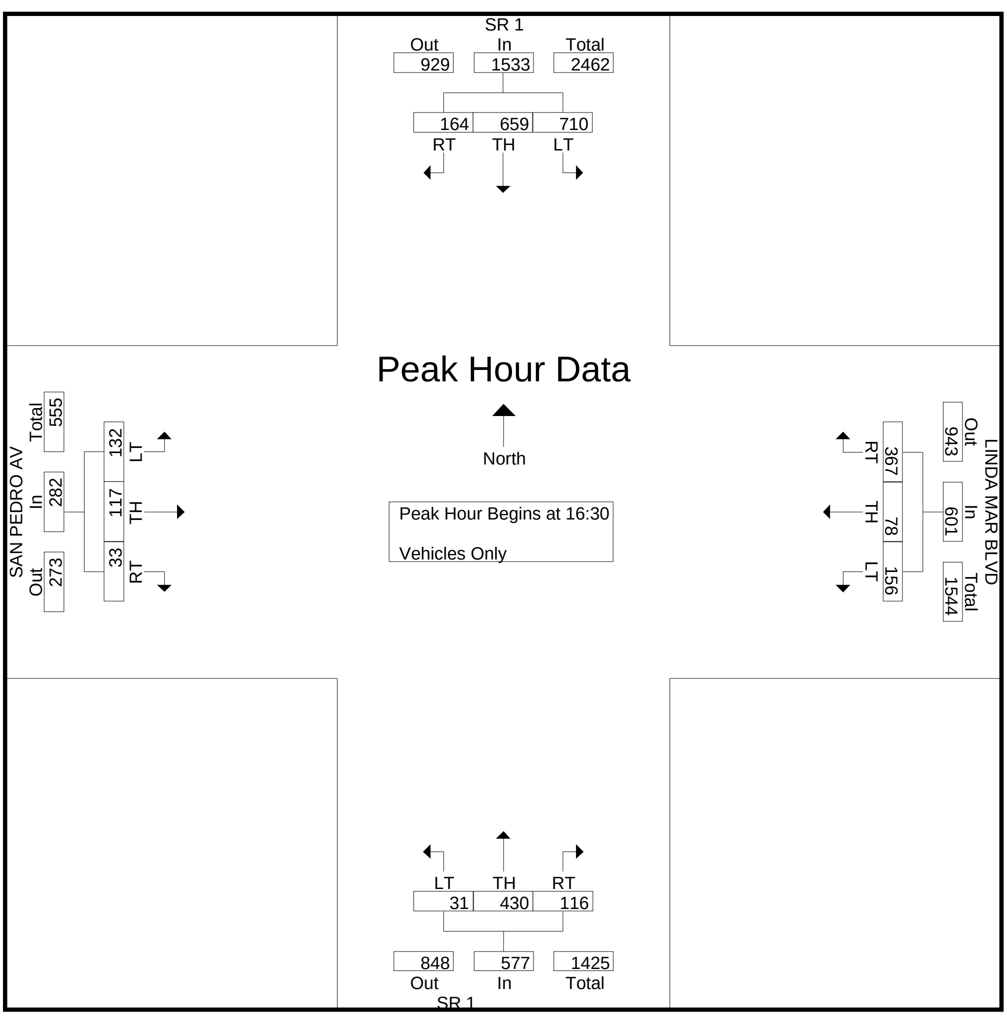
Latitude: 37.595948
Longitude: -122.503820

File Name : sr1-linda mar-p
Site Code : 4
Start Date : 6/5/2019
Page No : 1

Groups Printed- Vehicles Only

	SR 1 Southbound				LINDA MAR BLVD Westbound				SR 1 Northbound				SAN PEDRO AV Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	42	138	143	323	110	22	36	168	29	85	10	124	10	38	28	76	691
16:15	39	171	196	406	109	21	52	182	30	86	6	122	3	22	27	52	762
16:30	38	167	200	405	106	12	35	153	21	107	7	135	12	31	36	79	772
16:45	55	162	154	371	81	20	42	143	29	107	6	142	4	30	33	67	723
Total	174	638	693	1505	406	75	165	646	109	385	29	523	29	121	124	274	2948
17:00	32	153	177	362	80	23	38	141	39	108	6	153	13	26	33	72	728
17:15	39	177	179	395	100	23	41	164	27	108	12	147	4	30	30	64	770
17:30	36	161	146	343	74	24	30	128	43	129	7	179	14	27	24	65	715
17:45	39	169	193	401	84	19	37	140	22	91	9	122	6	25	24	55	718
Total	146	660	695	1501	338	89	146	573	131	436	34	601	37	108	111	256	2931
Grand Total	320	1298	1388	3006	744	164	311	1219	240	821	63	1124	66	229	235	530	5879
Apprch %	10.6	43.2	46.2		61	13.5	25.5		21.4	73	5.6		12.5	43.2	44.3		
Total %	5.4	22.1	23.6	51.1	12.7	2.8	5.3	20.7	4.1	14	1.1	19.1	1.1	3.9	4	9	

	SR 1 Southbound				LINDA MAR BLVD Westbound				SR 1 Northbound				SAN PEDRO AV Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	38	167	**200**	**405**	**106**	12	35	153	21	107	7	135	12	**31**	**36**	**79**	**772**
16:45	**55**	162	154	371	81	20	**42**	143	29	107	6	142	4	30	33	67	723
17:00	32	153	177	362	80	**23**	38	141	**39**	**108**	6	**153**	**13**	26	33	72	728
17:15	39	**177**	179	395	100	23	41	**164**	27	108	**12**	147	4	30	30	64	770
Total Volume	164	659	710	1533	367	78	156	601	116	430	31	577	33	117	132	282	2993
% App. Total	10.7	43	46.3		61.1	13	26		20.1	74.5	5.4		11.7	41.5	46.8		
PHF	.745	.931	.888	.946	.866	.848	.929	.916	.744	.995	.646	.943	.635	.944	.917	.892	.969



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

CITY OF PACIFICA

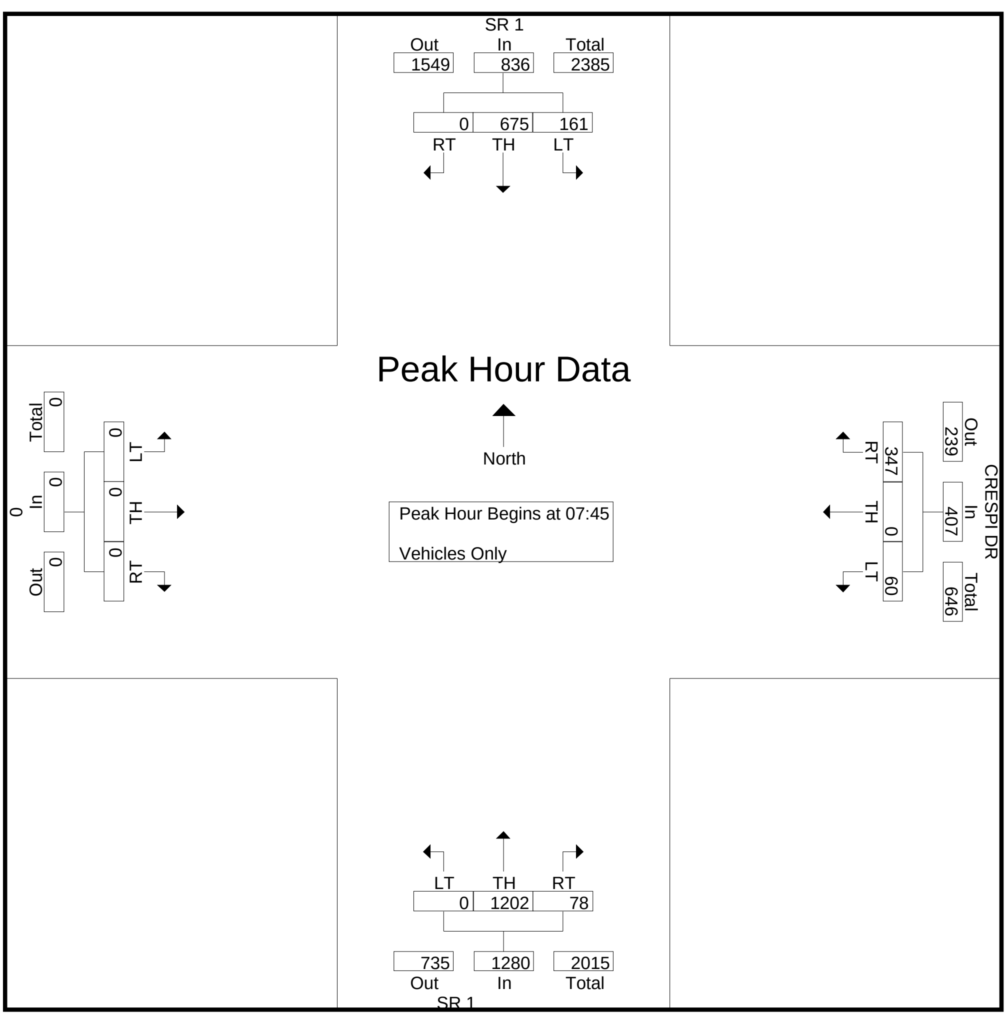
Latitude: 37.599509
Longitude: -122.500055

File Name : sr1-crespi-a
Site Code : 3
Start Date : 6/5/2019
Page No : 1

Groups Printed- Vehicles Only

	SR 1 Southbound				CRESPI DR Westbound				SR 1 Northbound				0 Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	0	94	19	113	84	0	5	89	9	292	0	301	0	0	0	0	503
07:15	0	124	21	145	104	0	4	108	9	318	0	327	0	0	0	0	580
07:30	0	137	28	165	102	0	3	105	7	340	0	347	0	0	0	0	617
07:45	0	143	40	183	91	0	9	100	12	315	0	327	0	0	0	0	610
Total	0	498	108	606	381	0	21	402	37	1265	0	1302	0	0	0	0	2310
08:00	0	137	60	197	97	0	18	115	29	295	0	324	0	0	0	0	636
08:15	0	169	30	199	81	0	23	104	20	291	0	311	0	0	0	0	614
08:30	0	226	31	257	78	0	10	88	17	301	0	318	0	0	0	0	663
08:45	0	202	30	232	70	0	9	79	20	262	0	282	0	0	0	0	593
Total	0	734	151	885	326	0	60	386	86	1149	0	1235	0	0	0	0	2506
Grand Total	0	1232	259	1491	707	0	81	788	123	2414	0	2537	0	0	0	0	4816
Apprch %	0	82.6	17.4		89.7	0	10.3		4.8	95.2	0		0	0	0		
Total %	0	25.6	5.4	31	14.7	0	1.7	16.4	2.6	50.1	0	52.7	0	0	0	0	

	SR 1 Southbound				CRESPI DR Westbound				SR 1 Northbound				0 Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	0	143	40	183	91	0	9	100	12	**315**	0	**327**	0	0	0	0	610
08:00	0	137	**60**	197	**97**	0	18	**115**	**29**	295	0	324	0	0	0	0	636
08:15	0	169	30	199	81	0	**23**	104	20	291	0	311	0	0	0	0	614
08:30	0	**226**	31	**257**	78	0	10	88	17	301	0	318	0	0	0	0	**663**
Total Volume	0	675	161	836	347	0	60	407	78	1202	0	1280	0	0	0	0	2523
% App. Total	0	80.7	19.3		85.3	0	14.7		6.1	93.9	0		0	0	0		
PHF	.000	.747	.671	.813	.894	.000	.652	.885	.672	.954	.000	.979	.000	.000	.000	.000	.951



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

CITY OF PACIFICA

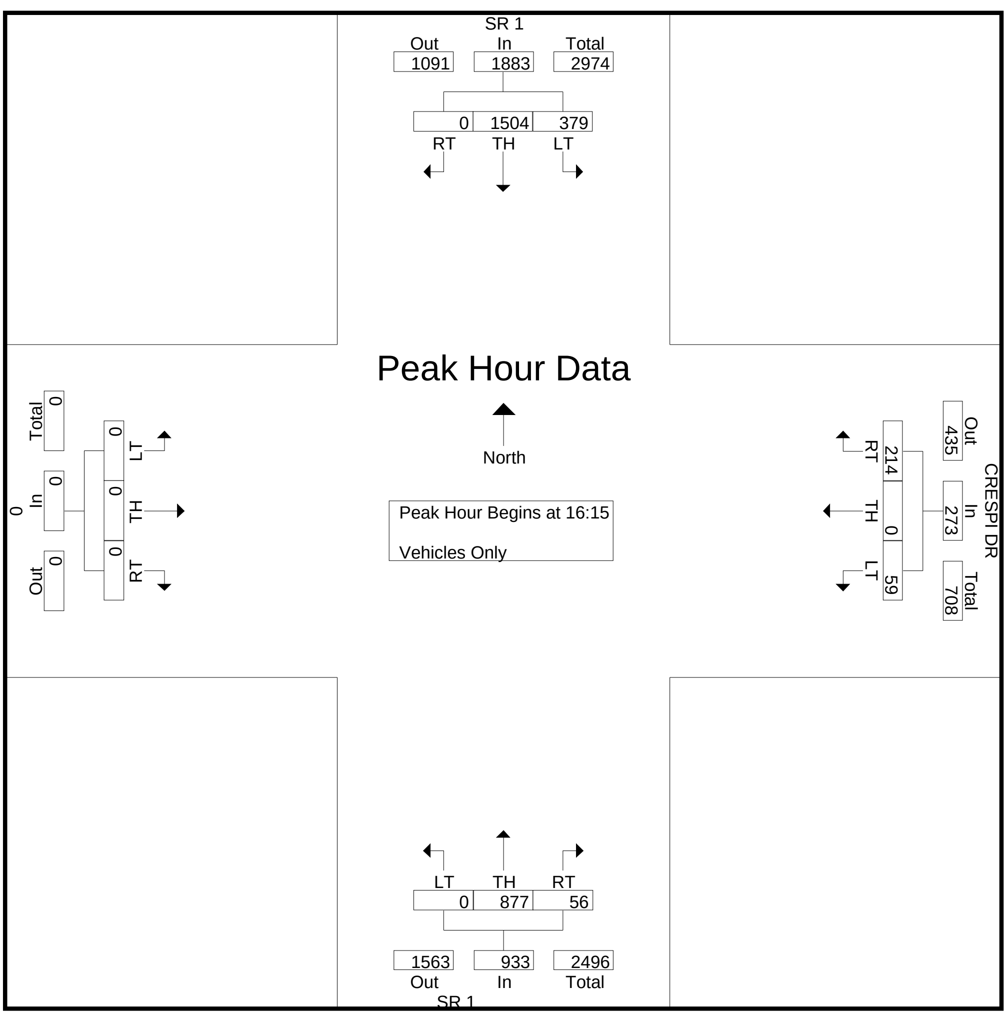
Latitude: 37.599509
Longitude: -122.500055

File Name : sr1-crespi-p
Site Code : 3
Start Date : 6/5/2019
Page No : 1

Groups Printed- Vehicles Only

	SR 1 Southbound				CRESPI DR Westbound				SR 1 Northbound				0 Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	0	307	65	372	65	0	12	77	13	238	0	251	0	0	0	0	700
16:15	0	387	101	488	54	0	19	73	11	218	0	229	0	0	0	0	790
16:30	0	383	96	479	48	0	12	60	16	233	0	249	0	0	0	0	788
16:45	0	350	88	438	54	0	16	70	14	211	0	225	0	0	0	0	733
Total	0	1427	350	1777	221	0	59	280	54	900	0	954	0	0	0	0	3011
17:00	0	384	94	478	58	0	12	70	15	215	0	230	0	0	0	0	778
17:15	0	356	75	431	55	0	16	71	22	226	0	248	0	0	0	0	750
17:30	0	353	78	431	56	0	16	72	15	223	0	238	0	0	0	0	741
17:45	0	368	88	456	42	0	12	54	20	192	0	212	0	0	0	0	722
Total	0	1461	335	1796	211	0	56	267	72	856	0	928	0	0	0	0	2991
Grand Total	0	2888	685	3573	432	0	115	547	126	1756	0	1882	0	0	0	0	6002
Apprch %	0	80.8	19.2		79	0	21		6.7	93.3	0		0	0	0		
Total %	0	48.1	11.4	59.5	7.2	0	1.9	9.1	2.1	29.3	0	31.4	0	0	0	0	

	SR 1 Southbound				CRESPI DR Westbound				SR 1 Northbound				0 Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	0	**387**	**101**	**488**	54	0	**19**	**73**	11	218	0	229	0	0	0	0	**790**
16:30	0	383	96	479	48	0	12	60	**16**	**233**	0	**249**	0	0	0	0	788
16:45	0	350	88	438	54	0	16	70	14	211	0	225	0	0	0	0	733
17:00	0	384	94	478	**58**	0	12	70	15	215	0	230	0	0	0	0	778
Total Volume	0	1504	379	1883	214	0	59	273	56	877	0	933	0	0	0	0	3089
% App. Total	0	79.9	20.1		78.4	0	21.6		6	94	0		0	0	0		
PHF	.000	.972	.938	.965	.922	.000	.776	.935	.875	.941	.000	.937	.000	.000	.000	.000	.978



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

CITY OF PACIFICA

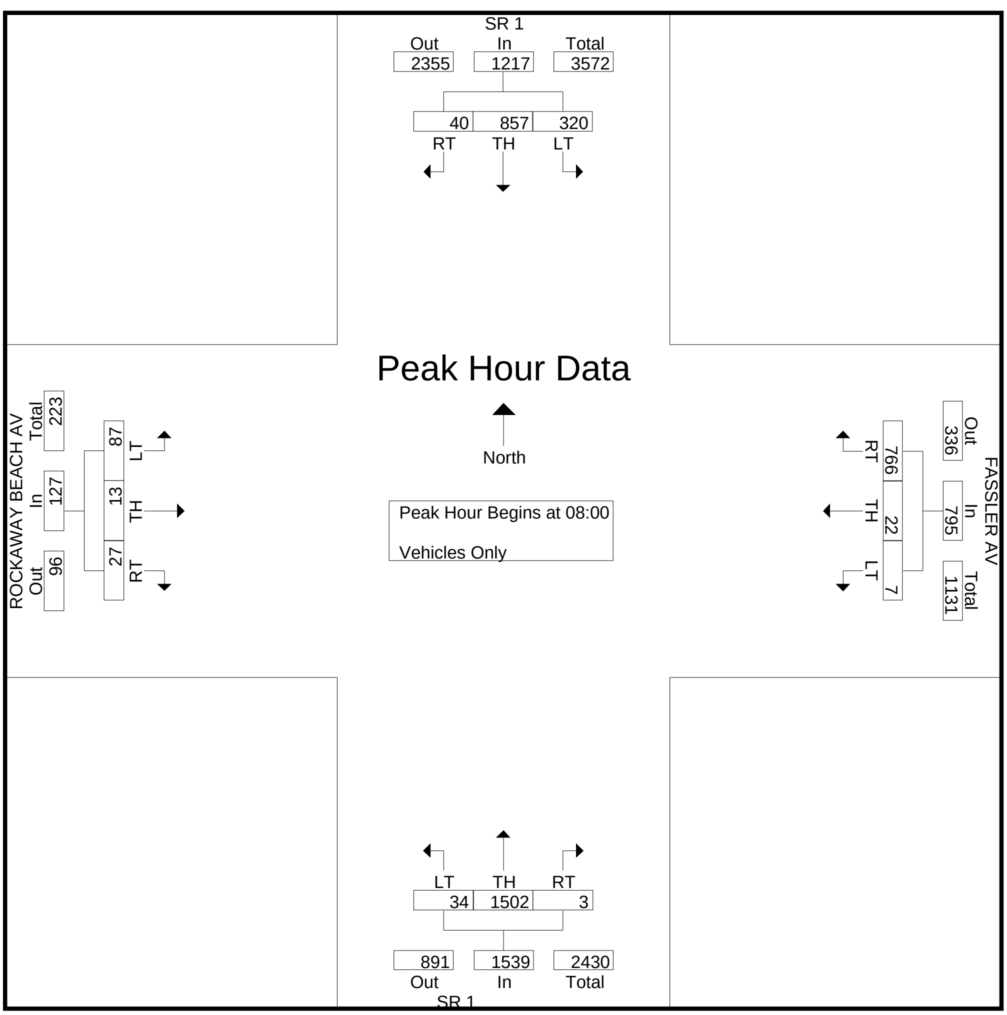
Latitude: 37.608714
Longitude: -122.495255

File Name : sr1-fassler-a
Site Code : 2
Start Date : 6/5/2019
Page No : 1

Groups Printed- Vehicles Only

	SR 1 Southbound				FASSLER AV Westbound				SR 1 Northbound				ROCKAWAY BEACH AV Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	6	113	24	143	199	2	0	201	2	379	3	384	3	2	14	19	747
07:15	11	139	63	213	185	5	1	191	0	399	2	401	2	2	9	13	818
07:30	10	154	40	204	197	6	3	206	1	427	8	436	9	1	13	23	869
07:45	9	168	70	247	158	4	4	166	1	411	8	420	6	2	12	20	853
Total	36	574	197	807	739	17	8	764	4	1616	21	1641	20	7	48	75	3287
08:00	21	191	61	273	193	4	1	198	1	436	4	441	5	1	30	36	948
08:15	5	209	84	298	201	5	0	206	0	364	14	378	6	4	22	32	914
08:30	7	237	78	322	186	3	4	193	1	389	6	396	11	2	14	27	938
08:45	7	220	97	324	186	10	2	198	1	313	10	324	5	6	21	32	878
Total	40	857	320	1217	766	22	7	795	3	1502	34	1539	27	13	87	127	3678
Grand Total	76	1431	517	2024	1505	39	15	1559	7	3118	55	3180	47	20	135	202	6965
Apprch %	3.8	70.7	25.5		96.5	2.5	1		0.2	98.1	1.7		23.3	9.9	66.8		
Total %	1.1	20.5	7.4	29.1	21.6	0.6	0.2	22.4	0.1	44.8	0.8	45.7	0.7	0.3	1.9	2.9	

	SR 1 Southbound				FASSLER AV Westbound				SR 1 Northbound				ROCKAWAY BEACH AV Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	**21**	191	61	273	193	4	1	198	**1**	**436**	4	**441**	5	1	**30**	**36**	**948**
08:15	5	209	84	298	**201**	5	0	**206**	0	364	**14**	378	6	4	22	32	914
08:30	7	**237**	78	322	186	3	**4**	193	1	389	6	396	**11**	2	14	27	938
08:45	7	220	**97**	**324**	186	**10**	2	198	1	313	10	324	5	**6**	21	32	878
Total Volume	40	857	320	1217	766	22	7	795	3	1502	34	1539	27	13	87	127	3678
% App. Total	3.3	70.4	26.3		96.4	2.8	0.9		0.2	97.6	2.2		21.3	10.2	68.5		
PHF	.476	.904	.825	.939	.953	.550	.438	.965	.750	.861	.607	.872	.614	.542	.725	.882	.970



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

CITY OF PACIFICA

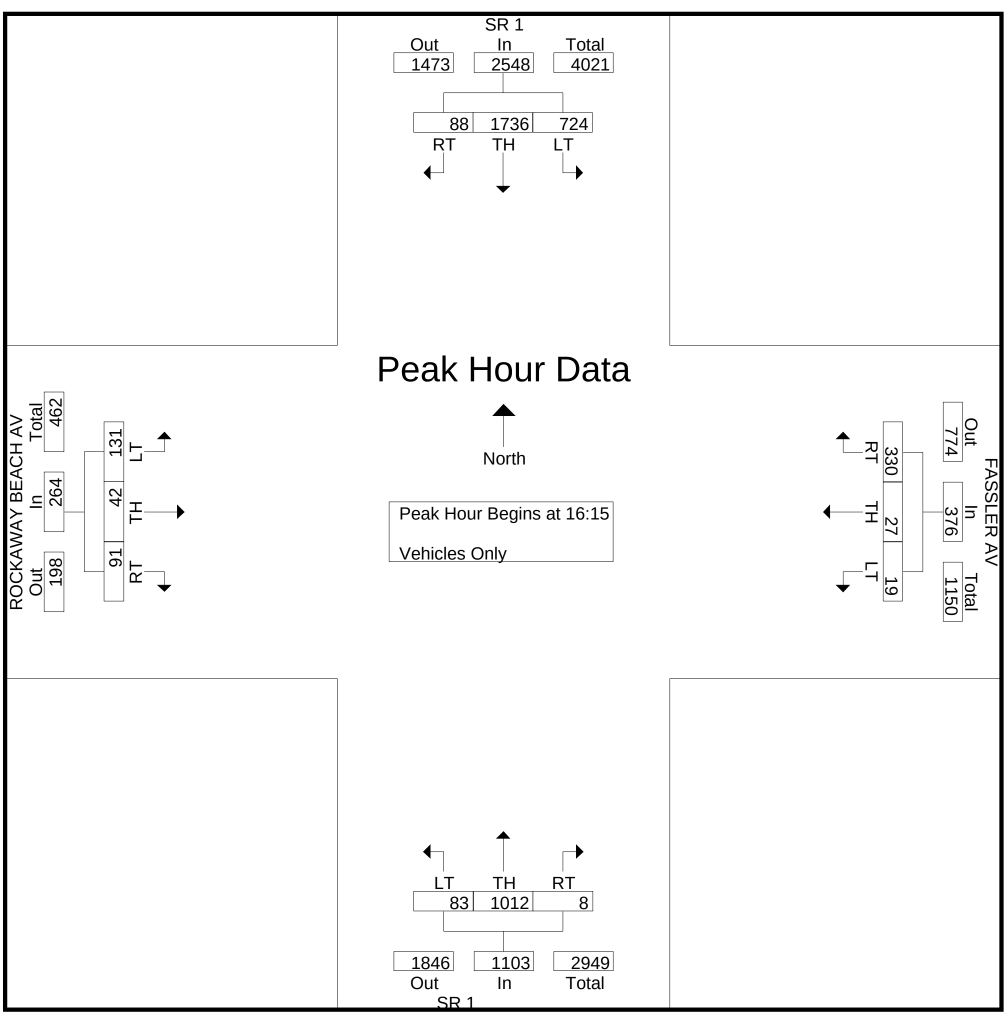
Latitude: 37.608714
Longitude: -122.495255

File Name : sr1-fassler-p
Site Code : 2
Start Date : 6/5/2019
Page No : 1

Groups Printed- Vehicles Only

	SR 1 Southbound				FASSLER AV Westbound				SR 1 Northbound				ROCKAWAY BEACH AV Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	33	364	154	551	97	10	6	113	1	281	28	310	29	17	29	75	1049
16:15	27	442	161	630	104	14	3	121	2	242	20	264	29	10	36	75	1090
16:30	18	419	189	626	75	6	6	87	3	252	26	281	23	8	36	67	1061
16:45	23	443	194	660	67	1	5	73	1	267	11	279	22	8	27	57	1069
Total	101	1668	698	2467	343	31	20	394	7	1042	85	1134	103	43	128	274	4269
17:00	20	432	180	632	84	6	5	95	2	251	26	279	17	16	32	65	1071
17:15	22	399	197	618	85	10	6	101	1	263	11	275	26	22	35	83	1077
17:30	26	402	171	599	92	9	6	107	4	234	20	258	14	20	30	64	1028
17:45	24	411	226	661	58	6	9	73	6	216	24	246	29	13	44	86	1066
Total	92	1644	774	2510	319	31	26	376	13	964	81	1058	86	71	141	298	4242
Grand Total	193	3312	1472	4977	662	62	46	770	20	2006	166	2192	189	114	269	572	8511
Apprch %	3.9	66.5	29.6		86	8.1	6		0.9	91.5	7.6		33	19.9	47		
Total %	2.3	38.9	17.3	58.5	7.8	0.7	0.5	9	0.2	23.6	2	25.8	2.2	1.3	3.2	6.7	

	SR 1 Southbound				FASSLER AV Westbound				SR 1 Northbound				ROCKAWAY BEACH AV Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	**27**	442	161	630	**104**	**14**	3	**121**	2	242	20	264	**29**	10	**36**	**75**	**1090**
16:30	18	419	189	626	75	6	**6**	87	**3**	252	**26**	**281**	23	8	36	67	1061
16:45	23	**443**	**194**	**660**	67	1	5	73	1	**267**	11	279	22	8	27	57	1069
17:00	20	432	180	632	84	6	5	95	2	251	26	279	17	**16**	32	65	1071
Total Volume	88	1736	724	2548	330	27	19	376	8	1012	83	1103	91	42	131	264	4291
% App. Total	3.5	68.1	28.4		87.8	7.2	5.1		0.7	91.7	7.5		34.5	15.9	49.6		
PHF	.815	.980	.933	.965	.793	.482	.792	.777	.667	.948	.798	.981	.784	.656	.910	.880	.984



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

CITY OF PACIFICA

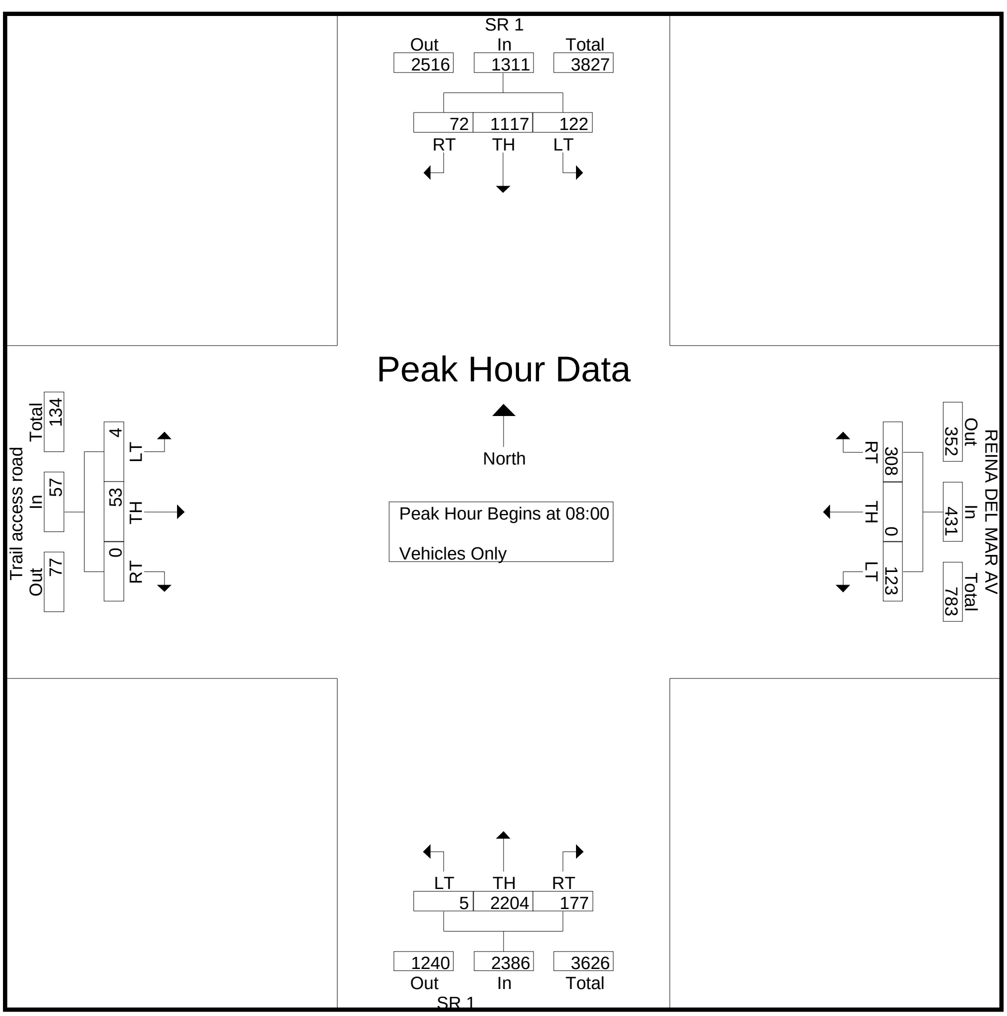
Latitude: 37.613842
Longitude: -122.487123

File Name : sr1-reina del mar-a
Site Code : 1
Start Date : 6/5/2019
Page No : 1

Groups Printed- Vehicles Only

	SR 1 Southbound				REINA DEL MAR AV Westbound				SR 1 Northbound				Trail access road Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	1	163	14	178	41	0	5	46	8	584	0	592	0	0	0	0	816
07:15	1	175	15	191	47	0	7	54	9	600	1	610	0	1	4	5	860
07:30	7	207	17	231	45	1	4	50	22	662	1	685	0	4	0	4	970
07:45	23	241	44	308	58	0	18	76	33	476	0	509	0	17	1	18	911
Total	32	786	90	908	191	1	34	226	72	2322	2	2396	0	22	5	27	3557
08:00	36	249	26	311	79	0	25	104	89	562	0	651	0	23	1	24	1090
08:15	21	285	37	343	76	0	27	103	47	585	1	633	0	24	0	24	1103
08:30	8	296	33	337	89	0	34	123	16	554	1	571	0	6	0	6	1037
08:45	7	287	26	320	64	0	37	101	25	503	3	531	0	0	3	3	955
Total	72	1117	122	1311	308	0	123	431	177	2204	5	2386	0	53	4	57	4185
Grand Total	104	1903	212	2219	499	1	157	657	249	4526	7	4782	0	75	9	84	7742
Apprch %	4.7	85.8	9.6		76	0.2	23.9		5.2	94.6	0.1		0	89.3	10.7		
Total %	1.3	24.6	2.7	28.7	6.4	0	2	8.5	3.2	58.5	0.1	61.8	0	1	0.1	1.1	

	SR 1 Southbound				REINA DEL MAR AV Westbound				SR 1 Northbound				Trail access road Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	**36**	249	26	311	79	0	25	104	**89**	562	0	**651**	0	23	1	**24**	1090
08:15	21	285	**37**	**343**	76	0	27	103	47	**585**	1	633	0	**24**	0	24	**1103**
08:30	8	**296**	33	337	**89**	0	34	**123**	16	554	1	571	0	6	0	6	1037
08:45	7	287	26	320	64	0	**37**	101	25	503	**3**	531	0	0	**3**	3	955
Total Volume	72	1117	122	1311	308	0	123	431	177	2204	5	2386	0	53	4	57	4185
% App. Total	5.5	85.2	9.3		71.5	0	28.5		7.4	92.4	0.2		0	93	7		
PHF	.500	.943	.824	.956	.865	.000	.831	.876	.497	.942	.417	.916	.000	.552	.333	.594	.949



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

CITY OF PACIFICA

Latitude: 37.613842
Longitude: -122.487123

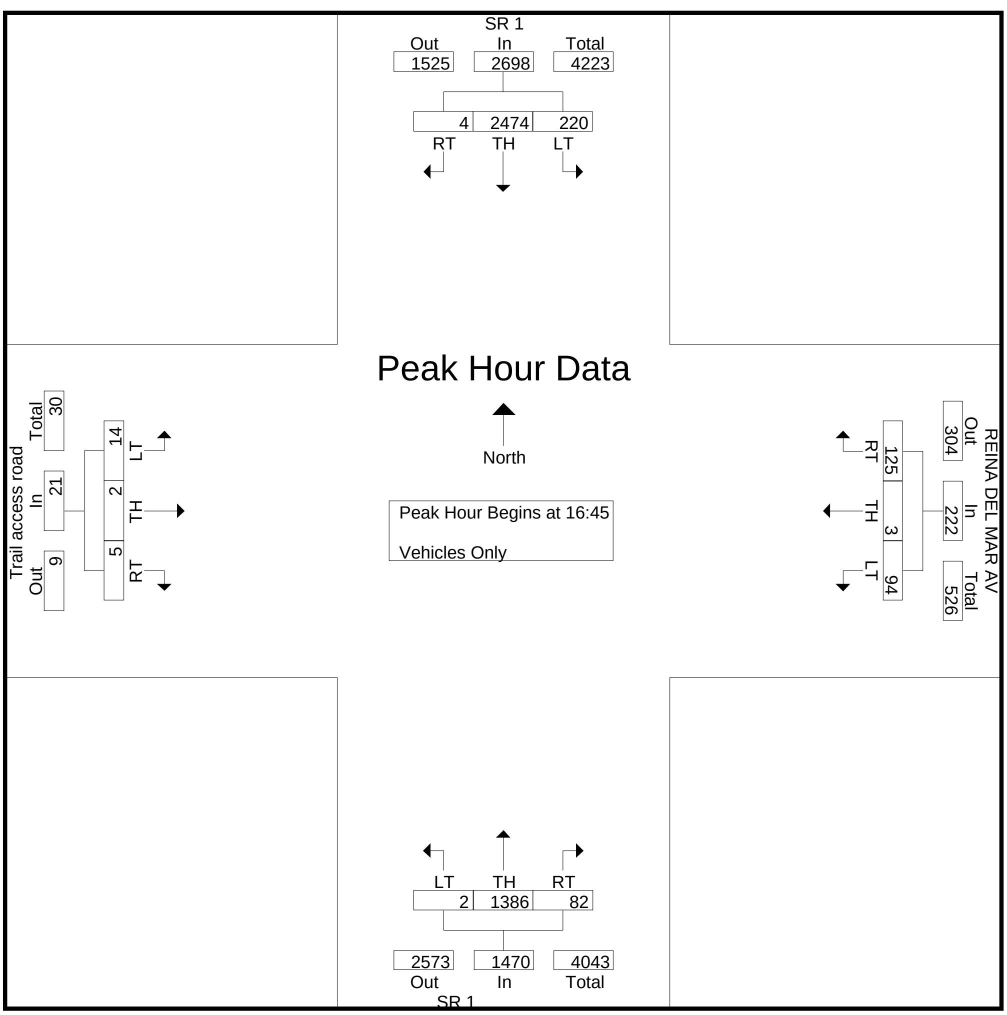
File Name : sr1-reina del mar-p
Site Code : 1
Start Date : 6/5/2019
Page No : 1

Groups Printed- Vehicles Only

	SR 1 Southbound				REINA DEL MAR AV Westbound				SR 1 Northbound				Trail access road Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	3	586	62	651	28	1	22	51	20	340	0	360	2	1	1	4	1066
16:15	1	592	47	640	30	1	40	71	31	371	2	404	1	0	3	4	1119
16:30	0	615	49	664	35	0	27	62	17	364	0	381	1	1	0	2	1109
16:45	0	594	51	645	40	0	35	75	25	323	1	349	0	1	1	2	1071
Total	4	2387	209	2600	133	2	124	259	93	1398	3	1494	4	3	5	12	4365
17:00	1	637	42	680	27	0	17	44	26	344	0	370	2	0	9	11	1105
17:15	0	599	62	661	26	0	24	50	18	343	0	361	0	0	2	2	1074
17:30	3	644	65	712	32	3	18	53	13	376	1	390	3	1	2	6	1161
17:45	1	611	62	674	26	1	27	54	20	299	1	320	2	1	2	5	1053
Total	5	2491	231	2727	111	4	86	201	77	1362	2	1441	7	2	15	24	4393
Grand Total	9	4878	440	5327	244	6	210	460	170	2760	5	2935	11	5	20	36	8758
Apprch %	0.2	91.6	8.3		53	1.3	45.7		5.8	94	0.2		30.6	13.9	55.6		
Total %	0.1	55.7	5	60.8	2.8	0.1	2.4	5.3	1.9	31.5	0.1	33.5	0.1	0.1	0.2	0.4	

Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:45

	SR 1 Southbound				REINA DEL MAR AV Westbound				SR 1 Northbound				Trail access road Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:45	0	594	51	645	**40**	0	**35**	**75**	25	323	**1**	349	0	**1**	1	2	1071
17:00	1	637	42	680	27	0	17	44	**26**	344	0	370	2	0	**9**	**11**	1105
17:15	0	599	62	661	26	0	24	50	18	343	0	361	0	0	2	2	1074
17:30	**3**	**644**	**65**	**712**	32	**3**	18	53	13	**376**	1	**390**	**3**	1	2	6	**1161**
Total Volume	4	2474	220	2698	125	3	94	222	82	1386	2	1470	5	2	14	21	4411
% App. Total	0.1	91.7	8.2		56.3	1.4	42.3		5.6	94.3	0.1		23.8	9.5	66.7		
PHF	.333	.960	.846	.947	.781	.250	.671	.740	.788	.922	.500	.942	.417	.500	.389	.477	.950



B. Levels of Service Calculation Worksheets

Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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	2	0	1	0	0	2	1	0	1
Pocket Length [ft]	60.00	100.00	100.00	290.00	100.00	100.00	100.00	100.00	205.00	210.00	100.00	170.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Base Volume Input [veh/h]	17	524	105	368	300	112	78	59	565	130	57	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 [%]	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]	17	524	105	368	300	112	78	59	565	130	57	11
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]	4	131	26	92	75	28	20	15	141	33	14	3
Total Analysis Volume [veh/h]	17	524	105	368	300	112	78	59	565	130	57	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
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	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	76	76	76	76	76	76	76	76	76	76	76
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	2	16	16	11	26	26	19	19	10	10	10
g / C, Green / Cycle	0.02	0.21	0.21	0.14	0.35	0.35	0.24	0.24	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.01	0.17	0.17	0.11	0.08	0.07	0.08	0.20	0.07	0.03	0.01
s, saturation flow rate [veh/h]	1774	1863	1756	3445	3547	1583	1811	2803	1774	1863	1583
c, Capacity [veh/h]	36	396	374	494	1239	553	443	686	230	241	205
d1, Uniform Delay [s]	36.88	28.51	28.55	31.25	17.59	17.33	23.47	27.17	31.10	29.73	29.02
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]	9.65	4.09	4.47	2.26	0.10	0.18	0.39	2.56	2.18	0.50	0.11
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

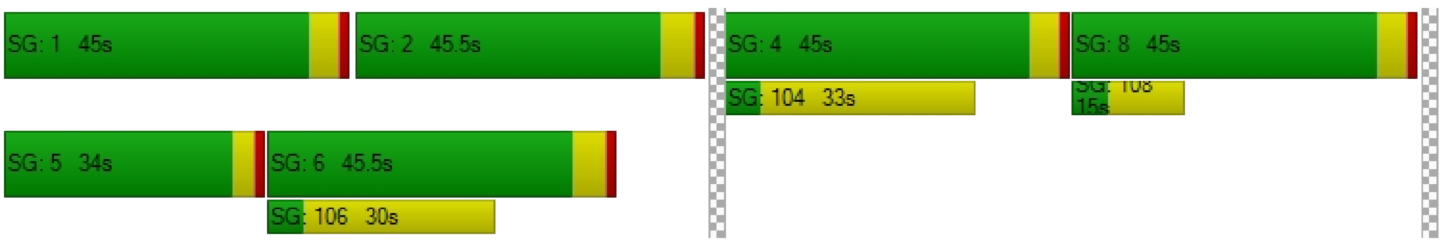
X, volume / capacity	0.48	0.81	0.82	0.75	0.24	0.20	0.31	0.82	0.57	0.24	0.05
d, Delay for Lane Group [s/veh]	46.53	32.60	33.01	33.51	17.69	17.51	23.86	29.74	33.28	30.23	29.13
Lane Group LOS	D	C	C	C	B	B	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.39	5.54	5.30	3.14	1.68	1.25	1.98	4.86	2.31	0.94	0.18
50th-Percentile Queue Length [ft/ln]	9.72	138.51	132.53	78.57	42.07	31.31	49.55	121.52	57.72	23.57	4.44
95th-Percentile Queue Length [veh/ln]	0.70	9.40	9.08	5.66	3.03	2.25	3.57	8.48	4.16	1.70	0.32
95th-Percentile Queue Length [ft/ln]	17.49	235.02	226.93	141.42	75.73	56.36	89.19	211.91	103.89	42.42	7.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.53	32.76	33.01	33.51	17.69	17.51	23.86	23.86	29.74	33.28	30.23	29.13
Movement LOS	D	C	C	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	33.16			25.13			28.59			32.17		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	29.00											
Intersection LOS	C											
Intersection V/C	0.660											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	16.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.440

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	2	0	0	1
Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	1202	78	161	675	60	347
Base Volume Adjustment Factor	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
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]	1202	78	161	675	60	347
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	301	20	40	169	15	87
Total Analysis Volume [veh/h]	1202	78	161	675	60	347
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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]	9.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	74	74	74	74	74	74
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	30	50	14	49	15	34
g / C, Green / Cycle	0.40	0.67	0.19	0.66	0.20	0.46
(v / s)_i Volume / Saturation Flow Rate	0.34	0.05	0.05	0.19	0.03	0.22
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1422	1066	663	2344	351	725
d1, Uniform Delay [s]	20.18	4.18	25.43	5.28	24.75	14.00
k, delay calibration	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
d2, Incremental Delay [s]	1.46	0.03	0.19	0.07	0.23	0.49
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

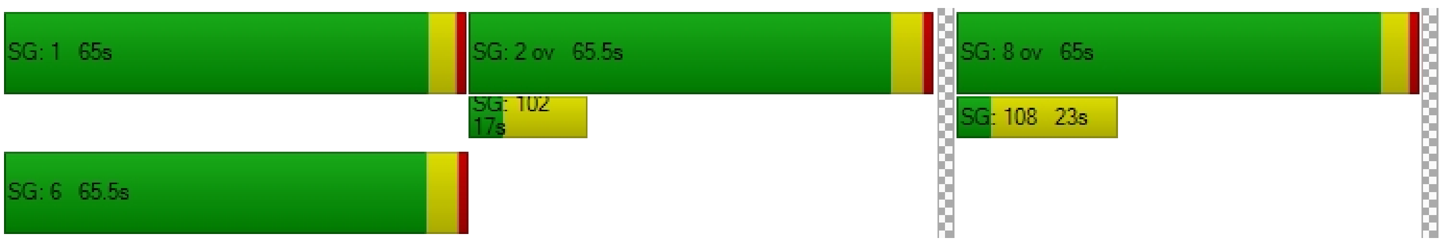
X, volume / capacity	0.85	0.07	0.24	0.29	0.17	0.48
d, Delay for Lane Group [s/veh]	21.65	4.21	25.62	5.35	24.98	14.49
Lane Group LOS	C	A	C	A	C	B
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.28	0.27	1.12	1.45	0.87	3.79
50th-Percentile Queue Length [ft/ln]	207.06	6.74	28.07	36.34	21.76	94.69
95th-Percentile Queue Length [veh/ln]	13.00	0.49	2.02	2.62	1.57	6.82
95th-Percentile Queue Length [ft/ln]	325.06	12.13	50.53	65.41	39.17	170.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.65	4.21	25.62	5.35	24.98	14.49
Movement LOS	C	A	C	A	C	B
d_A, Approach Delay [s/veh]	20.58		9.25		16.03	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	16.10					
Intersection LOS	B					
Intersection V/C	0.440					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	66.8
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.935

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Rockaway Beach Ave.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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	0	0	0
Pocket Length [ft]	155.00	100.00	55.00	400.00	100.00	50.00	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		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Rockaway Beach Ave.		
Base Volume Input [veh/h]	34	1502	3	320	857	40	7	22	766	87	13	27
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]	34	1502	3	320	857	40	7	22	766	87	13	27
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]	9	376	1	80	214	10	2	6	192	22	3	7
Total Analysis Volume [veh/h]	34	1502	3	320	857	40	7	22	766	87	13	27
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
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	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	154	154	154	154	154	154	154	154	154
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	4	60	60	17	73	73	46	46	13
g / C, Green / Cycle	0.02	0.39	0.39	0.11	0.47	0.47	0.29	0.29	0.09
(v / s)_i Volume / Saturation Flow Rate	0.02	0.42	0.00	0.09	0.24	0.03	0.02	0.27	0.07
s, saturation flow rate [veh/h]	1774	3547	1583	3445	3547	1583	1841	2803	1738
c, Capacity [veh/h]	44	1377	615	381	1680	750	543	827	151
d1, Uniform Delay [s]	74.93	47.29	28.99	67.42	28.23	21.97	39.02	52.86	69.57
k, delay calibration	0.11	0.12	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
d2, Incremental Delay [s]	23.82	44.48	0.00	5.03	0.24	0.03	0.04	5.12	11.91
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

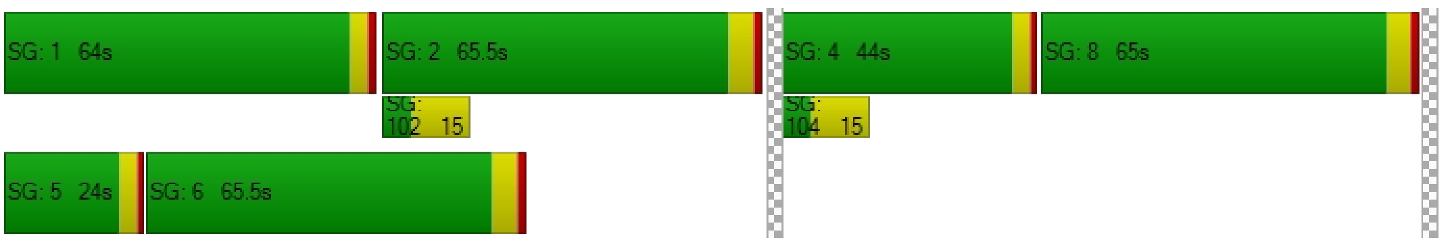
X, volume / capacity	0.77	1.09	0.00	0.84	0.51	0.05	0.05	0.93	0.84
d, Delay for Lane Group [s/veh]	98.75	91.78	29.00	72.45	28.47	21.99	39.06	57.98	81.47
Lane Group LOS	F	F	C	E	C	C	D	E	F
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	1.64	34.78	0.07	6.49	11.18	0.81	0.81	15.01	5.47
50th-Percentile Queue Length [ft/ln]	41.07	869.40	1.77	162.25	279.51	20.35	20.31	375.35	136.82
95th-Percentile Queue Length [veh/ln]	2.96	47.31	0.13	10.67	16.66	1.47	1.46	21.37	9.31
95th-Percentile Queue Length [ft/ln]	73.93	1182.83	3.18	266.70	416.61	36.63	36.56	534.21	232.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	98.75	91.78	29.00	72.45	28.47	21.99	39.06	39.06	57.98	81.47	81.47	81.47
Movement LOS	F	F	C	E	C	C	D	D	E	F	F	F
d_A, Approach Delay [s/veh]	91.81			39.82			57.29			81.47		
Approach LOS	F			D			E			F		
d_I, Intersection Delay [s/veh]	66.79											
Intersection LOS	E											
Intersection V/C	0.935											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	39.2
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.912

Intersection Setup

Name	Reina del Mar Ave.			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	0.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	0.00	12.00	0.00
No. of Lanes in Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	50.00	175.00	100.00	55.00	425.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Reina del Mar Ave.			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	123	0	308	5	2204	177	122	1117	72	4	53	0
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]	123	0	308	5	2204	177	122	1117	72	4	53	0
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]	31	0	77	1	551	44	31	279	18	1	13	0
Total Analysis Volume [veh/h]	123	0	308	5	2204	177	122	1117	72	4	53	0
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
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	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	190	190	190	190	190	190	190	190	190
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	28	28	1	120	120	15	134	134	10
g / C, Green / Cycle	0.15	0.15	0.01	0.63	0.63	0.08	0.70	0.70	0.05
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.00	0.62	0.11	0.07	0.32	0.32	0.03
s, saturation flow rate [veh/h]	1684	1583	1774	3547	1583	1774	1863	1823	1782
c, Capacity [veh/h]	248	233	11	2236	998	142	1312	1285	89
d1, Uniform Delay [s]	79.74	79.74	94.24	34.31	14.62	86.44	12.25	12.27	88.69
k, delay calibration	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
d2, Incremental Delay [s]	11.01	11.65	26.16	6.11	0.08	13.51	0.25	0.26	7.35
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

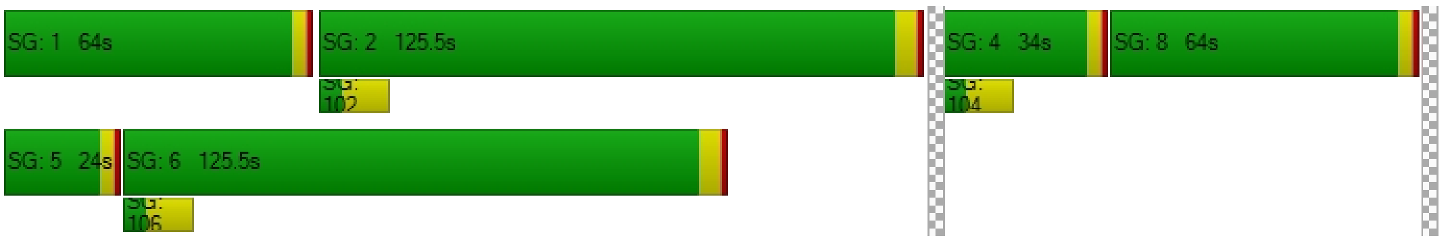
X, volume / capacity	0.90	0.90	0.45	0.99	0.18	0.86	0.46	0.46	0.64
d, Delay for Lane Group [s/veh]	90.75	91.39	120.39	40.42	14.71	99.94	12.50	12.52	96.04
Lane Group LOS	F	F	F	D	B	F	B	B	F
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.60	10.96	0.33	48.25	3.20	6.43	10.73	10.55	2.98
50th-Percentile Queue Length [ft/ln]	290.11	274.07	8.14	1206.26	79.91	160.84	268.35	263.72	74.51
95th-Percentile Queue Length [veh/ln]	17.19	16.39	0.59	59.64	5.75	10.59	16.11	15.88	5.36
95th-Percentile Queue Length [ft/ln]	429.78	409.82	14.66	1491.06	143.84	264.83	402.68	396.89	134.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	90.75	90.75	91.19	120.39	40.42	14.71	99.94	12.51	12.52	96.04	96.04	96.04
Movement LOS	F	F	F	F	D	B	F	B	B	F	F	F
d_A, Approach Delay [s/veh]	91.06			38.68			20.65			96.04		
Approach LOS	F			D			C			F		
d_I, Intersection Delay [s/veh]	39.20											
Intersection LOS	D											
Intersection V/C	0.912											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	28.3
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.667

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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	2	0	1	0	0	2	1	0	1
Pocket Length [ft]	60.00	100.00	100.00	290.00	100.00	100.00	100.00	100.00	205.00	210.00	100.00	170.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Base Volume Input [veh/h]	31	430	116	710	659	164	156	78	367	132	117	33
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]	31	430	116	710	659	164	156	78	367	132	117	33
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]	8	108	29	178	165	41	39	20	92	33	29	8
Total Analysis Volume [veh/h]	31	430	116	710	659	164	156	78	367	132	117	33
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
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	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	78	78	78	78	78	78	78	78	78	78	78
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	2	15	15	19	33	33	13	13	10	10	10
g / C, Green / Cycle	0.03	0.19	0.19	0.25	0.42	0.42	0.17	0.17	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.15	0.21	0.19	0.10	0.13	0.13	0.07	0.06	0.02
s, saturation flow rate [veh/h]	1774	1863	1729	3445	3547	1583	1803	2803	1774	1863	1583
c, Capacity [veh/h]	56	352	327	858	1487	664	309	480	227	238	203
d1, Uniform Delay [s]	37.22	30.22	30.28	27.70	16.15	14.67	30.78	30.82	32.03	31.64	30.28
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]	8.30	4.22	4.80	2.12	0.21	0.19	3.82	2.58	2.35	1.56	0.37
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

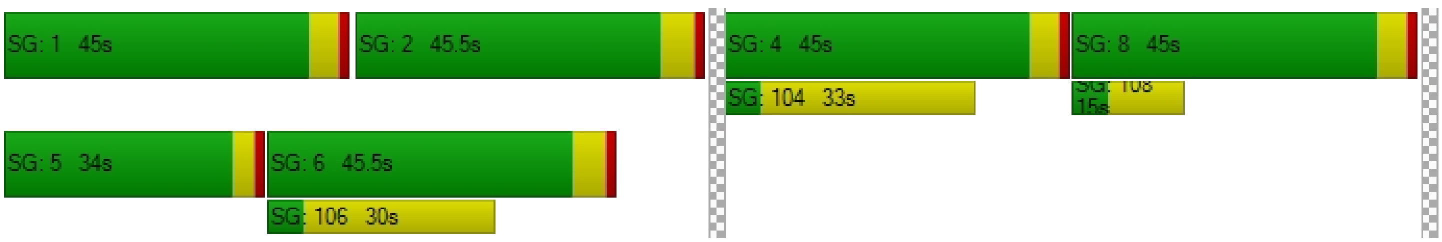
X, volume / capacity	0.55	0.80	0.81	0.83	0.44	0.25	0.76	0.76	0.58	0.49	0.16
d, Delay for Lane Group [s/veh]	45.52	34.44	35.08	29.81	16.36	14.86	34.60	33.40	34.38	33.20	30.65
Lane Group LOS	D	C	D	C	B	B	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.68	5.05	4.80	5.92	3.69	1.68	4.37	3.35	2.43	2.10	0.56
50th-Percentile Queue Length [ft/ln]	16.94	126.26	120.02	148.08	92.17	42.07	109.33	83.71	60.65	52.44	13.98
95th-Percentile Queue Length [veh/ln]	1.22	8.74	8.39	9.91	6.64	3.03	7.80	6.03	4.37	3.78	1.01
95th-Percentile Queue Length [ft/ln]	30.49	218.40	209.85	247.86	165.90	75.72	195.07	150.69	109.18	94.39	25.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.52	34.66	35.08	29.81	16.36	14.86	34.60	34.60	33.40	34.38	33.20	30.65
Movement LOS	D	C	D	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	35.33			22.43			33.86			33.46		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	28.25											
Intersection LOS	C											
Intersection V/C	0.667											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	11.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.639

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	2	0	0	1
Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	877	56	379	1504	59	214
Base Volume Adjustment Factor	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
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]	877	56	379	1504	59	214
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	219	14	95	376	15	54
Total Analysis Volume [veh/h]	877	56	379	1504	59	214
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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]	9.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	52	52	52	52	52	52
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	16	32	10	31	10	25
g / C, Green / Cycle	0.32	0.61	0.19	0.61	0.19	0.48
(v / s)_i Volume / Saturation Flow Rate	0.25	0.04	0.11	0.42	0.03	0.14
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1123	973	664	2148	340	761
d1, Uniform Delay [s]	16.09	4.00	18.98	6.99	17.52	8.07
k, delay calibration	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
d2, Incremental Delay [s]	1.22	0.02	0.78	0.42	0.24	0.20
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

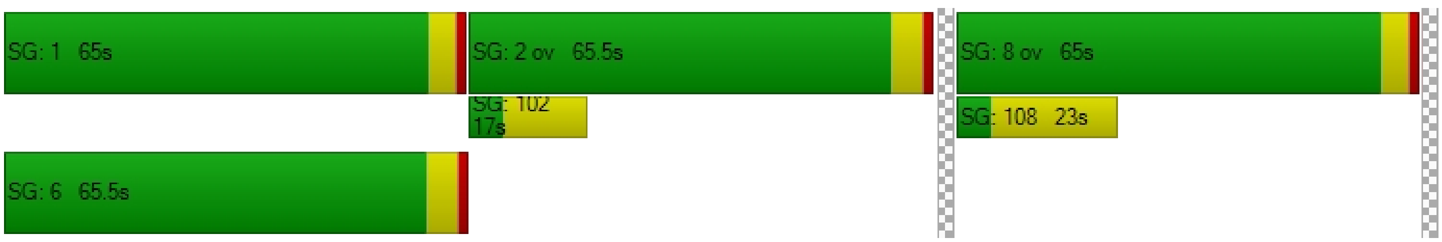
X, volume / capacity	0.78	0.06	0.57	0.70	0.17	0.28
d, Delay for Lane Group [s/veh]	17.31	4.02	19.75	7.42	17.76	8.27
Lane Group LOS	B	A	B	A	B	A
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	3.84	0.12	1.78	2.88	0.56	1.17
50th-Percentile Queue Length [ft/ln]	96.05	3.04	44.54	71.96	13.88	29.30
95th-Percentile Queue Length [veh/ln]	6.92	0.22	3.21	5.18	1.00	2.11
95th-Percentile Queue Length [ft/ln]	172.89	5.48	80.17	129.53	24.99	52.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.31	4.02	19.75	7.42	17.76	8.27
Movement LOS	B	A	B	A	B	A
d_A, Approach Delay [s/veh]	16.51		9.90		10.32	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	11.93					
Intersection LOS	B					
Intersection V/C	0.639					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

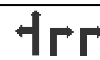
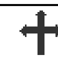


Intersection Level Of Service Report

Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	48.1
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.889

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Rockaway Beach Ave.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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	0	0	0
Pocket Length [ft]	155.00	100.00	55.00	400.00	100.00	50.00	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		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Rockaway Beach Ave.		
Base Volume Input [veh/h]	83	1012	8	724	1736	88	19	27	330	131	42	91
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]	83	1012	8	724	1736	88	19	27	330	131	42	91
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]	21	253	2	181	434	22	5	7	83	33	11	23
Total Analysis Volume [veh/h]	83	1012	8	724	1736	88	19	27	330	131	42	91
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
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	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	132	132	132	132	132	132	132	132	132
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	8	41	41	31	65	65	18	18	22
g / C, Green / Cycle	0.06	0.31	0.31	0.24	0.49	0.49	0.14	0.14	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.29	0.01	0.21	0.49	0.06	0.03	0.12	0.15
s, saturation flow rate [veh/h]	1774	3547	1583	3445	3547	1583	1825	2803	1716
c, Capacity [veh/h]	105	1114	497	815	1743	778	252	387	293
d1, Uniform Delay [s]	61.19	43.39	31.17	48.65	33.41	18.06	50.24	55.51	53.55
k, delay calibration	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
d2, Incremental Delay [s]	12.22	3.21	0.01	3.55	9.47	0.06	0.34	5.38	9.82
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

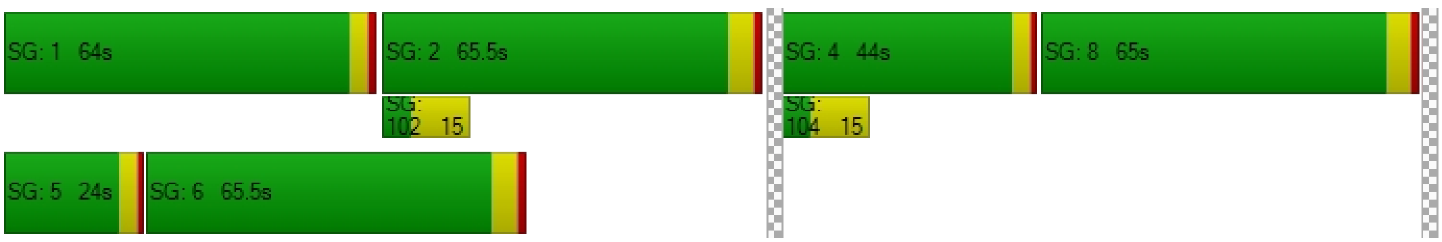
X, volume / capacity	0.79	0.91	0.02	0.89	1.00	0.11	0.18	0.85	0.90
d, Delay for Lane Group [s/veh]	73.42	46.60	31.18	52.20	42.87	18.12	50.58	60.88	63.38
Lane Group LOS	E	D	C	D	D	B	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	3.10	16.22	0.18	11.88	29.02	1.48	1.38	5.65	9.36
50th-Percentile Queue Length [ft/ln]	77.55	405.40	4.51	296.96	725.56	36.97	34.39	141.14	234.05
95th-Percentile Queue Length [veh/ln]	5.58	22.82	0.32	17.53	37.86	2.66	2.48	9.54	14.38
95th-Percentile Queue Length [ft/ln]	139.59	570.51	8.11	438.26	946.44	66.54	61.90	238.55	359.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.42	46.60	31.18	52.20	42.87	18.12	50.58	50.58	60.88	63.38	63.38	63.38
Movement LOS	E	D	C	D	D	B	D	D	E	E	E	E
d_A, Approach Delay [s/veh]	48.50			44.67			59.62			63.38		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	48.12											
Intersection LOS	D											
Intersection V/C	0.889											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	23.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.835

Intersection Setup

Name	Reina del Mar Ave.			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	0.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	0.00	12.00	0.00
No. of Lanes in Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	50.00	175.00	100.00	55.00	425.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Reina del Mar Ave.			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	94	3	125	2	1386	82	220	2474	4	14	2	5
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]	94	3	125	2	1386	82	220	2474	4	14	2	5
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]	24	1	31	1	347	21	55	619	1	4	1	1
Total Analysis Volume [veh/h]	94	3	125	2	1386	82	220	2474	4	14	2	5
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
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	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	114	114	114	114	114	114	114	114	114
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	10	10	0	65	65	16	81	81	5
g / C, Green / Cycle	0.09	0.09	0.00	0.57	0.57	0.14	0.71	0.71	0.04
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.00	0.39	0.05	0.12	0.67	0.67	0.01
s, saturation flow rate [veh/h]	1744	1583	1774	3547	1583	1774	1863	1862	1663
c, Capacity [veh/h]	155	141	5	2029	906	254	1328	1327	71
d1, Uniform Delay [s]	50.80	50.89	56.90	17.18	11.04	47.86	14.08	14.10	53.04
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.20	0.20	0.11
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]	6.85	8.24	48.93	0.41	0.04	8.56	6.23	6.28	2.28
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

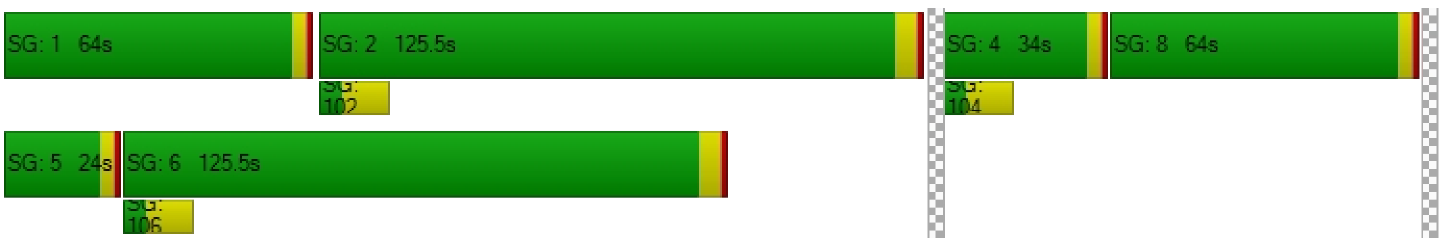
X, volume / capacity	0.74	0.76	0.42	0.68	0.09	0.86	0.93	0.93	0.30
d, Delay for Lane Group [s/veh]	57.65	59.14	105.83	17.59	11.08	56.42	20.32	20.38	55.32
Lane Group LOS	E	E	F	B	B	E	C	C	E
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	3.52	3.34	0.12	11.50	0.88	6.53	22.83	22.87	0.63
50th-Percentile Queue Length [ft/ln]	88.05	83.41	3.03	287.53	21.91	163.32	570.70	571.70	15.86
95th-Percentile Queue Length [veh/ln]	6.34	6.01	0.22	17.06	1.58	10.72	30.66	30.71	1.14
95th-Percentile Queue Length [ft/ln]	158.49	150.15	5.46	426.58	39.43	268.11	766.59	767.76	28.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.65	57.65	58.96	105.83	17.59	11.08	56.42	20.35	20.38	55.32	55.32	55.32
Movement LOS	E	E	E	F	B	B	E	C	C	E	E	E
d_A, Approach Delay [s/veh]	58.36			17.35			23.29			55.32		
Approach LOS	E			B			C			E		
d_I, Intersection Delay [s/veh]	23.23											
Intersection LOS	C											
Intersection V/C	0.835											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.662

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	2	0	1	0	0	2	1	0	1
Entry Pocket Length [ft]	60.0	100.	100.	290.	100.	100.	100.	100.	205.	210.	100.	170.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Base Volume Input [veh/h]	17	524	105	368	300	112	78	59	565	130	57	11
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	2	0	0	0	0	3	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]	17	524	105	370	300	112	78	59	568	130	57	11
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	4	131	26	93	75	28	20	15	142	33	14	3
Total Analysis Volume [veh/h]	17	524	105	370	300	112	78	59	568	130	57	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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	76	76	76	76	76	76	76	76	76	76	76
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	2	16	16	11	27	27	19	19	10	10	10
g / C, Green / Cycle	0.02	0.21	0.21	0.14	0.35	0.35	0.25	0.25	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.01	0.17	0.17	0.11	0.08	0.07	0.08	0.20	0.07	0.03	0.01
s, saturation flow rate [veh/h]	177	186	175	344	354	158	1811	2803	177	186	158
c, Capacity [veh/h]	36	396	374	496	124	554	445	689	229	241	204
d1, Uniform Delay [s]	37.0	28.6	28.6	31.3	17.6	17.3	23.49	27.23	31.2	29.8	29.1
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]	9.67	4.11	4.48	2.27	0.10	0.18	0.39	2.57	2.20	0.50	0.11
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

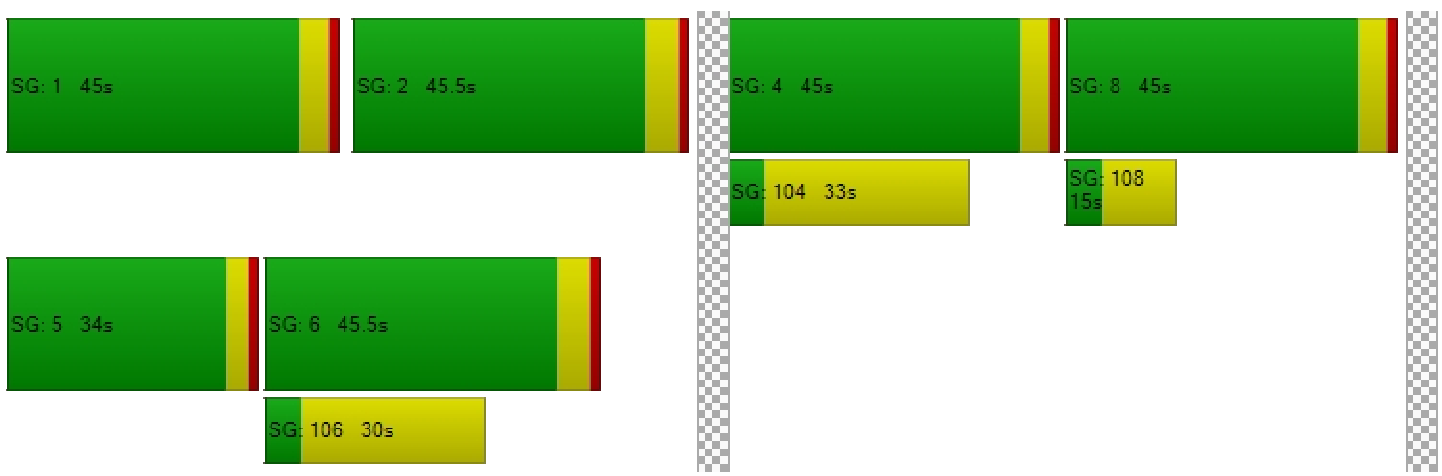
X, volume / capacity	0.48	0.81	0.82	0.75	0.24	0.20	0.31	0.82	0.57	0.24	0.05
d, Delay for Lane Group [s/veh]	46.6	32.7	33.1	33.6	17.7	17.5	23.88	29.80	33.4	30.3	29.2
Lane Group LOS	D	C	C	C	B	B	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.39	5.57	5.33	3.17	1.69	1.26	1.99	4.91	2.32	0.95	0.18
50th-Percentile Queue Length [ft/ln]	9.75	139.	133.	79.3	42.2	31.4	49.67	122.64	58.0	23.6	4.46
95th-Percentile Queue Length [veh/ln]	0.70	9.43	9.11	5.71	3.04	2.26	3.58	8.54	4.18	1.70	0.32
95th-Percentile Queue Length [ft/ln]	17.5	235.	227.	142.	76.0	56.5	89.41	213.45	104.	42.6	8.02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.6	32.8	33.1	33.6	17.7	17.5	23.8	23.8	29.8	33.4	30.3	29.2
Movement LOS	D	C	C	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	33.29			25.22			28.65			32.32		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	29.10											
Intersection LOS	C											
Intersection V/C	0.662											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	16.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.441

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	2	0	0	1
Entry Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	1202	78	161	675	60	347
Base Volume Adjustment Factor	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
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]	3	0	0	2	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]	1205	78	161	677	60	347
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	301	20	40	169	15	87
Total Analysis Volume [veh/h]	1205	78	161	677	60	347
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissiv	Overlap	Protected	Permissiv	Permissiv	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	30	50	14	49	15	34
g / C, Green / Cycle	0.40	0.67	0.19	0.66	0.20	0.46
(v / s)_i Volume / Saturation Flow Rate	0.34	0.05	0.05	0.19	0.03	0.22
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1425	1066	663	2346	351	724
d1, Uniform Delay [s]	20.23	4.19	25.52	5.29	24.84	14.06
k, delay calibration	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
d2, Incremental Delay [s]	1.46	0.03	0.19	0.07	0.23	0.49
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

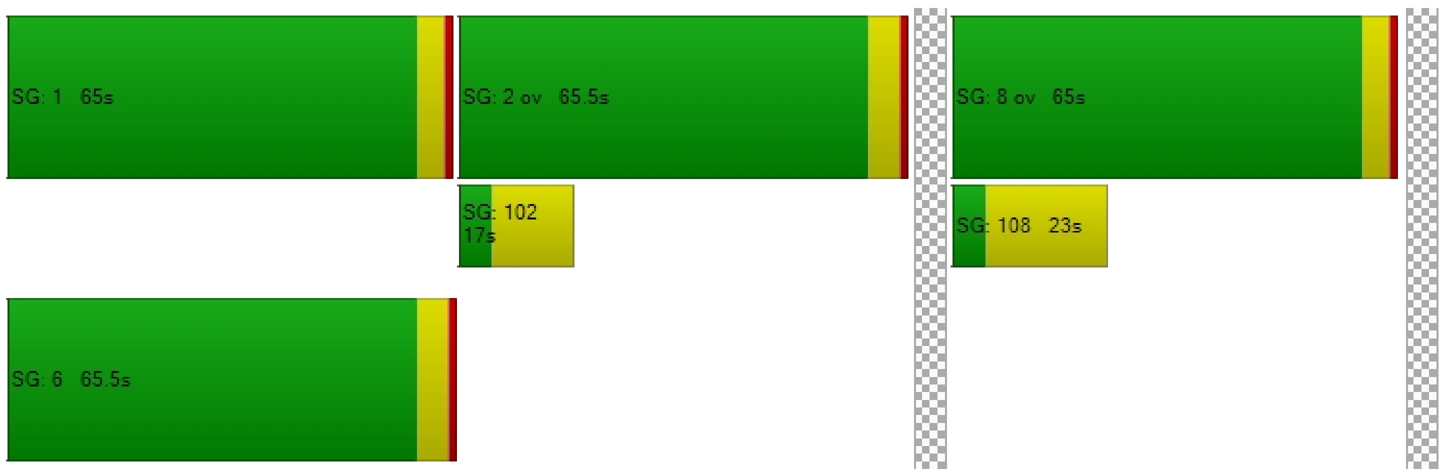
X, volume / capacity	0.85	0.07	0.24	0.29	0.17	0.48
d, Delay for Lane Group [s/veh]	21.69	4.21	25.71	5.36	25.07	14.55
Lane Group LOS	C	A	C	A	C	B
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.34	0.27	1.13	1.46	0.87	3.81
50th-Percentile Queue Length [ft/ln]	208.46	6.77	28.19	36.61	21.85	95.20
95th-Percentile Queue Length [veh/ln]	13.07	0.49	2.03	2.64	1.57	6.85
95th-Percentile Queue Length [ft/ln]	326.85	12.18	50.75	65.89	39.34	171.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.69	4.21	25.71	5.36	25.07	14.55
Movement LOS	C	A	C	A	C	B
d_A, Approach Delay [s/veh]	20.63		9.27		16.10	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	16.13					
Intersection LOS	B					
Intersection V/C	0.441					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	68.4
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.939

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	155.	100.	55.0	400.	100.	50.0	100.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Base Volume Input [veh/h]	34	150	3	320	857	40	7	22	766	87	13	27
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	2	1	0	1	0	6	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]	34	150	3	322	858	40	8	22	772	87	13	27
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	9	376	1	81	215	10	2	6	193	22	3	7
Total Analysis Volume [veh/h]	34	150	3	322	858	40	8	22	772	87	13	27
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	155	155	155	155	155	155	155	155	155
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	4	60	60	17	73	73	46	46	13
g / C, Green / Cycle	0.02	0.39	0.39	0.11	0.47	0.47	0.30	0.30	0.09
(v / s)_i Volume / Saturation Flow Rate	0.02	0.42	0.00	0.09	0.24	0.03	0.02	0.28	0.07
s, saturation flow rate [veh/h]	177	354	158	344	354	158	1838	2803	1738
c, Capacity [veh/h]	44	137	612	382	167	748	546	833	150
d1, Uniform Delay [s]	75.3	47.6	29.3	67.7	28.5	22.1	39.01	52.97	69.92
k, delay calibration	0.11	0.12	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
d2, Incremental Delay [s]	24.0	47.7	0.00	5.06	0.24	0.03	0.04	5.14	11.95
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

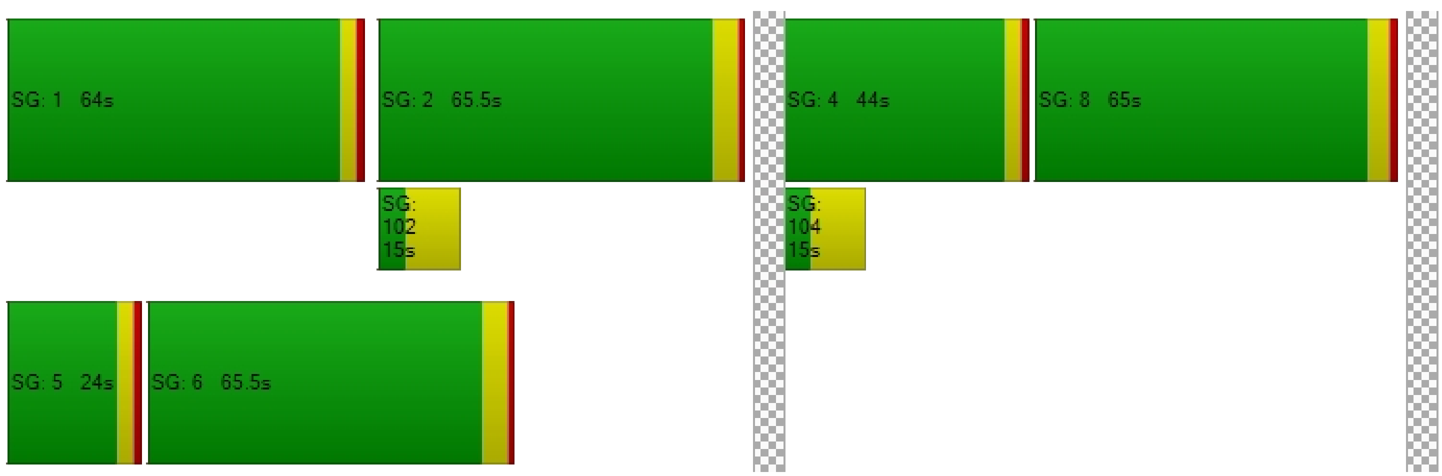
X, volume / capacity	0.77	1.10	0.00	0.84	0.51	0.05	0.05	0.93	0.84
d, Delay for Lane Group [s/veh]	99.3	95.4	29.3	72.7	28.7	22.2	39.05	58.11	81.87
Lane Group LOS	F	F	C	E	C	C	D	E	F
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	1.65	35.3	0.07	6.56	11.2	0.82	0.84	15.21	5.50
50th-Percentile Queue Length [ft/ln]	41.3	884.	1.78	164.	282.	20.5	21.07	380.23	137.53
95th-Percentile Queue Length [veh/ln]	2.97	48.2	0.13	10.7	16.8	1.48	1.52	21.60	9.35
95th-Percentile Queue Length [ft/ln]	74.3	120	3.21	269.	420.	36.9	37.93	540.12	233.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	99.3	95.4	29.3	72.7	28.7	22.2	39.0	39.0	58.1	81.8	81.8	81.8
Movement LOS	F	F	C	E	C	C	D	D	E	F	F	F
d_A, Approach Delay [s/veh]		95.39			40.17			57.40			81.87	
Approach LOS		F			D			E			F	
d_I, Intersection Delay [s/veh]						68.42						
Intersection LOS						E						
Intersection V/C						0.939						

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.914

Intersection Setup

Name	Re de			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestboun			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	0.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.00	12.0	0.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.	100.	50.0	175.	100.	55.0	425.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Re de			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	123	0	308	5	220	177	122	111	72	4	53	0
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	9	0	0	3	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]	123	0	308	5	221	177	122	112	72	4	53	0
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	31	0	77	1	553	44	31	280	18	1	13	0
Total Analysis Volume [veh/h]	123	0	308	5	221	177	122	112	72	4	53	0
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Prot	Per	Per	Prot	Per	Per	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lea	-	-	Lea	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	190	190	190	190	190	190	190	190	190
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	28	28	1	120	120	15	134	134	10
g / C, Green / Cycle	0.15	0.15	0.01	0.63	0.63	0.08	0.70	0.70	0.05
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.00	0.62	0.11	0.07	0.32	0.32	0.03
s, saturation flow rate [veh/h]	1684	1583	177	354	158	177	186	182	1782
c, Capacity [veh/h]	248	233	11	223	998	142	131	128	89
d1, Uniform Delay [s]	79.74	79.74	94.2	34.5	14.6	86.4	12.2	12.2	88.69
k, delay calibration	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
d2, Incremental Delay [s]	11.01	11.65	26.1	6.76	0.08	13.5	0.25	0.26	7.35
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

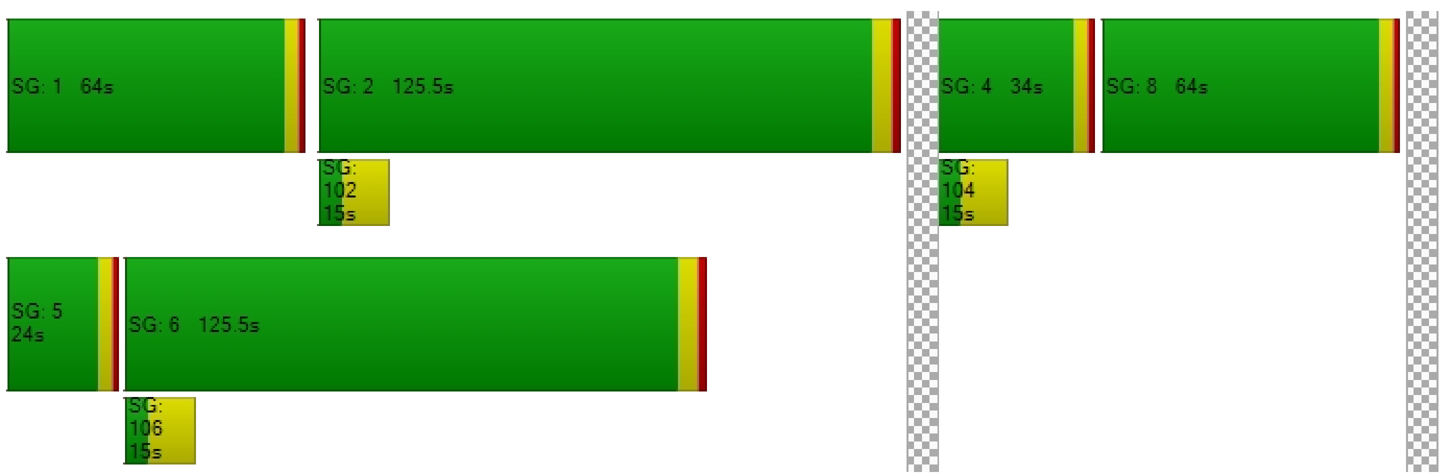
X, volume / capacity	0.90	0.90	0.45	0.99	0.18	0.86	0.46	0.46	0.64
d, Delay for Lane Group [s/veh]	90.75	91.39	120.	41.2	14.7	99.9	12.5	12.5	96.04
Lane Group LOS	F	F	F	D	B	F	B	B	F
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.60	10.96	0.33	48.9	3.20	6.43	10.7	10.5	2.98
50th-Percentile Queue Length [ft/ln]	290.11	274.07	8.14	122	79.9	160.	269.	264.	74.51
95th-Percentile Queue Length [veh/ln]	17.19	16.39	0.59	60.4	5.75	10.5	16.1	15.9	5.36
95th-Percentile Queue Length [ft/ln]	429.78	409.82	14.6	151	143.	264.	403.	398.	134.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	90.7	90.7	91.1	120.	41.2	14.7	99.9	12.5	12.5	96.0	96.0	96.0
Movement LOS	F	F	F	F	D	B	F	B	B	F	F	F
d_A, Approach Delay [s/veh]	91.06			39.49			20.64			96.04		
Approach LOS	F			D			C			F		
d_I, Intersection Delay [s/veh]	39.66											
Intersection LOS	D											
Intersection V/C	0.914											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	2	0	1	0	0	2	1	0	1
Entry Pocket Length [ft]	60.0	100.	100.	290.	100.	100.	100.	100.	205.	210.	100.	170.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Base Volume Input [veh/h]	31	430	116	710	659	164	156	78	367	132	117	33
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	3	0	0	0	0	4	1	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]	31	431	116	713	659	164	156	78	371	133	117	33
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	8	108	29	178	165	41	39	20	93	33	29	8
Total Analysis Volume [veh/h]	31	431	116	713	659	164	156	78	371	133	117	33
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	78	78	78	78	78	78	78	78	78	78	78
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	2	15	15	20	33	33	13	13	10	10	10
g / C, Green / Cycle	0.03	0.19	0.19	0.25	0.42	0.42	0.17	0.17	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.15	0.21	0.19	0.10	0.13	0.13	0.07	0.06	0.02
s, saturation flow rate [veh/h]	177	186	172	344	354	158	1803	2803	177	186	158
c, Capacity [veh/h]	56	352	327	860	149	665	311	483	226	237	202
d1, Uniform Delay [s]	37.4	30.3	30.4	27.8	16.2	14.7	30.85	30.94	32.2	31.8	30.4
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]	8.34	4.25	4.82	2.13	0.21	0.19	3.68	2.59	2.44	1.59	0.38
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

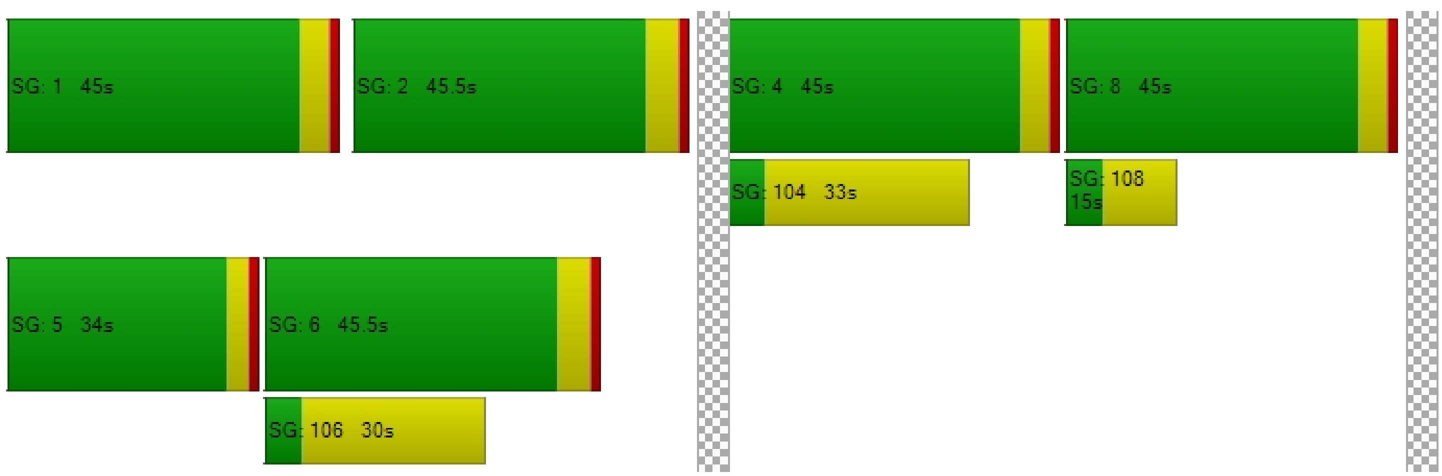
X, volume / capacity	0.56	0.80	0.81	0.83	0.44	0.25	0.75	0.77	0.59	0.49	0.16
d, Delay for Lane Group [s/veh]	45.7	34.6	35.2	29.9	16.4	14.9	34.53	33.53	34.7	33.4	30.8
Lane Group LOS	D	C	D	C	B	B	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.68	5.09	4.84	5.99	3.71	1.69	4.38	3.41	2.47	2.11	0.56
50th-Percentile Queue Length [ft/ln]	17.0	127.	121.	149.	92.6	42.3	109.56	85.14	61.6	52.8	14.0
95th-Percentile Queue Length [veh/ln]	1.23	8.80	8.45	10.0	6.67	3.05	7.82	6.13	4.44	3.80	1.01
95th-Percentile Queue Length [ft/ln]	30.6	219.	211.	250.	166.	76.1	195.40	153.25	110.	95.1	25.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.7	34.8	35.2	29.9	16.4	14.9	34.5	34.5	33.5	34.7	33.4	30.8
Movement LOS	D	C	D	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	35.52			22.53			33.92			33.74		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	28.39											
Intersection LOS	C											
Intersection V/C	0.670											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	11.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.640

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	2	0	0	1
Entry Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	877	56	379	1504	59	214
Base Volume Adjustment Factor	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
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]	6	0	0	3	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]	883	56	379	1507	59	214
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	221	14	95	377	15	54
Total Analysis Volume [veh/h]	883	56	379	1507	59	214
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissiv	Overlap	Protected	Permissiv	Permissiv	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	52	52	52	52	52	52
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	16	32	10	31	10	25
g / C, Green / Cycle	0.32	0.61	0.19	0.61	0.19	0.48
(v / s)_i Volume / Saturation Flow Rate	0.25	0.04	0.11	0.42	0.03	0.14
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1129	974	662	2152	339	759
d1, Uniform Delay [s]	16.08	3.99	19.05	6.99	17.59	8.14
k, delay calibration	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
d2, Incremental Delay [s]	1.22	0.02	0.78	0.42	0.24	0.20
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

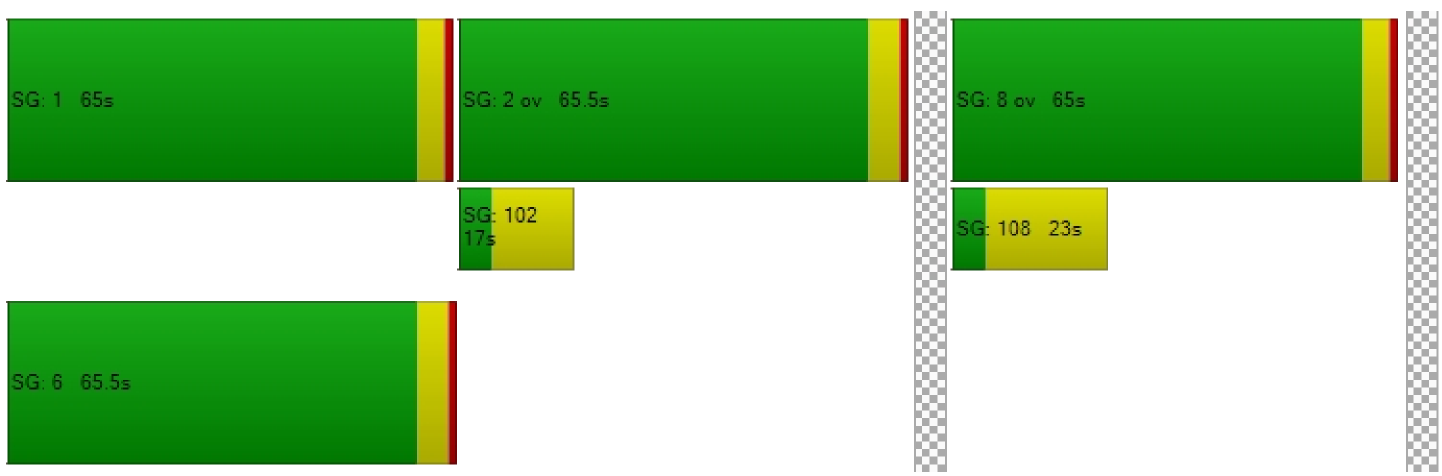
X, volume / capacity	0.78	0.06	0.57	0.70	0.17	0.28
d, Delay for Lane Group [s/veh]	17.30	4.01	19.83	7.41	17.83	8.34
Lane Group LOS	B	A	B	A	B	A
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	3.88	0.12	1.79	2.89	0.56	1.18
50th-Percentile Queue Length [ft/ln]	96.91	3.04	44.75	72.21	13.94	29.54
95th-Percentile Queue Length [veh/ln]	6.98	0.22	3.22	5.20	1.00	2.13
95th-Percentile Queue Length [ft/ln]	174.45	5.48	80.56	129.98	25.09	53.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.30	4.01	19.83	7.41	17.83	8.34
Movement LOS	B	A	B	A	B	A
d_A, Approach Delay [s/veh]	16.51		9.90		10.39	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	11.95					
Intersection LOS	B					
Intersection V/C	0.640					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	48.7
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.890

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	155.	100.	55.0	400.	100.	50.0	100.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Base Volume Input [veh/h]	83	101	8	724	173	88	19	27	330	131	42	91
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	4	6	2	0	1	0	4	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]	83	101	12	730	173	88	20	27	334	131	42	91
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	21	254	3	183	435	22	5	7	84	33	11	23
Total Analysis Volume [veh/h]	83	101	12	730	173	88	20	27	334	131	42	91
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	134	134	134	134	134	134	134	134	134
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	8	42	42	32	66	66	19	19	23
g / C, Green / Cycle	0.06	0.31	0.31	0.24	0.49	0.49	0.14	0.14	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.29	0.01	0.21	0.49	0.06	0.03	0.12	0.15
s, saturation flow rate [veh/h]	177	354	158	344	354	158	1824	2803	1716
c, Capacity [veh/h]	105	111	498	820	174	780	254	390	293
d1, Uniform Delay [s]	62.2	44.1	31.7	49.4	33.8	18.2	50.98	56.39	54.50
k, delay calibration	0.11	0.11	0.11	0.11	0.12	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
d2, Incremental Delay [s]	12.3	3.26	0.02	3.60	9.34	0.06	0.35	5.46	9.96
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

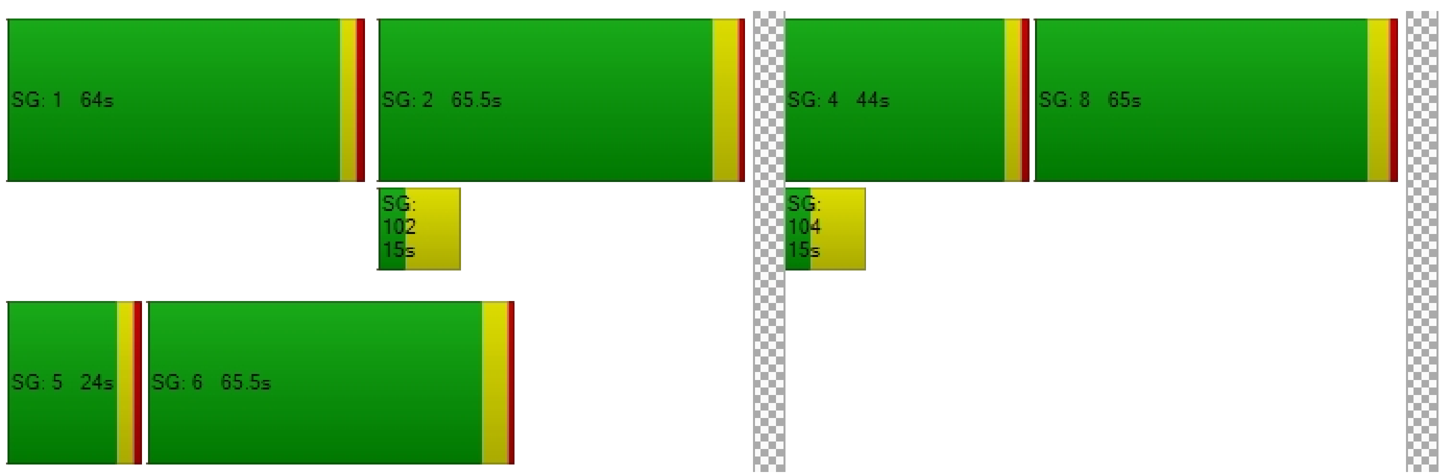
X, volume / capacity	0.79	0.91	0.02	0.89	0.99	0.11	0.19	0.86	0.90
d, Delay for Lane Group [s/veh]	74.5	47.4	31.7	53.0	43.1	18.3	51.33	61.84	64.46
Lane Group LOS	E	D	C	D	D	B	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	3.16	16.5	0.28	12.2	29.5	1.50	1.43	5.82	9.54
50th-Percentile Queue Length [ft/ln]	78.8	414.	6.91	305.	737.	37.5	35.75	145.48	238.40
95th-Percentile Queue Length [veh/ln]	5.68	23.2	0.50	17.9	38.4	2.70	2.57	9.78	14.60
95th-Percentile Queue Length [ft/ln]	142.	581.	12.4	448.	960.	67.6	64.35	244.38	365.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	74.5	47.4	31.7	53.0	43.1	18.3	51.3	51.3	61.8	64.4	64.4	64.4
Movement LOS	E	D	C	D	D	B	D	D	E	E	E	E
d_A, Approach Delay [s/veh]	49.27			45.10			60.55			64.46		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	48.73											
Intersection LOS	D											
Intersection V/C	0.890											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	23.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.836

Intersection Setup

Name	Re de			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestboun			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	0.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.00	12.0	0.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.	100.	50.0	175.	100.	55.0	425.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Re de			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	94	3	125	2	138	82	220	247	4	14	2	5
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	6	0	0	8	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]	94	3	125	2	139	82	220	248	4	14	2	5
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	24	1	31	1	348	21	55	621	1	4	1	1
Total Analysis Volume [veh/h]	94	3	125	2	139	82	220	248	4	14	2	5
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Prot	Per	Per	Prot	Per	Per	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lea	-	-	Lea	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	10	10	0	66	66	16	82	82	5
g / C, Green / Cycle	0.09	0.09	0.00	0.57	0.57	0.14	0.71	0.71	0.04
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.00	0.39	0.05	0.12	0.67	0.67	0.01
s, saturation flow rate [veh/h]	1744	1583	177	354	158	177	186	186	1663
c, Capacity [veh/h]	154	140	5	203	909	254	133	133	71
d1, Uniform Delay [s]	51.29	51.39	57.4	17.2	11.0	48.3	14.1	14.1	53.55
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.20	0.20	0.11
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]	6.91	8.33	48.9	0.41	0.04	8.63	6.44	6.49	2.30
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

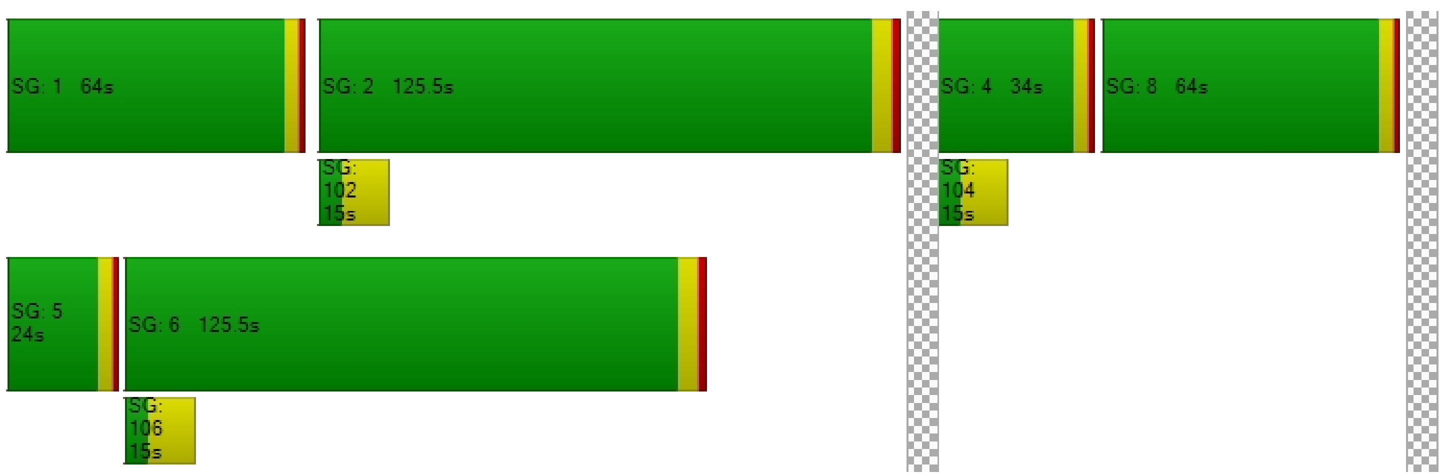
X, volume / capacity	0.74	0.76	0.42	0.68	0.09	0.87	0.93	0.93	0.30
d, Delay for Lane Group [s/veh]	58.21	59.72	106.	17.6	11.0	56.9	20.5	20.6	55.84
Lane Group LOS	E	E	F	B	B	E	C	C	E
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	3.56	3.37	0.12	11.6	0.88	6.60	23.2	23.2	0.64
50th-Percentile Queue Length [ft/ln]	88.96	84.27	3.05	291.	22.0	165.	580.	581.	16.01
95th-Percentile Queue Length [veh/ln]	6.40	6.07	0.22	17.2	1.59	10.8	31.1	31.1	1.15
95th-Percentile Queue Length [ft/ln]	160.12	151.69	5.49	431.	39.6	270.	778.	779.	28.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.2	58.2	59.5	106.	17.6	11.0	56.9	20.6	20.6	55.8	55.8	55.8
Movement LOS	E	E	E	F	B	B	E	C	C	E	E	E
d_A, Approach Delay [s/veh]	58.94			17.40			23.56			55.84		
Approach LOS	E			B			C			E		
d_I, Intersection Delay [s/veh]	23.43											
Intersection LOS	C											
Intersection V/C	0.836											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	2	0	1	0	0	2	1	0	1
Entry Pocket Length [ft]	60.0	100.	100.	290.	100.	100.	100.	100.	205.	210.	100.	170.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Base Volume Input [veh/h]	17	524	105	368	300	112	78	59	565	130	57	11
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	3	0	0	0	0	3	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]	17	525	105	371	300	112	78	59	568	130	57	11
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	4	131	26	93	75	28	20	15	142	33	14	3
Total Analysis Volume [veh/h]	17	525	105	371	300	112	78	59	568	130	57	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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	76	76	76	76	76	76	76	76	76	76	76
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	2	16	16	11	27	27	19	19	10	10	10
g / C, Green / Cycle	0.02	0.21	0.21	0.14	0.35	0.35	0.25	0.25	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.01	0.17	0.17	0.11	0.08	0.07	0.08	0.20	0.07	0.03	0.01
s, saturation flow rate [veh/h]	177	186	175	344	354	158	1811	2803	177	186	158
c, Capacity [veh/h]	35	397	374	497	124	554	445	689	229	240	204
d1, Uniform Delay [s]	37.0	28.6	28.6	31.3	17.6	17.3	23.52	27.27	31.2	29.9	29.2
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]	9.67	4.11	4.49	2.27	0.10	0.18	0.39	2.57	2.21	0.50	0.11
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

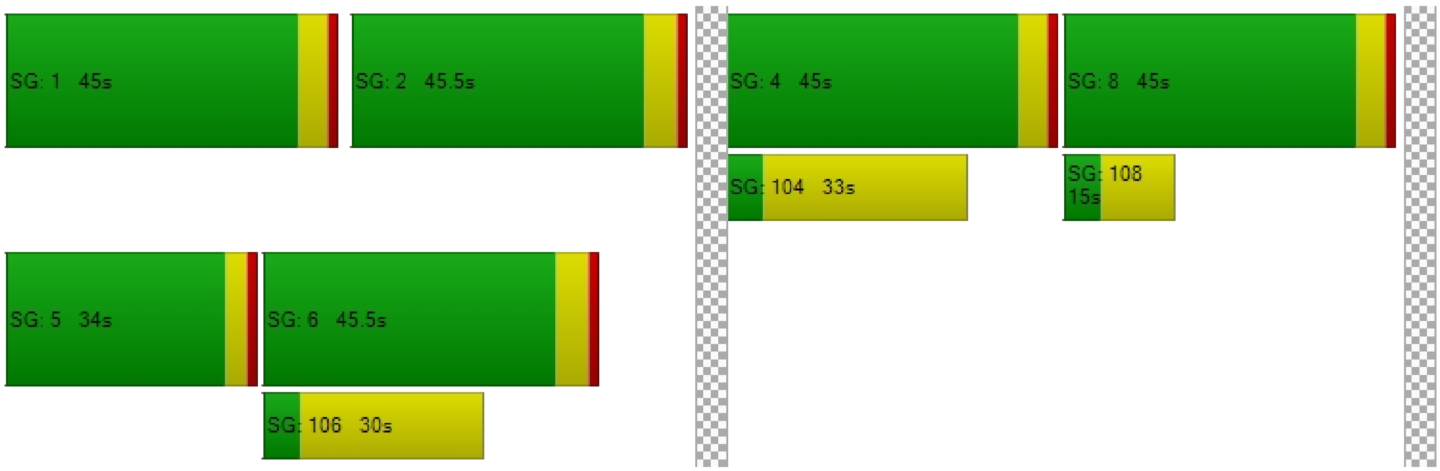
X, volume / capacity	0.48	0.81	0.82	0.75	0.24	0.20	0.31	0.82	0.57	0.24	0.05
d, Delay for Lane Group [s/veh]	46.7	32.7	33.1	33.6	17.7	17.5	23.91	29.84	33.5	30.4	29.3
Lane Group LOS	D	C	C	C	B	B	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.39	5.58	5.34	3.19	1.69	1.26	1.99	4.91	2.32	0.95	0.18
50th-Percentile Queue Length [ft/ln]	9.76	139.	133.	79.6	42.2	31.4	49.75	122.83	58.1	23.7	4.46
95th-Percentile Queue Length [veh/ln]	0.70	9.46	9.13	5.73	3.04	2.26	3.58	8.55	4.18	1.71	0.32
95th-Percentile Queue Length [ft/ln]	17.5	236.	228.	143.	76.0	56.6	89.54	213.71	104.	42.6	8.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.7	32.9	33.1	33.6	17.7	17.5	23.9	23.9	29.8	33.5	30.4	29.3
Movement LOS	D	C	C	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	33.32			25.24			28.69			32.38		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	29.13											
Intersection LOS	C											
Intersection V/C	0.663											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.442

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	2	0	0	1
Entry Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	1202	78	161	675	60	347
Base Volume Adjustment Factor	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
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]	3	1	5	2	1	8
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]	1205	79	166	677	61	355
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	301	20	42	169	15	89
Total Analysis Volume [veh/h]	1205	79	166	677	61	355
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissiv	Overlap	Protected	Permissiv	Permissiv	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	76	76	76	76	76	76
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	31	51	15	51	15	35
g / C, Green / Cycle	0.40	0.67	0.20	0.66	0.20	0.46
(v / s)_i Volume / Saturation Flow Rate	0.34	0.05	0.05	0.19	0.03	0.22
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1420	1065	676	2348	356	732
d1, Uniform Delay [s]	20.81	4.31	25.93	5.39	25.29	14.24
k, delay calibration	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
d2, Incremental Delay [s]	1.50	0.03	0.19	0.07	0.23	0.50
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

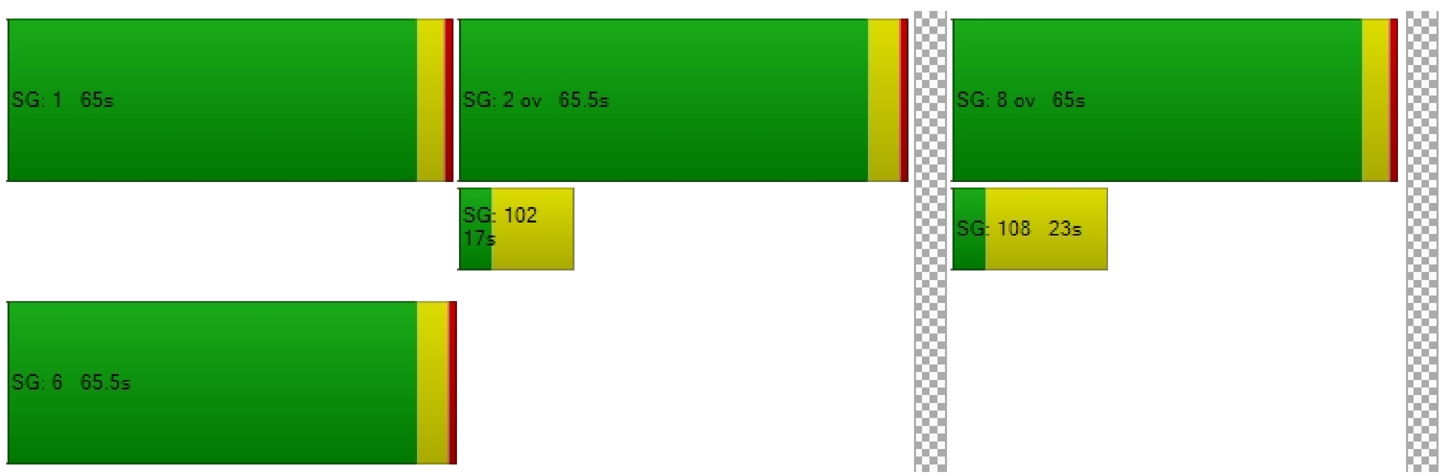
X, volume / capacity	0.85	0.07	0.25	0.29	0.17	0.49
d, Delay for Lane Group [s/veh]	22.31	4.33	26.12	5.46	25.52	14.74
Lane Group LOS	C	A	C	A	C	B
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.64	0.29	1.19	1.53	0.91	4.00
50th-Percentile Queue Length [ft/ln]	216.10	7.22	29.81	38.20	22.77	99.95
95th-Percentile Queue Length [veh/ln]	13.47	0.52	2.15	2.75	1.64	7.20
95th-Percentile Queue Length [ft/ln]	336.64	13.00	53.65	68.76	40.98	179.91

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.31	4.33	26.12	5.46	25.52	14.74
Movement LOS	C	A	C	A	C	B
d_A, Approach Delay [s/veh]	21.21		9.53		16.32	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	16.54					
Intersection LOS	B					
Intersection V/C	0.442					

Sequence

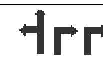
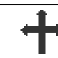
Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	69.5
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.941

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	155.	100.	55.0	400.	100.	50.0	100.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Base Volume Input [veh/h]	34	150	3	320	857	40	7	22	766	87	13	27
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	11	0	2	6	0	1	0	6	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]	34	151	3	322	863	40	8	22	772	87	13	27
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	9	378	1	81	216	10	2	6	193	22	3	7
Total Analysis Volume [veh/h]	34	151	3	322	863	40	8	22	772	87	13	27
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	155	155	155	155	155	155	155	155	155
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	4	60	60	17	73	73	46	46	13
g / C, Green / Cycle	0.02	0.39	0.39	0.11	0.47	0.47	0.30	0.30	0.09
(v / s)_i Volume / Saturation Flow Rate	0.02	0.43	0.00	0.09	0.24	0.03	0.02	0.28	0.07
s, saturation flow rate [veh/h]	177	354	158	344	354	158	1838	2803	1738
c, Capacity [veh/h]	44	137	612	382	167	748	546	833	150
d1, Uniform Delay [s]	75.3	47.6	29.3	67.7	28.5	22.1	39.01	52.97	69.92
k, delay calibration	0.11	0.13	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
d2, Incremental Delay [s]	24.0	50.2	0.00	5.06	0.25	0.03	0.04	5.14	11.95
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

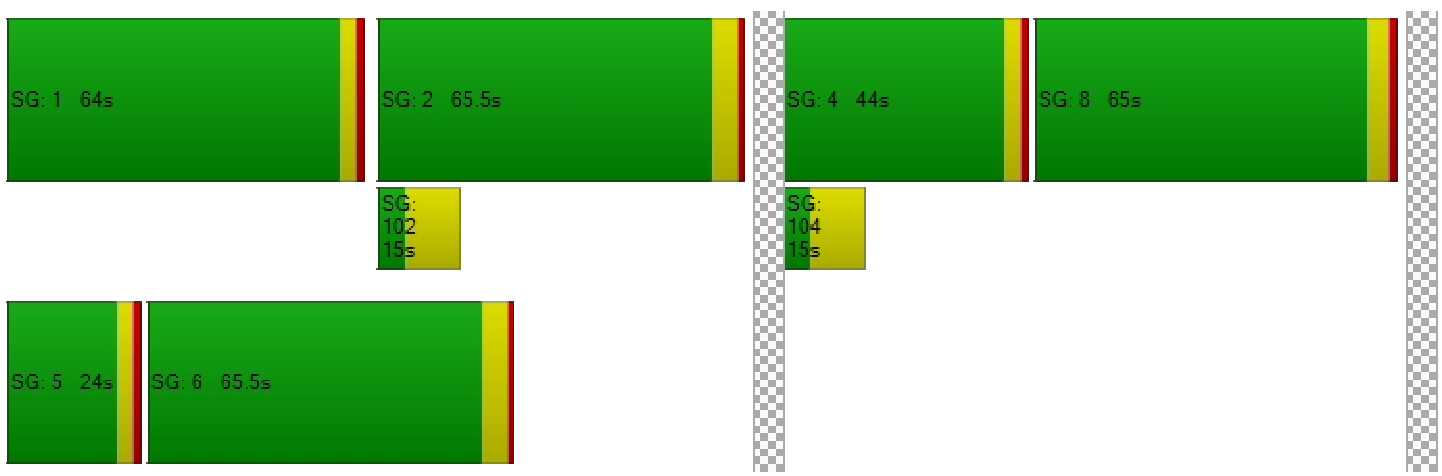
X, volume / capacity	0.77	1.10	0.00	0.84	0.52	0.05	0.05	0.93	0.84
d, Delay for Lane Group [s/veh]	99.3	97.9	29.3	72.7	28.8	22.2	39.05	58.11	81.87
Lane Group LOS	F	F	C	E	C	C	D	E	F
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	1.65	35.8	0.07	6.56	11.3	0.82	0.84	15.21	5.50
50th-Percentile Queue Length [ft/ln]	41.3	896.	1.78	164.	284.	20.5	21.07	380.23	137.53
95th-Percentile Queue Length [veh/ln]	2.97	49.0	0.13	10.7	16.9	1.48	1.52	21.60	9.35
95th-Percentile Queue Length [ft/ln]	74.3	122	3.21	269.	422.	36.9	37.93	540.12	233.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	99.3	97.9	29.3	72.7	28.8	22.2	39.0	39.0	58.1	81.8	81.8	81.8
Movement LOS	F	F	C	E	C	C	D	D	E	F	F	F
d_A, Approach Delay [s/veh]	97.86			40.16			57.40			81.87		
Approach LOS	F			D			E			F		
d_I, Intersection Delay [s/veh]	69.47											
Intersection LOS	E											
Intersection V/C	0.941											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	40.1
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.917

Intersection Setup

Name	Re de			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestboun			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	0.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.00	12.0	0.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.	100.	50.0	175.	100.	55.0	425.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Re de			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	123	0	308	5	220	177	122	111	72	4	53	0
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	17	0	0	8	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]	123	0	308	5	222	177	122	112	72	4	53	0
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	31	0	77	1	555	44	31	281	18	1	13	0
Total Analysis Volume [veh/h]	123	0	308	5	222	177	122	112	72	4	53	0
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Prot	Per	Per	Prot	Per	Per	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lea	-	-	Lea	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	190	190	190	190	190	190	190	190	190
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	28	28	1	120	120	15	134	134	10
g / C, Green / Cycle	0.15	0.15	0.01	0.63	0.63	0.08	0.70	0.70	0.05
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.00	0.63	0.11	0.07	0.32	0.33	0.03
s, saturation flow rate [veh/h]	1684	1583	177	354	158	177	186	182	1782
c, Capacity [veh/h]	248	233	11	223	998	142	131	128	89
d1, Uniform Delay [s]	79.74	79.74	94.2	34.7	14.6	86.4	12.2	12.3	88.69
k, delay calibration	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
d2, Incremental Delay [s]	11.01	11.65	26.1	7.40	0.08	13.5	0.25	0.26	7.35
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

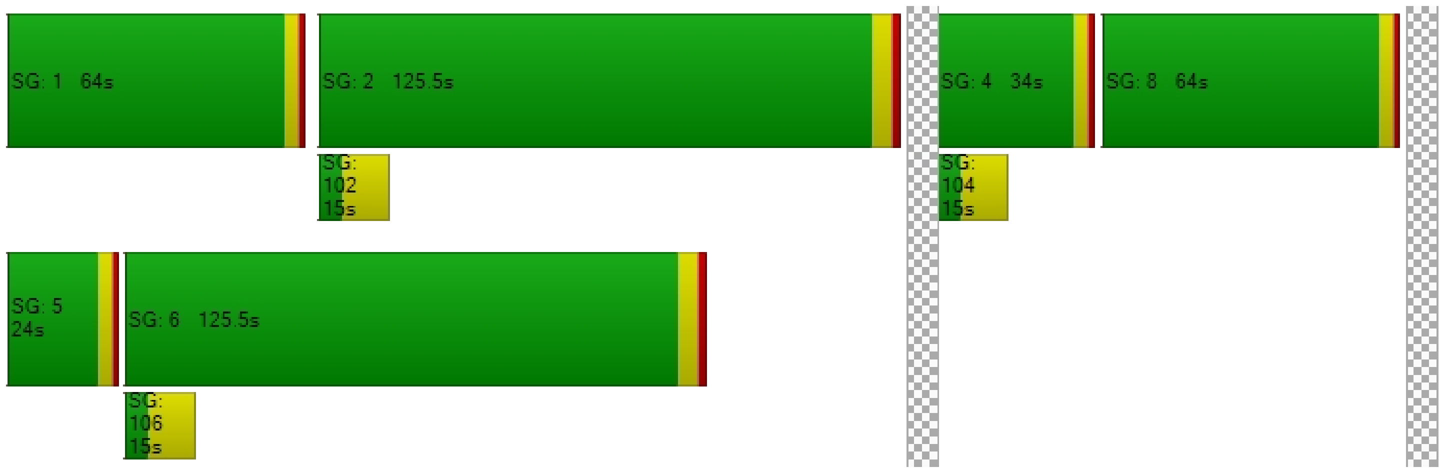
X, volume / capacity	0.90	0.90	0.45	0.99	0.18	0.86	0.46	0.46	0.64
d, Delay for Lane Group [s/veh]	90.75	91.39	120.	42.1	14.7	99.9	12.5	12.5	96.04
Lane Group LOS	F	F	F	D	B	F	B	B	F
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.60	10.96	0.33	49.6	3.20	6.43	10.8	10.6	2.98
50th-Percentile Queue Length [ft/ln]	290.11	274.07	8.14	124	79.9	160.	270.	266.	74.51
95th-Percentile Queue Length [veh/ln]	17.19	16.39	0.59	61.1	5.75	10.5	16.2	16.0	5.36
95th-Percentile Queue Length [ft/ln]	429.78	409.82	14.6	152	143.	264.	405.	400.	134.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	90.7	90.7	91.1	120.	42.1	14.7	99.9	12.5	12.5	96.0	96.0	96.0
Movement LOS	F	F	F	F	D	B	F	B	B	F	F	F
d_A, Approach Delay [s/veh]	91.06			40.29			20.64			96.04		
Approach LOS	F			D			C			F		
d_I, Intersection Delay [s/veh]	40.09											
Intersection LOS	D											
Intersection V/C	0.917											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.671

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	2	0	1	0	0	2	1	0	1
Entry Pocket Length [ft]	60.0	100.	100.	290.	100.	100.	100.	100.	205.	210.	100.	170.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Base Volume Input [veh/h]	31	430	116	710	659	164	156	78	367	132	117	33
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	4	1	0	0	0	5	1	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]	31	431	116	714	660	164	156	78	372	133	117	33
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	8	108	29	179	165	41	39	20	93	33	29	8
Total Analysis Volume [veh/h]	31	431	116	714	660	164	156	78	372	133	117	33
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	78	78	78	78	78	78	78	78	78	78	78
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	2	15	15	20	33	33	14	14	10	10	10
g / C, Green / Cycle	0.03	0.19	0.19	0.25	0.42	0.42	0.17	0.17	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.15	0.21	0.19	0.10	0.13	0.13	0.07	0.06	0.02
s, saturation flow rate [veh/h]	177	186	172	344	354	158	1803	2803	177	186	158
c, Capacity [veh/h]	56	352	327	861	149	665	312	484	226	237	201
d1, Uniform Delay [s]	37.4	30.4	30.5	27.8	16.2	14.7	30.87	30.97	32.3	31.9	30.5
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]	8.35	4.25	4.83	2.13	0.21	0.19	3.65	2.59	2.45	1.59	0.38
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

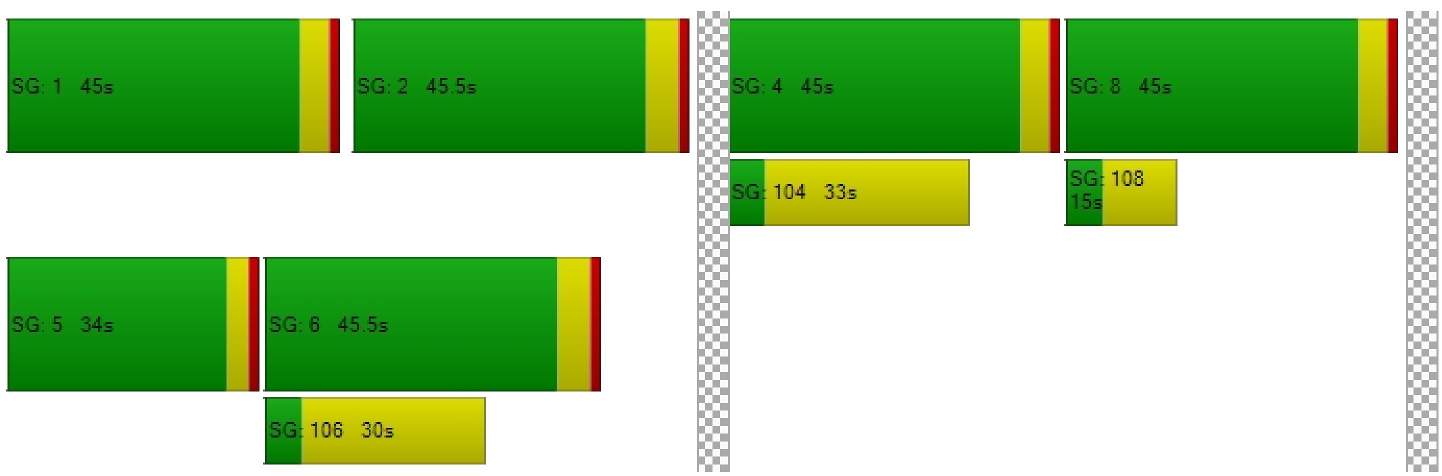
X, volume / capacity	0.56	0.80	0.81	0.83	0.44	0.25	0.75	0.77	0.59	0.49	0.16
d, Delay for Lane Group [s/veh]	45.8	34.6	35.3	29.9	16.4	14.9	34.52	33.57	34.7	33.5	30.9
Lane Group LOS	D	C	D	C	B	B	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.68	5.10	4.85	6.01	3.72	1.69	4.39	3.42	2.47	2.12	0.56
50th-Percentile Queue Length [ft/ln]	17.0	127.	121.	150.	92.9	42.3	109.63	85.50	61.7	52.9	14.1
95th-Percentile Queue Length [veh/ln]	1.23	8.81	8.46	10.0	6.70	3.05	7.82	6.16	4.45	3.81	1.02
95th-Percentile Queue Length [ft/ln]	30.7	220.	211.	250.	167.	76.2	195.48	153.90	111.	95.2	25.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.8	34.9	35.3	29.9	16.4	14.9	34.5	34.5	33.5	34.7	33.5	30.9
Movement LOS	D	C	D	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	35.58			22.56			33.93			33.81		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	28.41											
Intersection LOS	C											
Intersection V/C	0.671											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	12.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.645

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	2	0	0	1
Entry Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	877	56	379	1504	59	214
Base Volume Adjustment Factor	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
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]	6	1	6	3	2	9
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]	883	57	385	1507	61	223
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	221	14	96	377	15	56
Total Analysis Volume [veh/h]	883	57	385	1507	61	223
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissiv	Overlap	Protected	Permissiv	Permissiv	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	52	52	52	52	52	52
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	16	32	10	31	10	25
g / C, Green / Cycle	0.32	0.61	0.19	0.61	0.19	0.48
(v / s)_i Volume / Saturation Flow Rate	0.25	0.04	0.11	0.42	0.03	0.14
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1126	974	663	2150	340	760
d1, Uniform Delay [s]	16.10	3.99	19.06	7.00	17.56	8.16
k, delay calibration	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
d2, Incremental Delay [s]	1.24	0.02	0.81	0.42	0.25	0.21
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

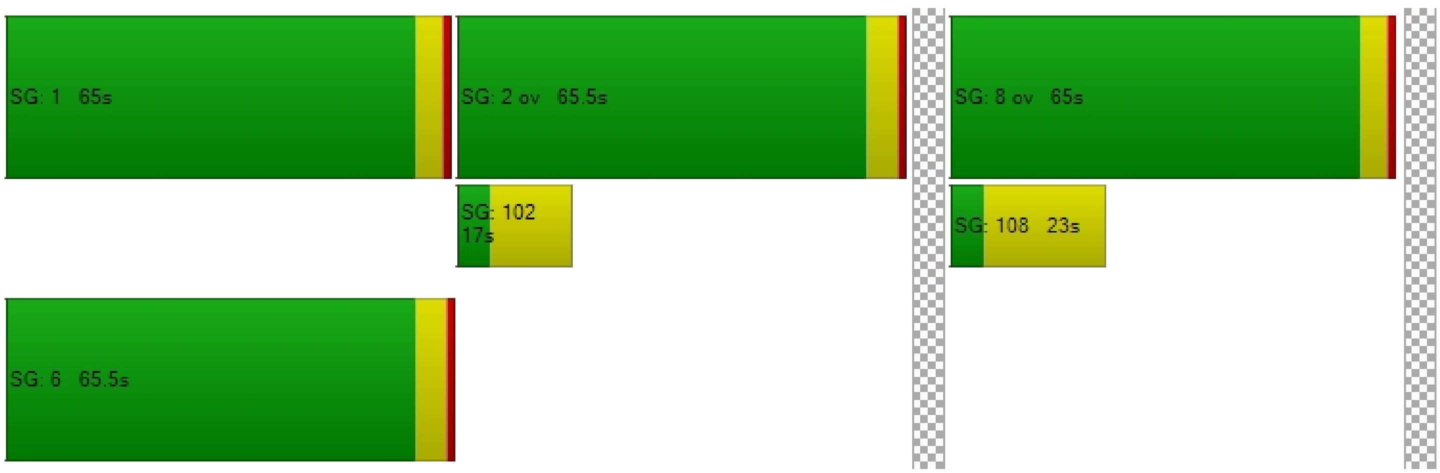
X, volume / capacity	0.78	0.06	0.58	0.70	0.18	0.29
d, Delay for Lane Group [s/veh]	17.33	4.02	19.87	7.42	17.81	8.37
Lane Group LOS	B	A	B	A	B	A
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	3.88	0.12	1.82	2.89	0.58	1.24
50th-Percentile Queue Length [ft/ln]	96.99	3.10	45.55	72.30	14.42	30.94
95th-Percentile Queue Length [veh/ln]	6.98	0.22	3.28	5.21	1.04	2.23
95th-Percentile Queue Length [ft/ln]	174.57	5.58	81.98	130.13	25.95	55.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.33	4.02	19.87	7.42	17.81	8.37
Movement LOS	B	A	B	A	B	A
d_A, Approach Delay [s/veh]	16.53		9.95		10.40	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	11.98					
Intersection LOS	B					
Intersection V/C	0.645					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	49.2
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.890

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	155.	100.	55.0	400.	100.	50.0	100.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Base Volume Input [veh/h]	83	101	8	724	173	88	19	27	330	131	42	91
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	11	4	6	8	0	1	0	4	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]	83	102	12	730	174	88	20	27	334	131	42	91
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	21	256	3	183	436	22	5	7	84	33	11	23
Total Analysis Volume [veh/h]	83	102	12	730	174	88	20	27	334	131	42	91
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	135	135	135	135	135	135	135	135	135
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	8	43	43	32	67	67	19	19	23
g / C, Green / Cycle	0.06	0.32	0.32	0.24	0.49	0.49	0.14	0.14	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.29	0.01	0.21	0.49	0.06	0.03	0.12	0.15
s, saturation flow rate [veh/h]	177	354	158	344	354	158	1824	2803	1716
c, Capacity [veh/h]	105	112	501	819	175	784	254	390	292
d1, Uniform Delay [s]	62.9	44.5	31.9	50.0	34.0	18.3	51.59	57.06	55.15
k, delay calibration	0.11	0.11	0.11	0.11	0.13	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
d2, Incremental Delay [s]	12.4	3.28	0.02	3.64	9.43	0.06	0.35	5.52	10.06
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

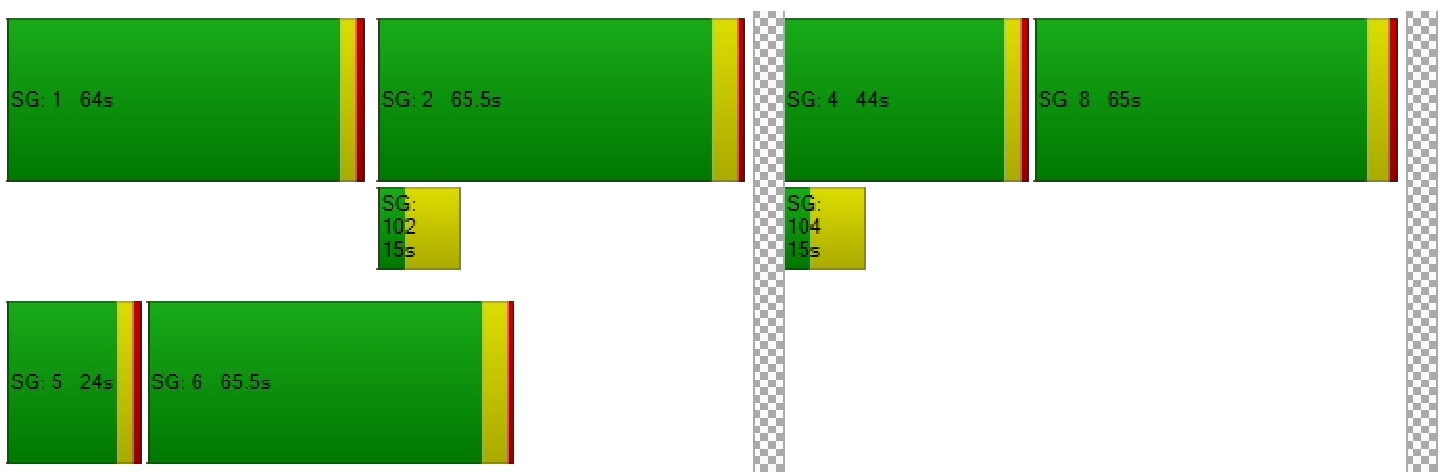
X, volume / capacity	0.79	0.91	0.02	0.89	0.99	0.11	0.19	0.86	0.90
d, Delay for Lane Group [s/veh]	75.3	47.7	31.9	53.6	43.4	18.3	51.94	62.58	65.21
Lane Group LOS	E	D	C	D	D	B	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	3.19	16.9	0.28	12.3	29.9	1.52	1.45	5.89	9.65
50th-Percentile Queue Length [ft/ln]	79.8	423.	6.97	309.	748.	37.8	36.20	147.32	241.37
95th-Percentile Queue Length [veh/ln]	5.75	23.6	0.50	18.1	38.9	2.73	2.61	9.87	14.75
95th-Percentile Queue Length [ft/ln]	143.	591.	12.5	453.	973.	68.1	65.16	246.85	368.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	75.3	47.7	31.9	53.6	43.4	18.3	51.9	51.9	62.5	65.2	65.2	65.2
Movement LOS	E	D	C	D	D	B	D	D	E	E	E	E
d_A, Approach Delay [s/veh]		49.67			45.49			61.27			65.21	
Approach LOS		D			D			E			E	
d_I, Intersection Delay [s/veh]						49.17						
Intersection LOS						D						
Intersection V/C						0.890						

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	23.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.837

Intersection Setup

Name	Re de			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestboun			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	0.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.00	12.0	0.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.	100.	50.0	175.	100.	55.0	425.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Re de			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	94	3	125	2	138	82	220	247	4	14	2	5
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	15	0	0	14	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]	94	3	125	2	140	82	220	248	4	14	2	5
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	24	1	31	1	350	21	55	622	1	4	1	1
Total Analysis Volume [veh/h]	94	3	125	2	140	82	220	248	4	14	2	5
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Prot	Per	Per	Prot	Per	Per	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lea	-	-	Lea	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	116	116	116	116	116	116	116	116	116
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	10	10	0	67	67	17	83	83	5
g / C, Green / Cycle	0.09	0.09	0.00	0.58	0.58	0.14	0.72	0.72	0.04
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.00	0.40	0.05	0.12	0.67	0.67	0.01
s, saturation flow rate [veh/h]	1744	1583	177	354	158	177	186	186	1663
c, Capacity [veh/h]	154	140	5	204	911	254	133	133	71
d1, Uniform Delay [s]	51.67	51.77	57.8	17.3	11.0	48.6	14.1	14.1	53.93
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.21	0.21	0.11
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]	6.96	8.39	49.0	0.42	0.04	8.68	6.59	6.64	2.31
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

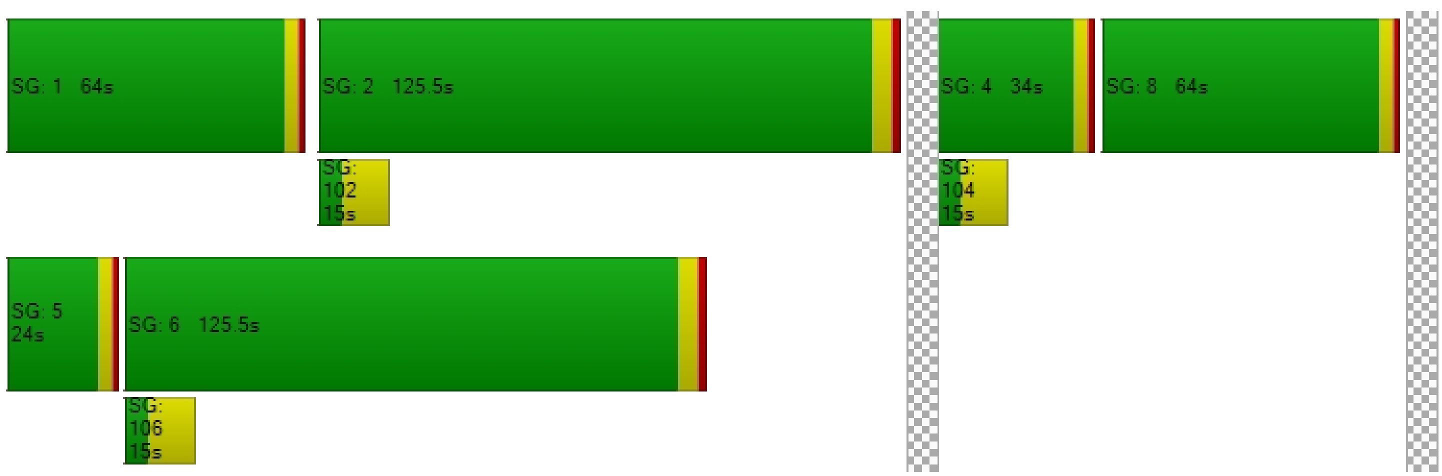
X, volume / capacity	0.75	0.77	0.42	0.69	0.09	0.87	0.93	0.94	0.30
d, Delay for Lane Group [s/veh]	58.63	60.16	106.	17.7	11.0	57.3	20.7	20.8	56.24
Lane Group LOS	E	E	F	B	B	E	C	C	E
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	3.59	3.40	0.12	11.8	0.89	6.65	23.5	23.5	0.65
50th-Percentile Queue Length [ft/ln]	89.64	84.92	3.06	296.	22.1	166.	587.	588.	16.13
95th-Percentile Queue Length [veh/ln]	6.45	6.11	0.22	17.4	1.60	10.8	31.4	31.5	1.16
95th-Percentile Queue Length [ft/ln]	161.35	152.86	5.51	437.	39.8	272.	786.	787.	29.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.6	58.6	59.9	106.	17.7	11.0	57.3	20.8	20.8	56.2	56.2	56.2
Movement LOS	E	E	E	F	B	B	E	C	C	E	E	E
d_A, Approach Delay [s/veh]	59.37			17.48			23.77			56.24		
Approach LOS	E			B			C			E		
d_I, Intersection Delay [s/veh]	23.60											
Intersection LOS	C											
Intersection V/C	0.837											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.661

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	2	0	1	0	0	2	1	0	1
Entry Pocket Length [ft]	60.0	100.	100.	290.	100.	100.	100.	100.	205.	210.	100.	170.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Base Volume Input [veh/h]	17	524	105	368	300	112	78	59	565	130	57	11
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	1	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]	17	525	105	369	300	112	78	59	565	130	57	11
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	4	131	26	92	75	28	20	15	141	33	14	3
Total Analysis Volume [veh/h]	17	525	105	369	300	112	78	59	565	130	57	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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	76	76	76	76	76	76	76	76	76	76	76
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	2	16	16	11	27	27	19	19	10	10	10
g / C, Green / Cycle	0.02	0.21	0.21	0.14	0.35	0.35	0.24	0.24	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.01	0.17	0.17	0.11	0.08	0.07	0.08	0.20	0.07	0.03	0.01
s, saturation flow rate [veh/h]	177	186	175	344	354	158	1811	2803	177	186	158
c, Capacity [veh/h]	36	397	374	495	124	554	443	686	230	241	205
d1, Uniform Delay [s]	36.9	28.5	28.5	31.2	17.5	17.3	23.50	27.21	31.1	29.7	29.0
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]	9.66	4.10	4.47	2.26	0.10	0.18	0.39	2.57	2.19	0.50	0.11
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

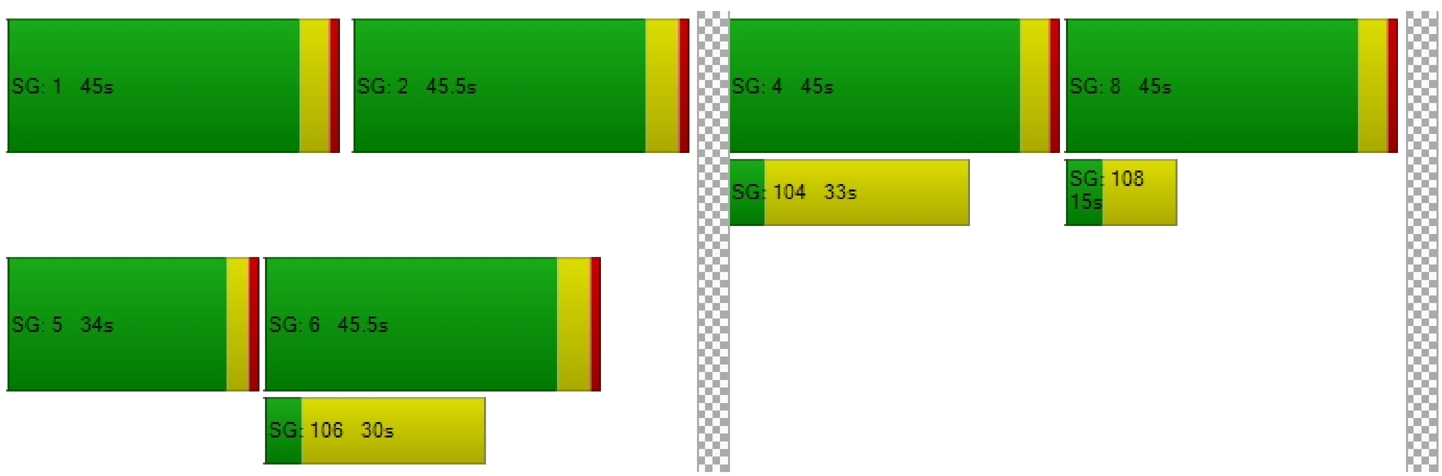
X, volume / capacity	0.48	0.81	0.82	0.75	0.24	0.20	0.31	0.82	0.57	0.24	0.05
d, Delay for Lane Group [s/veh]	46.5	32.6	33.0	33.5	17.6	17.5	23.89	29.77	33.3	30.2	29.1
Lane Group LOS	D	C	C	C	B	B	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.39	5.56	5.32	3.16	1.68	1.25	1.98	4.87	2.31	0.94	0.18
50th-Percentile Queue Length [ft/ln]	9.73	138.	132.	78.8	42.0	31.3	49.62	121.70	57.8	23.6	4.44
95th-Percentile Queue Length [veh/ln]	0.70	9.42	9.10	5.68	3.03	2.26	3.57	8.49	4.16	1.70	0.32
95th-Percentile Queue Length [ft/ln]	17.5	235.	227.	141.	75.7	56.3	89.32	212.16	104.	42.4	8.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.5	32.7	33.0	33.5	17.6	17.5	23.8	23.8	29.7	33.3	30.2	29.1
Movement LOS	D	C	C	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	33.19			25.15			28.63			32.22		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	29.04											
Intersection LOS	C											
Intersection V/C	0.661											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.441

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	2	0	0	1
Entry Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	1202	78	161	675	60	347
Base Volume Adjustment Factor	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
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	1	5	0	1	8
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]	1202	79	166	675	61	355
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	301	20	42	169	15	89
Total Analysis Volume [veh/h]	1202	79	166	675	61	355
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissiv	Overlap	Protected	Permissiv	Permissiv	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	76	76	76	76	76	76
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	30	51	15	50	15	35
g / C, Green / Cycle	0.40	0.67	0.20	0.66	0.20	0.46
(v / s)_i Volume / Saturation Flow Rate	0.34	0.05	0.05	0.19	0.03	0.22
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1417	1065	676	2346	356	732
d1, Uniform Delay [s]	20.77	4.30	25.84	5.39	25.20	14.17
k, delay calibration	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
d2, Incremental Delay [s]	1.50	0.03	0.19	0.07	0.23	0.50
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

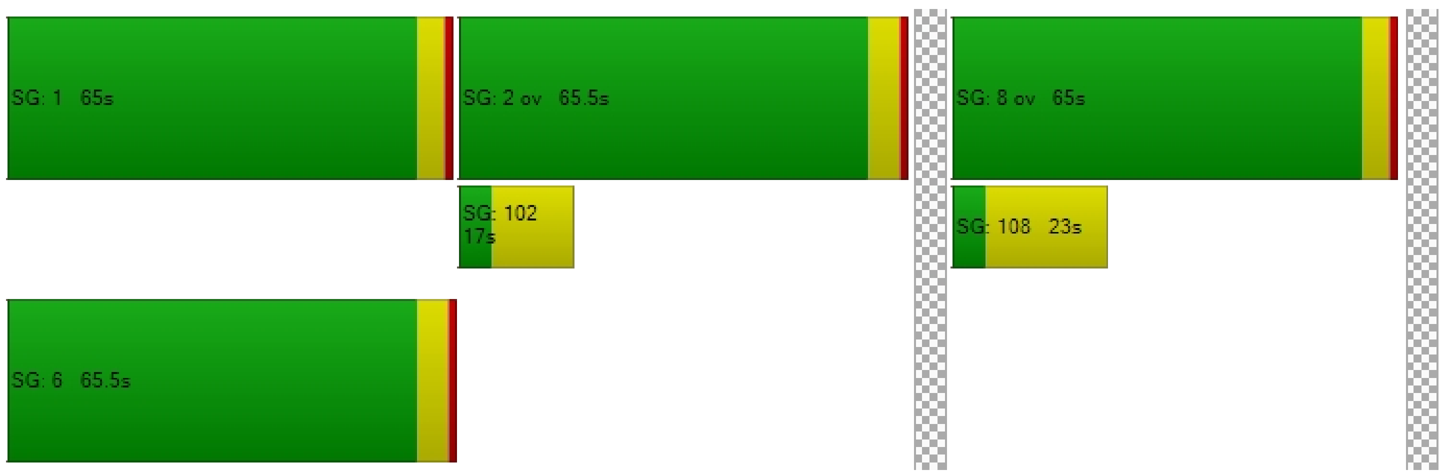
X, volume / capacity	0.85	0.07	0.25	0.29	0.17	0.48
d, Delay for Lane Group [s/veh]	22.27	4.33	26.02	5.45	25.42	14.67
Lane Group LOS	C	A	C	A	C	B
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.59	0.29	1.19	1.52	0.91	3.98
50th-Percentile Queue Length [ft/ln]	214.64	7.19	29.68	37.92	22.67	99.41
95th-Percentile Queue Length [veh/ln]	13.39	0.52	2.14	2.73	1.63	7.16
95th-Percentile Queue Length [ft/ln]	334.77	12.95	53.42	68.25	40.81	178.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.27	4.33	26.02	5.45	25.42	14.67
Movement LOS	C	A	C	A	C	B
d_A, Approach Delay [s/veh]	21.16		9.51		16.25	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	16.50					
Intersection LOS	B					
Intersection V/C	0.441					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	67.8
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.938

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	155.	100.	55.0	400.	100.	50.0	100.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Base Volume Input [veh/h]	34	150	3	320	857	40	7	22	766	87	13	27
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	0	5	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]	34	151	3	320	862	40	7	22	766	87	13	27
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	9	378	1	80	216	10	2	6	192	22	3	7
Total Analysis Volume [veh/h]	34	151	3	320	862	40	7	22	766	87	13	27
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	154	154	154	154	154	154	154	154	154
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	4	60	60	17	73	73	46	46	13
g / C, Green / Cycle	0.02	0.39	0.39	0.11	0.47	0.47	0.29	0.29	0.09
(v / s)_i Volume / Saturation Flow Rate	0.02	0.43	0.00	0.09	0.24	0.03	0.02	0.27	0.07
s, saturation flow rate [veh/h]	177	354	158	344	354	158	1841	2803	1738
c, Capacity [veh/h]	44	137	615	381	168	750	543	827	151
d1, Uniform Delay [s]	74.9	47.2	28.9	67.4	28.2	21.9	39.02	52.86	69.57
k, delay calibration	0.11	0.12	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
d2, Incremental Delay [s]	23.8	46.9	0.00	5.03	0.24	0.03	0.04	5.12	11.91
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

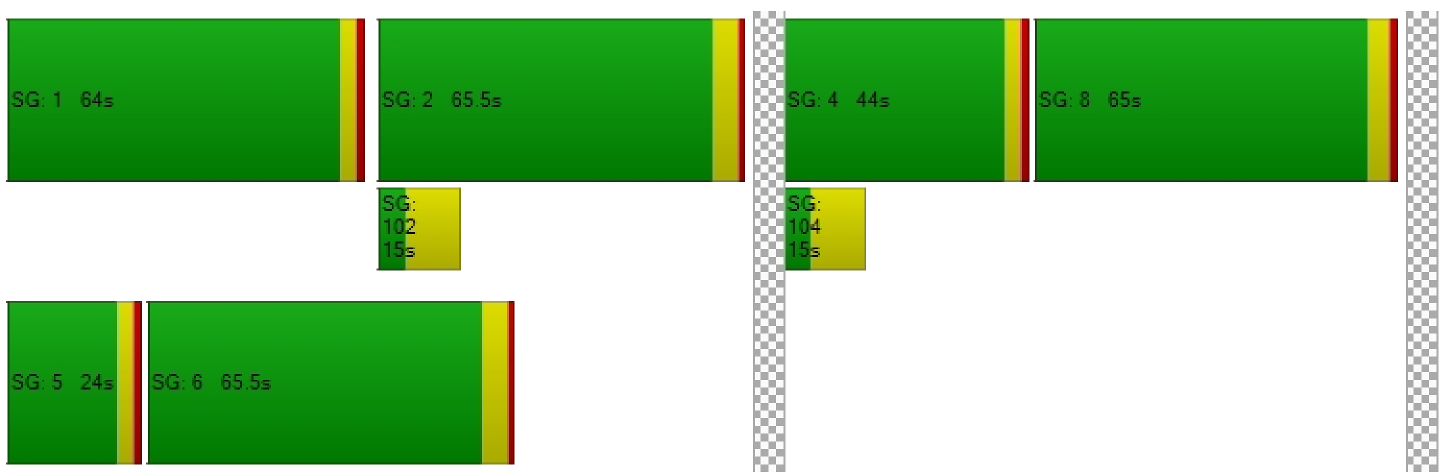
X, volume / capacity	0.77	1.10	0.00	0.84	0.51	0.05	0.05	0.93	0.84
d, Delay for Lane Group [s/veh]	98.7	94.2	29.0	72.4	28.5	21.9	39.06	57.98	81.47
Lane Group LOS	F	F	C	E	C	C	D	E	F
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	1.64	35.2	0.07	6.49	11.2	0.81	0.81	15.01	5.47
50th-Percentile Queue Length [ft/ln]	41.0	881.	1.77	162.	281.	20.3	20.31	375.35	136.82
95th-Percentile Queue Length [veh/ln]	2.96	48.0	0.13	10.6	16.7	1.47	1.46	21.37	9.31
95th-Percentile Queue Length [ft/ln]	73.9	120	3.18	266.	419.	36.6	36.56	534.21	232.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	98.7	94.2	29.0	72.4	28.5	21.9	39.0	39.0	57.9	81.4	81.4	81.4
Movement LOS	F	F	C	E	C	C	D	D	E	F	F	F
d_A, Approach Delay [s/veh]		94.25			39.82			57.29			81.47	
Approach LOS		F			D			E			F	
d_I, Intersection Delay [s/veh]	67.83											
Intersection LOS	E											
Intersection V/C	0.938											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	39.6
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.914

Intersection Setup

Name	Re de			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestboun			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	0.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.00	12.0	0.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.	100.	50.0	175.	100.	55.0	425.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Re de			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	123	0	308	5	220	177	122	111	72	4	53	0
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	8	0	0	5	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]	123	0	308	5	221	177	122	112	72	4	53	0
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	31	0	77	1	553	44	31	281	18	1	13	0
Total Analysis Volume [veh/h]	123	0	308	5	221	177	122	112	72	4	53	0
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Prot	Per	Per	Prot	Per	Per	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lea	-	-	Lea	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	190	190	190	190	190	190	190	190	190
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	28	28	1	120	120	15	134	134	10
g / C, Green / Cycle	0.15	0.15	0.01	0.63	0.63	0.08	0.70	0.70	0.05
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.00	0.62	0.11	0.07	0.32	0.32	0.03
s, saturation flow rate [veh/h]	1684	1583	177	354	158	177	186	182	1782
c, Capacity [veh/h]	248	233	11	223	998	142	131	128	89
d1, Uniform Delay [s]	79.74	79.74	94.2	34.5	14.6	86.4	12.2	12.2	88.69
k, delay calibration	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
d2, Incremental Delay [s]	11.01	11.65	26.1	6.68	0.08	13.5	0.25	0.26	7.35
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

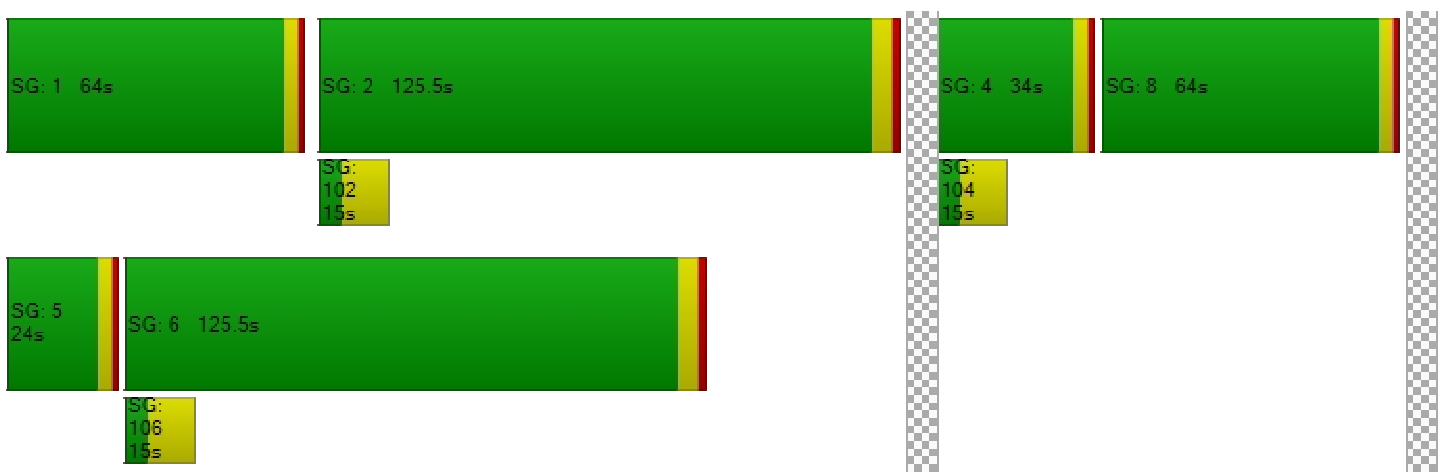
X, volume / capacity	0.90	0.90	0.45	0.99	0.18	0.86	0.46	0.46	0.64
d, Delay for Lane Group [s/veh]	90.75	91.39	120.	41.1	14.7	99.9	12.5	12.5	96.04
Lane Group LOS	F	F	F	D	B	F	B	B	F
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.60	10.96	0.33	48.8	3.20	6.43	10.8	10.6	2.98
50th-Percentile Queue Length [ft/ln]	290.11	274.07	8.14	122	79.9	160.	269.	265.	74.51
95th-Percentile Queue Length [veh/ln]	17.19	16.39	0.59	60.3	5.75	10.5	16.1	15.9	5.36
95th-Percentile Queue Length [ft/ln]	429.78	409.82	14.6	150	143.	264.	404.	398.	134.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	90.7	90.7	91.1	120.	41.1	14.7	99.9	12.5	12.5	96.0	96.0	96.0
Movement LOS	F	F	F	F	D	B	F	B	B	F	F	F
d_A, Approach Delay [s/veh]	91.06			39.40			20.64			96.04		
Approach LOS	F			D			C			F		
d_I, Intersection Delay [s/veh]	39.59											
Intersection LOS	D											
Intersection V/C	0.914											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	28.3
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.668

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	2	0	1	0	0	2	1	0	1
Entry Pocket Length [ft]	60.0	100.	100.	290.	100.	100.	100.	100.	205.	210.	100.	170.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.			San Pedro Ave.		
Base Volume Input [veh/h]	31	430	116	710	659	164	156	78	367	132	117	33
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	1	1	0	0	0	1	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]	31	430	116	711	660	164	156	78	368	132	117	33
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	8	108	29	178	165	41	39	20	92	33	29	8
Total Analysis Volume [veh/h]	31	430	116	711	660	164	156	78	368	132	117	33
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	78	78	78	78	78	78	78	78	78	78	78
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	2	15	15	19	33	33	13	13	10	10	10
g / C, Green / Cycle	0.03	0.19	0.19	0.25	0.42	0.42	0.17	0.17	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.15	0.21	0.19	0.10	0.13	0.13	0.07	0.06	0.02
s, saturation flow rate [veh/h]	177	186	172	344	354	158	1803	2803	177	186	158
c, Capacity [veh/h]	56	352	327	859	148	664	309	481	227	238	202
d1, Uniform Delay [s]	37.2	30.2	30.3	27.7	16.1	14.6	30.80	30.85	32.0	31.6	30.3
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]	8.31	4.23	4.80	2.12	0.21	0.19	3.78	2.58	2.36	1.57	0.37
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

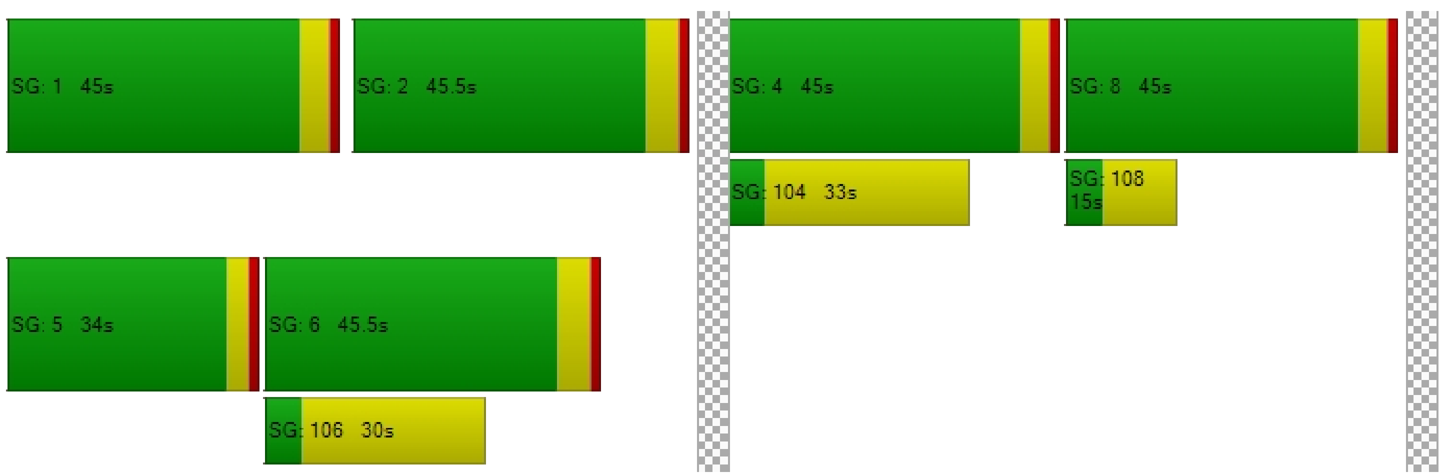
X, volume / capacity	0.55	0.80	0.81	0.83	0.44	0.25	0.76	0.77	0.58	0.49	0.16
d, Delay for Lane Group [s/veh]	45.5	34.4	35.1	29.8	16.3	14.8	34.58	33.43	34.4	33.2	30.7
Lane Group LOS	D	C	D	C	B	B	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.68	5.06	4.81	5.94	3.70	1.68	4.38	3.36	2.43	2.10	0.56
50th-Percentile Queue Length [ft/ln]	16.9	126.	120.	148.	92.4	42.1	109.39	84.07	60.7	52.5	14.0
95th-Percentile Queue Length [veh/ln]	1.22	8.75	8.41	9.94	6.66	3.03	7.81	6.05	4.38	3.78	1.01
95th-Percentile Queue Length [ft/ln]	30.5	218.	210.	248.	166.	75.8	195.15	151.33	109.	94.5	25.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.5	34.7	35.1	29.8	16.3	14.8	34.5	34.5	33.4	34.4	33.2	30.7
Movement LOS	D	C	D	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	35.38			22.45			33.88			33.52		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	28.28											
Intersection LOS	C											
Intersection V/C	0.668											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	12.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.644

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	2	0	0	1
Entry Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	877	56	379	1504	59	214
Base Volume Adjustment Factor	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
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	1	6	0	2	9
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]	877	57	385	1504	61	223
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	219	14	96	376	15	56
Total Analysis Volume [veh/h]	877	57	385	1504	61	223
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissiv	Overlap	Protected	Permissiv	Permissiv	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	52	52	52	52	52	52
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	16	32	10	31	10	25
g / C, Green / Cycle	0.32	0.61	0.19	0.60	0.19	0.48
(v / s)_i Volume / Saturation Flow Rate	0.25	0.04	0.11	0.42	0.03	0.14
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1120	972	664	2146	341	762
d1, Uniform Delay [s]	16.10	4.00	18.98	7.01	17.50	8.10
k, delay calibration	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
d2, Incremental Delay [s]	1.24	0.02	0.80	0.42	0.25	0.21
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

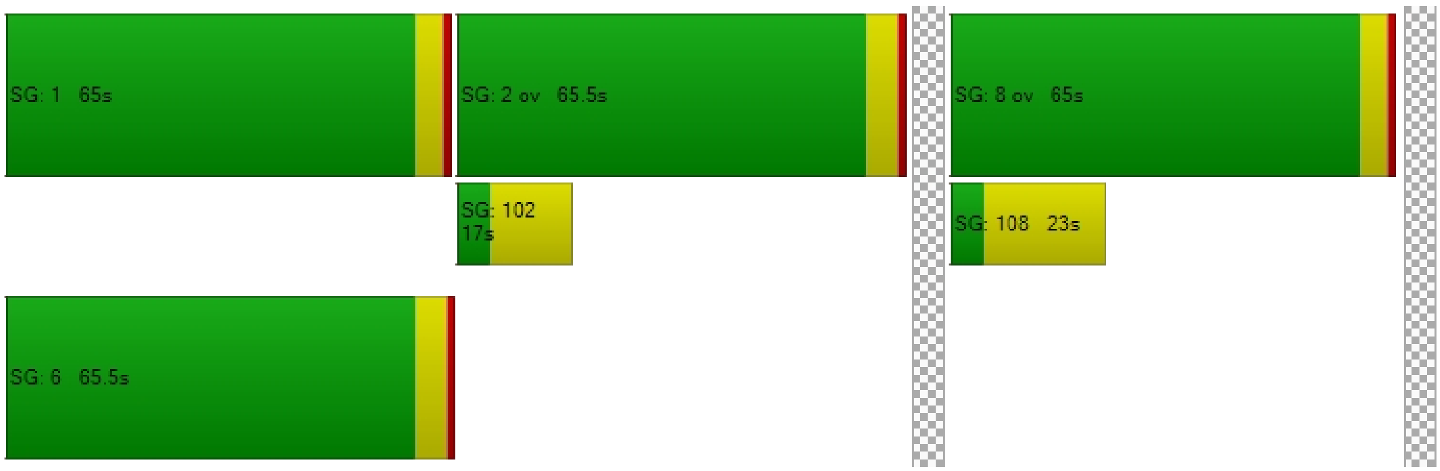
X, volume / capacity	0.78	0.06	0.58	0.70	0.18	0.29
d, Delay for Lane Group [s/veh]	17.34	4.03	19.79	7.43	17.75	8.31
Lane Group LOS	B	A	B	A	B	A
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	3.84	0.12	1.81	2.88	0.57	1.23
50th-Percentile Queue Length [ft/ln]	96.12	3.10	45.33	72.05	14.35	30.69
95th-Percentile Queue Length [veh/ln]	6.92	0.22	3.26	5.19	1.03	2.21
95th-Percentile Queue Length [ft/ln]	173.02	5.58	81.59	129.68	25.84	55.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.34	4.03	19.79	7.43	17.75	8.31
Movement LOS	B	A	B	A	B	A
d_A, Approach Delay [s/veh]	16.53		9.95		10.34	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	11.96					
Intersection LOS	B					
Intersection V/C	0.644					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	48.5
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.890

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	155.	100.	55.0	400.	100.	50.0	100.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Base Volume Input [veh/h]	83	101	8	724	173	88	19	27	330	131	42	91
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	6	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]	83	102	8	724	174	88	19	27	330	131	42	91
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	21	255	2	181	436	22	5	7	83	33	11	23
Total Analysis Volume [veh/h]	83	102	8	724	174	88	19	27	330	131	42	91
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	133	133	133	133	133	133	133	133	133
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	8	42	42	31	66	66	18	18	23
g / C, Green / Cycle	0.06	0.32	0.32	0.24	0.49	0.49	0.14	0.14	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.29	0.01	0.21	0.49	0.06	0.03	0.12	0.15
s, saturation flow rate [veh/h]	177	354	158	344	354	158	1825	2803	1716
c, Capacity [veh/h]	105	112	501	814	175	781	252	386	293
d1, Uniform Delay [s]	61.8	43.7	31.3	49.2	33.6	18.1	50.83	56.16	54.18
k, delay calibration	0.11	0.11	0.11	0.11	0.12	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
d2, Incremental Delay [s]	12.2	3.23	0.01	3.59	9.55	0.06	0.35	5.44	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
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

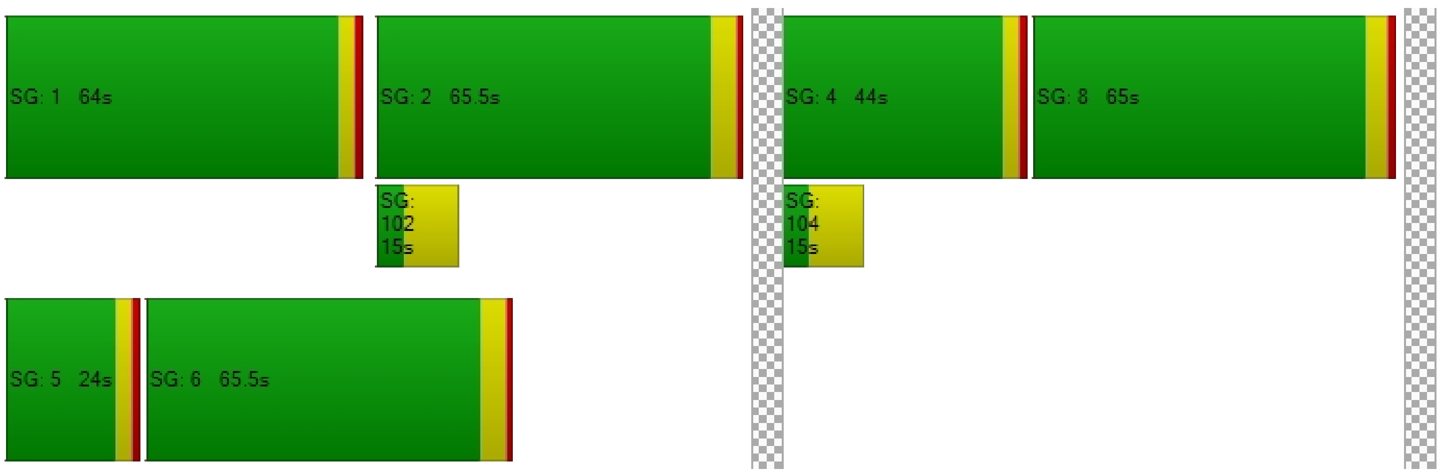
X, volume / capacity	0.79	0.91	0.02	0.89	1.00	0.11	0.18	0.85	0.90
d, Delay for Lane Group [s/veh]	74.1	46.9	31.3	52.8	43.1	18.1	51.18	61.60	64.10
Lane Group LOS	E	D	C	D	D	B	D	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	3.14	16.5	0.18	12.0	29.4	1.49	1.39	5.72	9.48
50th-Percentile Queue Length [ft/ln]	78.4	414.	4.55	300.	736.	37.2	34.82	142.92	236.95
95th-Percentile Queue Length [veh/ln]	5.65	23.2	0.33	17.7	38.3	2.68	2.51	9.64	14.53
95th-Percentile Queue Length [ft/ln]	141.	580.	8.18	443.	959.	67.1	62.68	240.94	363.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	74.1	46.9	31.3	52.8	43.1	18.1	51.1	51.1	61.6	64.1	64.1	64.1
Movement LOS	E	D	C	D	D	B	D	D	E	E	E	E
d_A, Approach Delay [s/veh]	48.89			45.04			60.33			64.10		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	48.54											
Intersection LOS	D											
Intersection V/C	0.890											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	23.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.836

Intersection Setup

Name	Re de			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestboun			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	0.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.00	12.0	0.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.	100.	50.0	175.	100.	55.0	425.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Re de			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	94	3	125	2	138	82	220	247	4	14	2	5
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	9	0	0	6	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]	94	3	125	2	139	82	220	248	4	14	2	5
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	24	1	31	1	349	21	55	620	1	4	1	1
Total Analysis Volume [veh/h]	94	3	125	2	139	82	220	248	4	14	2	5
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Prot	Per	Per	Prot	Per	Per	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lea	-	-	Lea	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	10	10	0	66	66	16	82	82	5
g / C, Green / Cycle	0.09	0.09	0.00	0.57	0.57	0.14	0.71	0.71	0.04
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.00	0.39	0.05	0.12	0.67	0.67	0.01
s, saturation flow rate [veh/h]	1744	1583	177	354	158	177	186	186	1663
c, Capacity [veh/h]	154	140	5	203	908	254	133	132	71
d1, Uniform Delay [s]	51.17	51.27	57.3	17.2	11.0	48.2	14.1	14.1	53.42
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.20	0.20	0.11
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]	6.90	8.31	48.9	0.42	0.04	8.61	6.39	6.44	2.30
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

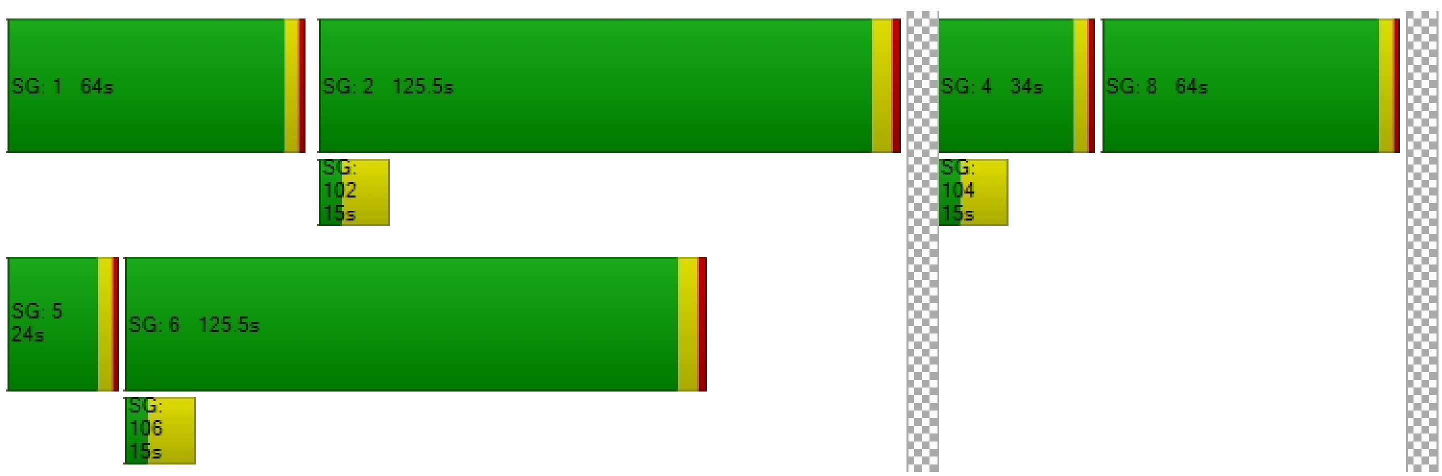
X, volume / capacity	0.74	0.76	0.42	0.69	0.09	0.87	0.93	0.93	0.30
d, Delay for Lane Group [s/veh]	58.07	59.57	106.	17.6	11.0	56.8	20.5	20.5	55.71
Lane Group LOS	E	E	F	B	B	E	C	C	E
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	3.55	3.36	0.12	11.6	0.88	6.58	23.1	23.1	0.64
50th-Percentile Queue Length [ft/ln]	88.73	84.06	3.05	292.	22.0	164.	578.	579.	15.97
95th-Percentile Queue Length [veh/ln]	6.39	6.05	0.22	17.2	1.58	10.7	31.0	31.0	1.15
95th-Percentile Queue Length [ft/ln]	159.71	151.30	5.48	432.	39.6	269.	775.	776.	28.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.0	58.0	59.3	106.	17.6	11.0	56.8	20.5	20.5	55.7	55.7	55.7
Movement LOS	E	E	E	F	B	B	E	C	C	E	E	E
d_A, Approach Delay [s/veh]	58.79			17.43			23.49			55.71		
Approach LOS	E			B			C			E		
d_I, Intersection Delay [s/veh]	23.39											
Intersection LOS	C											
Intersection V/C	0.836											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.686

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.					
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	2	0	1	0	0	2	1	0	1
Entry Pocket Length [ft]	60.0	100.	100.	290.	100.	100.	100.	100.	205.	210.	100.	170.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.					
Base Volume Input [veh/h]	17	524	105	368	300	112	78	59	565	130	57	11
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	25	2	5	5	7	52	2	2	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]	17	524	106	393	302	117	83	66	617	132	59	11
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	4	131	27	98	76	29	21	17	154	33	15	3
Total Analysis Volume [veh/h]	17	524	106	393	302	117	83	66	617	132	59	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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	2	17	17	12	28	28	21	21	10	10	10
g / C, Green / Cycle	0.02	0.21	0.21	0.15	0.35	0.35	0.26	0.26	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.01	0.17	0.17	0.11	0.09	0.07	0.08	0.22	0.07	0.03	0.01
s, saturation flow rate [veh/h]	177	186	175	344	354	158	1812	2803	177	186	158
c, Capacity [veh/h]	35	393	370	514	125	558	475	734	218	229	195
d1, Uniform Delay [s]	39.0	30.2	30.3	32.8	18.4	18.1	23.85	28.07	33.4	31.9	31.1
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]	9.98	4.37	4.78	2.41	0.10	0.18	0.37	2.68	2.68	0.59	0.12
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

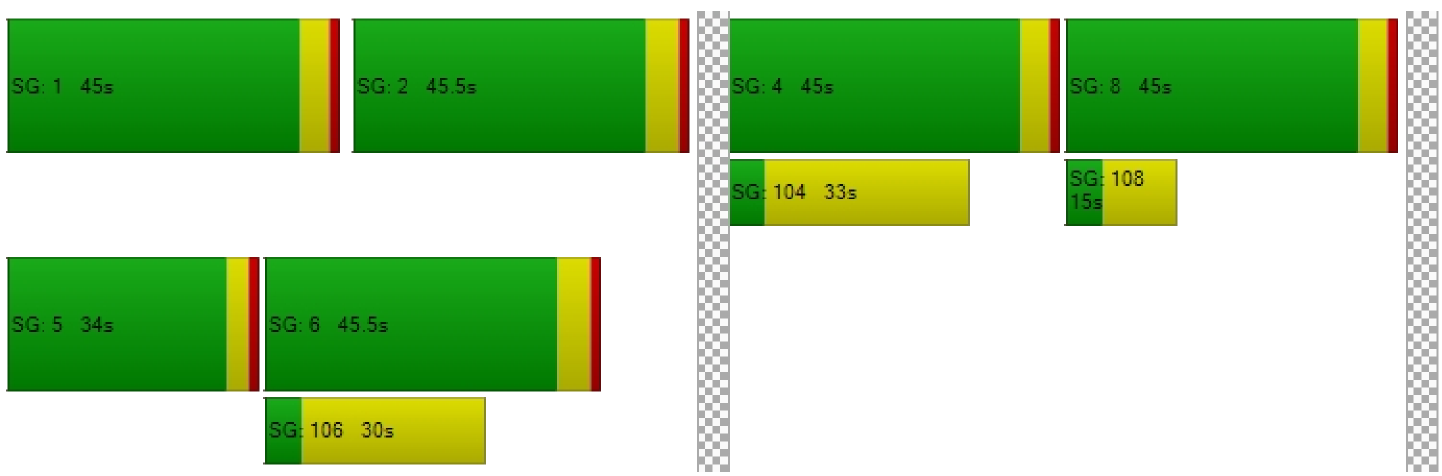
X, volume / capacity	0.48	0.82	0.83	0.77	0.24	0.21	0.31	0.84	0.60	0.26	0.06
d, Delay for Lane Group [s/veh]	48.9	34.6	35.1	35.2	18.5	18.3	24.23	30.76	36.0	32.5	31.2
Lane Group LOS	D	C	D	D	B	B	C	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.41	5.97	5.71	3.59	1.81	1.40	2.25	5.64	2.54	1.05	0.19
50th-Percentile Queue Length [ft/ln]	10.2	149.	142.	89.7	45.3	35.0	56.33	141.10	63.4	26.3	4.78
95th-Percentile Queue Length [veh/ln]	0.74	9.97	9.62	6.46	3.26	2.52	4.06	9.54	4.57	1.89	0.34
95th-Percentile Queue Length [ft/ln]	18.5	249.	240.	161.	81.5	63.1	101.39	238.50	114.	47.3	8.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.9	34.8	35.1	35.2	18.5	18.3	24.2	24.2	30.7	36.0	32.5	31.2
Movement LOS	D	C	D	D	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	35.25			26.60			29.49			34.78		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	30.50											
Intersection LOS	C											
Intersection V/C	0.686											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	17.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	2	0	0	1
Entry Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	1202	78	161	675	60	347
Base Volume Adjustment Factor	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
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]	54	0	9	32	0	2
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]	1256	78	170	707	60	349
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	314	20	43	177	15	87
Total Analysis Volume [veh/h]	1256	78	170	707	60	349
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissiv	Overlap	Protected	Permissiv	Permissiv	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	33	54	16	54	16	36
g / C, Green / Cycle	0.41	0.68	0.19	0.67	0.20	0.45
(v / s)_i Volume / Saturation Flow Rate	0.35	0.05	0.05	0.20	0.03	0.22
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1471	1078	670	2382	350	719
d1, Uniform Delay [s]	21.22	4.29	27.31	5.39	26.70	15.30
k, delay calibration	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
d2, Incremental Delay [s]	1.51	0.03	0.20	0.07	0.23	0.51
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

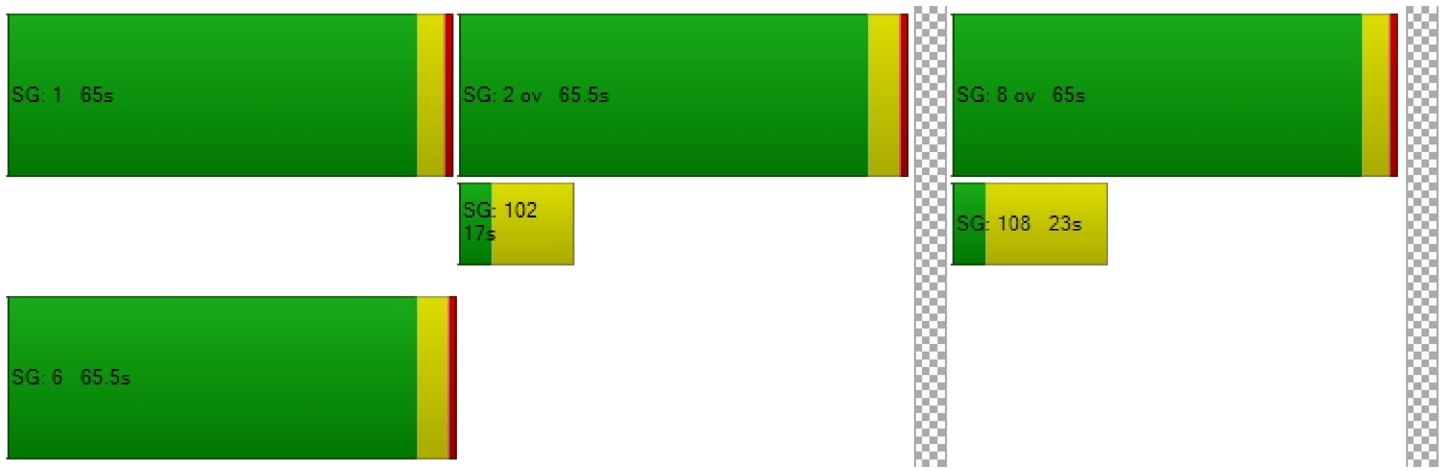
X, volume / capacity	0.85	0.07	0.25	0.30	0.17	0.49
d, Delay for Lane Group [s/veh]	22.73	4.32	27.51	5.46	26.93	15.81
Lane Group LOS	C	A	C	A	C	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	9.48	0.30	1.30	1.67	0.95	4.24
50th-Percentile Queue Length [ft/ln]	236.90	7.44	32.46	41.69	23.75	105.91
95th-Percentile Queue Length [veh/ln]	14.52	0.54	2.34	3.00	1.71	7.61
95th-Percentile Queue Length [ft/ln]	363.11	13.40	58.43	75.04	42.75	190.30

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.73	4.32	27.51	5.46	26.93	15.81
Movement LOS	C	A	C	A	C	B
d_A, Approach Delay [s/veh]	21.65		9.73		17.44	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	17.01					
Intersection LOS	B					
Intersection V/C	0.649					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	78.0
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.960

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	155.	100.	55.0	400.	100.	50.0	100.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Base Volume Input [veh/h]	34	150	3	320	857	40	7	22	766	87	13	27
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	56	0	8	39	0	2	0	16	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]	34	155	3	328	896	40	9	22	782	87	13	27
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	9	390	1	82	224	10	2	6	196	22	3	7
Total Analysis Volume [veh/h]	34	155	3	328	896	40	9	22	782	87	13	27
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	157	157	157	157	157	157	157	157	157
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	4	60	60	18	74	74	47	47	14
g / C, Green / Cycle	0.02	0.38	0.38	0.11	0.47	0.47	0.30	0.30	0.09
(v / s)_i Volume / Saturation Flow Rate	0.02	0.44	0.00	0.10	0.25	0.03	0.02	0.28	0.07
s, saturation flow rate [veh/h]	177	354	158	344	354	158	1836	2803	1738
c, Capacity [veh/h]	44	135	606	388	166	745	552	842	150
d1, Uniform Delay [s]	76.0	48.4	29.9	68.2	29.4	22.5	39.04	53.24	70.61
k, delay calibration	0.11	0.14	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
d2, Incremental Delay [s]	24.0	69.5	0.00	5.09	0.27	0.03	0.04	5.19	12.05
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

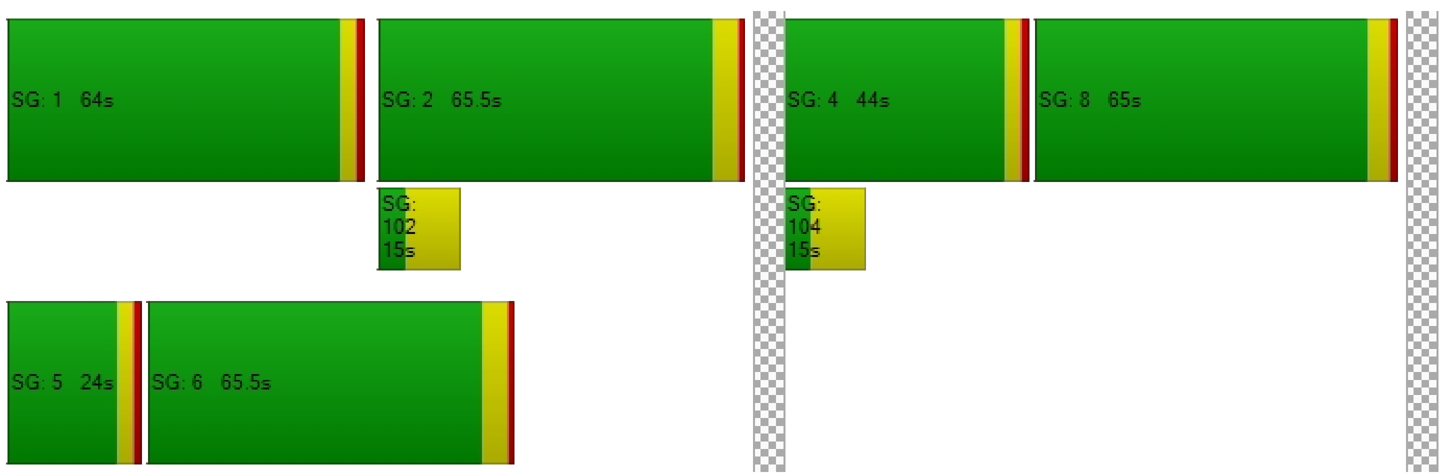
X, volume / capacity	0.77	1.15	0.00	0.85	0.54	0.05	0.06	0.93	0.85
d, Delay for Lane Group [s/veh]	100.	117.	29.9	73.3	29.7	22.6	39.09	58.43	82.66
Lane Group LOS	F	F	C	E	C	C	D	E	F
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	1.67	39.4	0.07	6.75	12.1	0.83	0.88	15.56	5.56
50th-Percentile Queue Length [ft/ln]	41.6	986.	1.82	168.	303.	20.8	21.90	389.12	138.93
95th-Percentile Queue Length [veh/ln]	3.00	54.7	0.13	11.0	17.8	1.50	1.58	22.04	9.42
95th-Percentile Queue Length [ft/ln]	74.9	136	3.27	275.	446.	37.5	39.43	550.88	235.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	100.	117.	29.9	73.3	29.7	22.6	39.0	39.0	58.4	82.6	82.6	82.6
Movement LOS	F	F	C	E	C	C	D	D	E	F	F	F
d_A, Approach Delay [s/veh]	117.43			40.81			57.69			82.66		
Approach LOS	F			D			E			F		
d_I, Intersection Delay [s/veh]	77.99											
Intersection LOS	E											
Intersection V/C	0.960											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	46.4
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.943

Intersection Setup

Name	Re de			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestboun			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	0.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.00	12.0	0.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.	100.	50.0	175.	100.	55.0	425.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Re de			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	123	0	308	5	220	177	122	111	72	4	53	0
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	105	0	0	36	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]	123	0	308	5	230	177	122	115	72	4	53	0
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	31	0	77	1	577	44	31	288	18	1	13	0
Total Analysis Volume [veh/h]	123	0	308	5	230	177	122	115	72	4	53	0
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Prot	Per	Per	Prot	Per	Per	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lea	-	-	Lea	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	190	190	190	190	190	190	190	190	190
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	28	28	1	120	120	15	134	134	10
g / C, Green / Cycle	0.15	0.15	0.01	0.63	0.63	0.08	0.70	0.70	0.05
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.00	0.65	0.11	0.07	0.33	0.33	0.03
s, saturation flow rate [veh/h]	1684	1583	177	354	158	177	186	182	1782
c, Capacity [veh/h]	248	233	11	223	998	142	131	128	89
d1, Uniform Delay [s]	79.74	79.74	94.2	35.1	14.6	86.4	12.4	12.4	88.69
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.11
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]	11.01	11.65	26.1	18.9	0.08	13.5	0.28	0.30	7.35
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

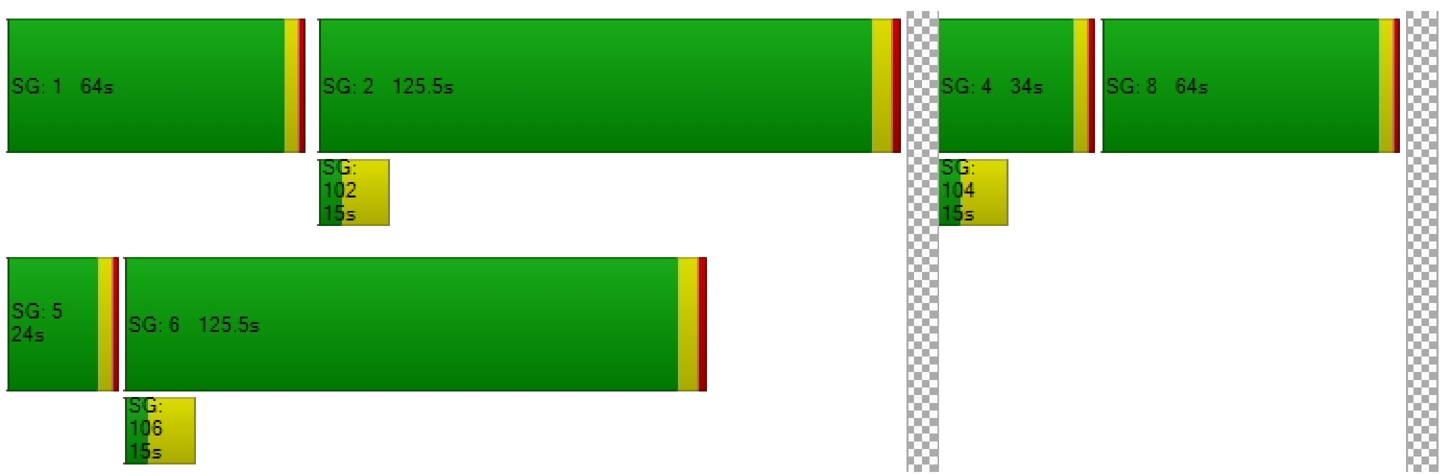
X, volume / capacity	0.90	0.90	0.45	1.03	0.18	0.86	0.47	0.47	0.64
d, Delay for Lane Group [s/veh]	90.75	91.39	120.	54.0	14.7	99.9	12.7	12.7	96.04
Lane Group LOS	F	F	F	F	B	F	B	B	F
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.60	10.96	0.33	54.0	3.20	6.43	11.2	11.0	2.98
50th-Percentile Queue Length [ft/ln]	290.11	274.07	8.14	135	79.9	160.	280.	276.	74.51
95th-Percentile Queue Length [veh/ln]	17.19	16.39	0.59	68.1	5.75	10.5	16.7	16.4	5.36
95th-Percentile Queue Length [ft/ln]	429.78	409.82	14.6	170	143.	264.	417.	412.	134.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	90.7	90.7	91.1	120.	54.0	14.7	99.9	12.7	12.7	96.0	96.0	96.0
Movement LOS	F	F	F	F	F	B	F	B	B	F	F	F
d_A, Approach Delay [s/veh]	91.06			51.42			20.62			96.04		
Approach LOS	F			D			C			F		
d_I, Intersection Delay [s/veh]	46.37											
Intersection LOS	D											
Intersection V/C	0.943											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	30.3
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.710

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.					
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	2	0	1	0	0	2	1	0	1
Entry Pocket Length [ft]	60.0	100.	100.	290.	100.	100.	100.	100.	205.	210.	100.	170.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.					
Base Volume Input [veh/h]	31	430	116	710	659	164	156	78	367	132	117	33
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	5	7	55	2	15	5	12	41	18	13	1
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]	32	435	123	765	661	179	161	90	408	150	130	34
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	8	109	31	191	165	45	40	23	102	38	33	9
Total Analysis Volume [veh/h]	32	435	123	765	661	179	161	90	408	150	130	34
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	84	84	84	84	84	84	84	84	84	84	84
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	3	16	16	22	36	36	15	15	10	10	10
g / C, Green / Cycle	0.03	0.19	0.19	0.26	0.43	0.43	0.18	0.18	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.16	0.22	0.19	0.11	0.14	0.15	0.08	0.07	0.02
s, saturation flow rate [veh/h]	177	186	172	344	354	158	1805	2803	177	186	158
c, Capacity [veh/h]	56	354	328	905	153	686	333	516	211	222	188
d1, Uniform Delay [s]	40.1	32.6	32.6	29.3	16.5	15.2	32.49	32.74	35.6	35.0	33.3
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]	8.93	4.54	5.18	2.27	0.19	0.20	3.49	2.76	4.39	2.46	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
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

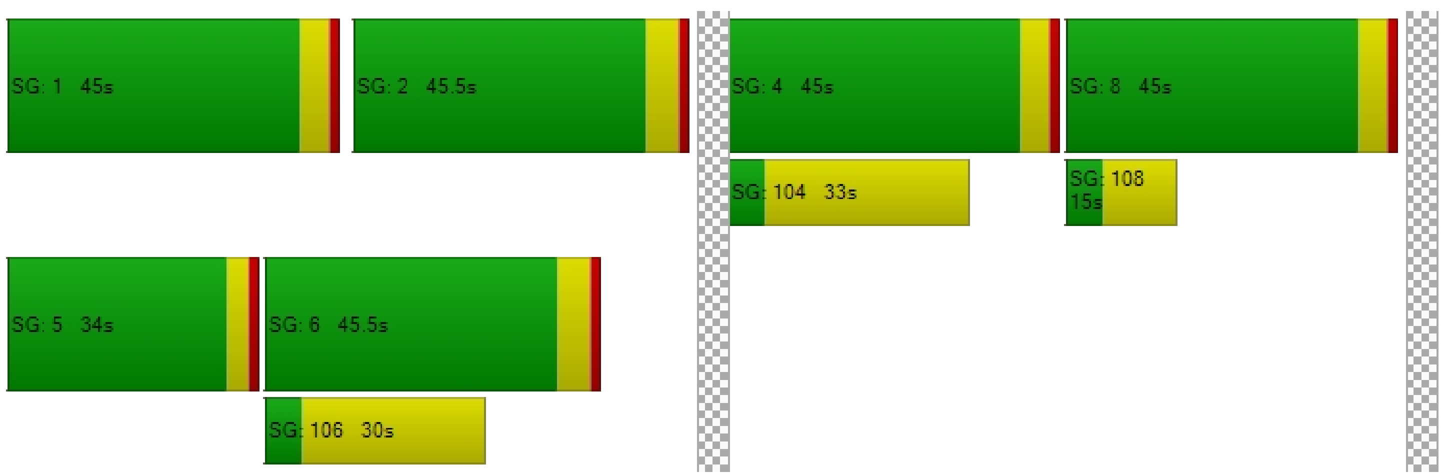
X, volume / capacity	0.57	0.81	0.82	0.84	0.43	0.26	0.75	0.79	0.71	0.59	0.18
d, Delay for Lane Group [s/veh]	49.0	37.1	37.8	31.6	16.7	15.4	35.98	35.49	40.0	37.5	33.8
Lane Group LOS	D	D	D	C	B	B	D	D	D	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.76	5.67	5.37	6.98	3.96	1.99	5.03	4.05	3.15	2.62	0.64
50th-Percentile Queue Length [ft/ln]	18.9	141.	134.	174.	99.0	49.6	125.67	101.25	78.7	65.4	15.9
95th-Percentile Queue Length [veh/ln]	1.36	9.57	9.17	11.3	7.13	3.57	8.70	7.29	5.67	4.71	1.15
95th-Percentile Queue Length [ft/ln]	34.1	239.	229.	282.	178.	89.3	217.59	182.26	141.	117.	28.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.0	37.3	37.8	31.6	16.7	15.4	35.9	35.9	35.4	40.0	37.5	33.8
Movement LOS	D	D	D	C	B	B	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	38.12			23.70			35.68			38.32		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	30.33											
Intersection LOS	C											
Intersection V/C	0.710											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	12.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.667

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	2	0	0	1
Entry Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	877	56	379	1504	59	214
Base Volume Adjustment Factor	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
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]	62	2	6	70	2	11
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]	939	58	385	1574	61	225
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	235	15	96	394	15	56
Total Analysis Volume [veh/h]	939	58	385	1574	61	225
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissiv	Overlap	Protected	Permissiv	Permissiv	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	53	53	53	53	53	53
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	18	33	10	33	10	25
g / C, Green / Cycle	0.33	0.62	0.19	0.62	0.19	0.47
(v / s)_i Volume / Saturation Flow Rate	0.26	0.04	0.11	0.44	0.03	0.14
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1186	989	646	2184	332	742
d1, Uniform Delay [s]	16.04	3.90	19.78	7.06	18.23	8.77
k, delay calibration	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
d2, Incremental Delay [s]	1.23	0.02	0.88	0.46	0.26	0.23
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

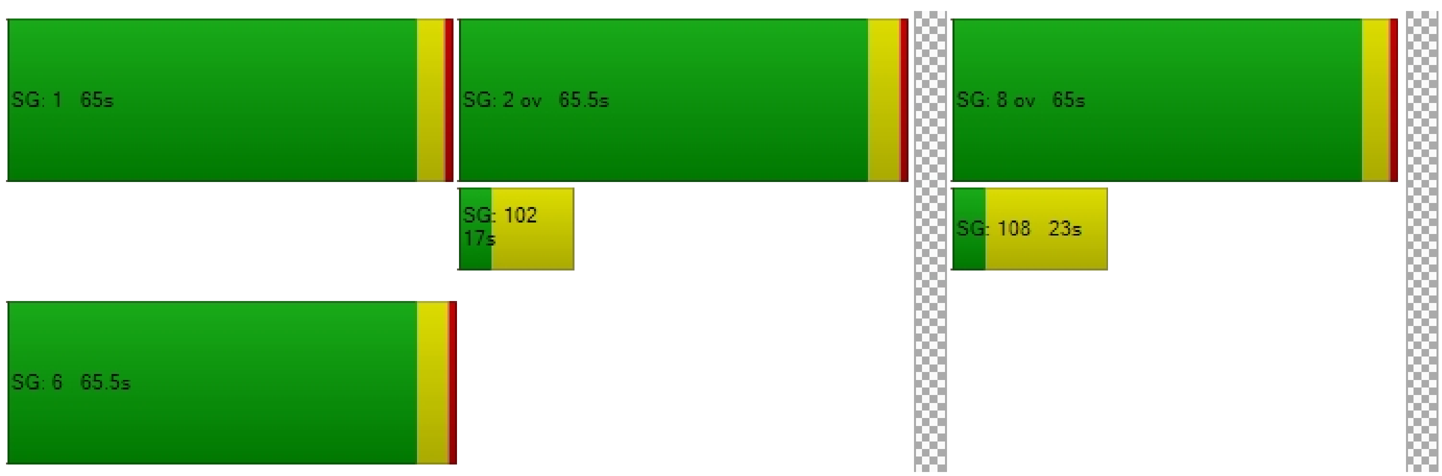
X, volume / capacity	0.79	0.06	0.60	0.72	0.18	0.30
d, Delay for Lane Group [s/veh]	17.27	3.92	20.66	7.52	18.49	9.00
Lane Group LOS	B	A	C	A	B	A
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.21	0.13	1.91	3.13	0.60	1.35
50th-Percentile Queue Length [ft/ln]	105.24	3.16	47.66	78.25	15.02	33.71
95th-Percentile Queue Length [veh/ln]	7.57	0.23	3.43	5.63	1.08	2.43
95th-Percentile Queue Length [ft/ln]	189.36	5.68	85.80	140.86	27.03	60.67

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.27	3.92	20.66	7.52	18.49	9.00
Movement LOS	B	A	C	A	B	A
d_A, Approach Delay [s/veh]	16.50		10.10		11.02	
Approach LOS	B		B		B	
d_I, Intersection Delay [s/veh]	12.15					
Intersection LOS	B					
Intersection V/C	0.667					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	55.3
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.906

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	155.	100.	55.0	400.	100.	50.0	100.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Base Volume Input [veh/h]	83	101	8	724	173	88	19	27	330	131	42	91
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	65	8	18	71	0	5	0	15	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]	83	107	16	742	180	88	24	27	345	131	42	91
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	21	269	4	186	452	22	6	7	86	33	11	23
Total Analysis Volume [veh/h]	83	107	16	742	180	88	24	27	345	131	42	91
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	9	49	49	36	76	76	21	21	25
g / C, Green / Cycle	0.06	0.33	0.33	0.24	0.51	0.51	0.14	0.14	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.30	0.01	0.22	0.51	0.06	0.03	0.12	0.15
s, saturation flow rate [veh/h]	177	354	158	344	354	158	1820	2803	1716
c, Capacity [veh/h]	104	116	520	822	180	805	257	396	289
d1, Uniform Delay [s]	69.9	48.6	34.2	55.5	36.9	19.2	57.03	63.21	61.39
k, delay calibration	0.11	0.11	0.11	0.11	0.19	0.11	0.11	0.11	0.15
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]	13.1	3.68	0.02	4.02	13.4	0.06	0.37	6.06	14.10
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

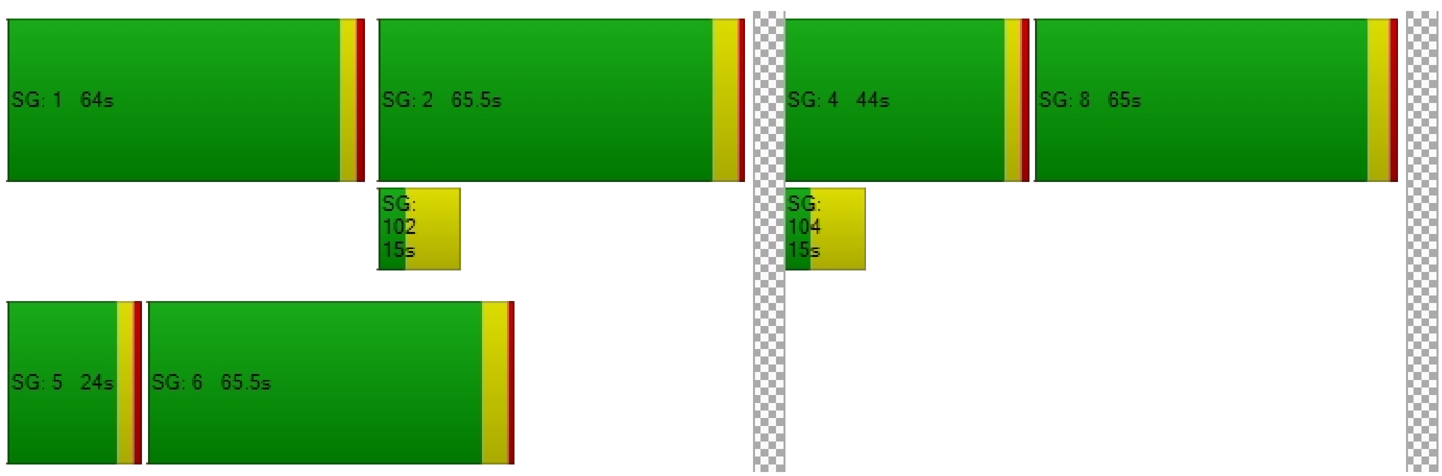
X, volume / capacity	0.80	0.92	0.03	0.90	1.00	0.11	0.20	0.87	0.91
d, Delay for Lane Group [s/veh]	83.0	52.3	34.2	59.5	50.3	19.2	57.40	69.27	75.49
Lane Group LOS	F	D	C	E	F	B	E	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	3.55	20.0	0.41	14.1	35.6	1.65	1.75	6.81	11.05
50th-Percentile Queue Length [ft/ln]	88.6	500.	10.2	352.	892.	41.3	43.87	170.28	276.29
95th-Percentile Queue Length [veh/ln]	6.38	27.3	0.74	20.2	45.5	2.98	3.16	11.09	16.50
95th-Percentile Queue Length [ft/ln]	159.	684.	18.4	506.	113	74.4	78.96	277.29	412.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	83.0	52.3	34.2	59.5	50.3	19.2	57.4	57.4	69.2	75.4	75.4	75.4
Movement LOS	F	D	C	E	F	B	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	54.26			51.88			67.74			75.49		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	55.31											
Intersection LOS	E											
Intersection V/C	0.906											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.855

Intersection Setup

Name	Re de			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestboun			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	0.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.00	12.0	0.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.	100.	50.0	175.	100.	55.0	425.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Re de			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	94	3	125	2	138	82	220	247	4	5	2	14
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	70	0	0	104	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]	94	3	125	2	145	82	220	257	4	5	2	14
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	24	1	31	1	364	21	55	645	1	1	1	4
Total Analysis Volume [veh/h]	94	3	125	2	145	82	220	257	4	5	2	14
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Prot	Per	Per	Prot	Per	Per	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lea	-	-	Lea	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	129	129	129	129	129	129	129	129	129
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	11	11	0	77	77	18	95	95	5
g / C, Green / Cycle	0.09	0.09	0.00	0.60	0.60	0.14	0.73	0.73	0.04
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.00	0.41	0.05	0.12	0.69	0.69	0.01
s, saturation flow rate [veh/h]	1744	1583	177	354	158	177	186	186	1583
c, Capacity [veh/h]	151	137	5	211	943	251	136	136	65
d1, Uniform Delay [s]	57.63	57.74	64.2	17.8	11.1	54.2	14.8	14.8	60.10
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.28	0.28	0.11
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]	7.76	9.39	49.4	0.41	0.04	9.53	9.21	9.27	2.83
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

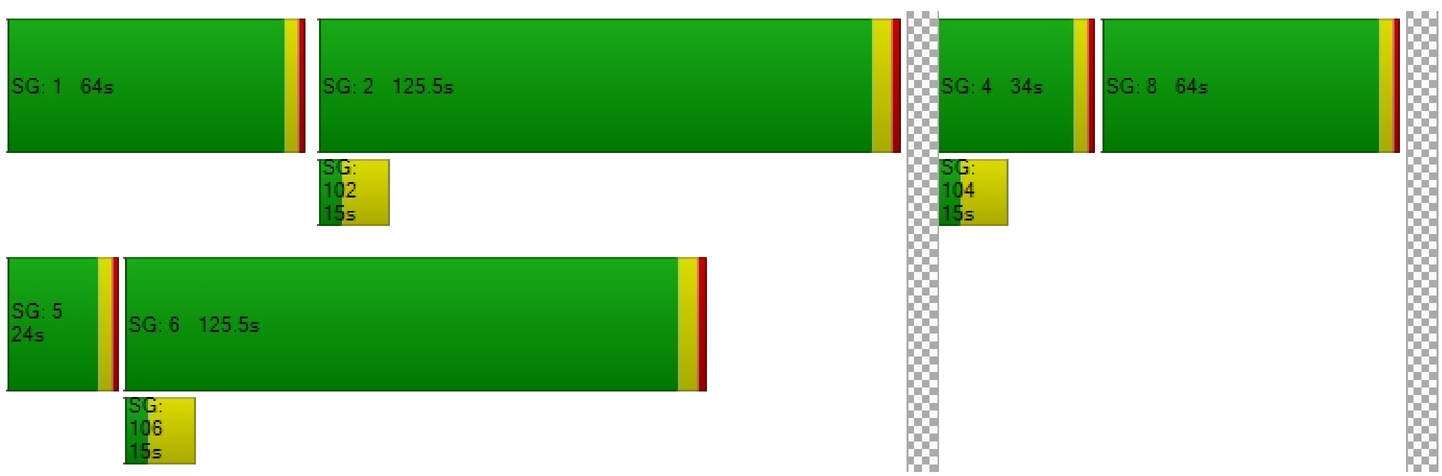
X, volume / capacity	0.76	0.78	0.42	0.69	0.09	0.88	0.94	0.94	0.32
d, Delay for Lane Group [s/veh]	65.39	67.13	113.	18.2	11.1	63.8	24.0	24.1	62.92
Lane Group LOS	E	E	F	B	B	E	C	C	E
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	4.02	3.81	0.13	13.5	0.95	7.49	28.5	28.5	0.73
50th-Percentile Queue Length [ft/ln]	100.52	95.22	3.25	339.	23.8	187.	713.	714.	18.13
95th-Percentile Queue Length [veh/ln]	7.24	6.86	0.23	19.6	1.72	11.9	37.2	37.3	1.31
95th-Percentile Queue Length [ft/ln]	180.93	171.40	5.85	490.	42.9	299.	932.	933.	32.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	65.3	65.3	66.9	113.	18.2	11.1	63.8	24.0	24.1	62.9	62.9	62.9
Movement LOS	E	E	E	F	B	B	E	C	C	E	E	E
d_A, Approach Delay [s/veh]	66.23			18.04			27.21			62.92		
Approach LOS	E			B			C			E		
d_I, Intersection Delay [s/veh]	26.18											
Intersection LOS	C											
Intersection V/C	0.855											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	30.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.687

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.					
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	2	0	1	0	0	2	1	0	1
Entry Pocket Length [ft]	60.0	100.	100.	290.	100.	100.	100.	100.	205.	210.	100.	170.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.					
Base Volume Input [veh/h]	17	524	105	368	300	112	78	59	565	130	57	11
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	1	26	2	5	5	7	53	2	2	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]	17	525	106	394	302	117	83	66	618	132	59	11
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	4	131	27	99	76	29	21	17	155	33	15	3
Total Analysis Volume [veh/h]	17	525	106	394	302	117	83	66	618	132	59	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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	2	17	17	12	28	28	21	21	10	10	10
g / C, Green / Cycle	0.02	0.21	0.21	0.15	0.35	0.35	0.26	0.26	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.01	0.17	0.17	0.11	0.09	0.07	0.08	0.22	0.07	0.03	0.01
s, saturation flow rate [veh/h]	177	186	175	344	354	158	1812	2803	177	186	158
c, Capacity [veh/h]	35	393	371	514	125	559	475	735	218	229	194
d1, Uniform Delay [s]	39.0	30.3	30.3	32.9	18.4	18.2	23.88	28.12	33.4	32.0	31.2
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]	9.99	4.38	4.79	2.42	0.10	0.18	0.37	2.69	2.70	0.59	0.12
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

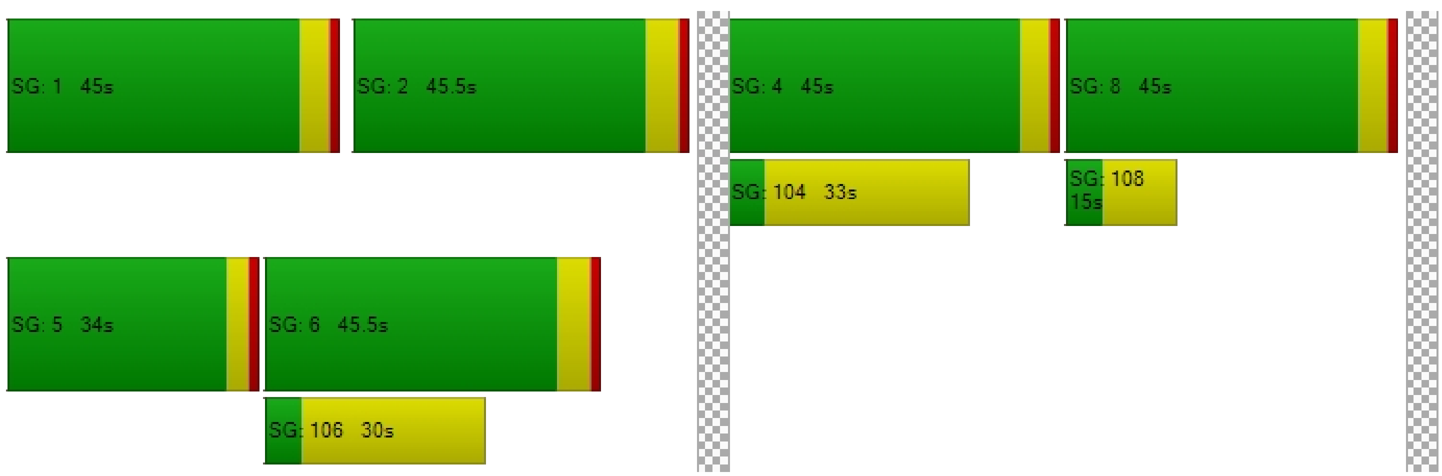
X, volume / capacity	0.48	0.82	0.83	0.77	0.24	0.21	0.31	0.84	0.61	0.26	0.06
d, Delay for Lane Group [s/veh]	49.0	34.7	35.1	35.3	18.5	18.3	24.26	30.81	36.1	32.6	31.3
Lane Group LOS	D	C	D	D	B	B	C	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.41	5.99	5.73	3.61	1.82	1.41	2.26	5.67	2.55	1.06	0.19
50th-Percentile Queue Length [ft/ln]	10.3	149.	143.	90.2	45.3	35.1	56.44	141.66	63.6	26.3	4.79
95th-Percentile Queue Length [veh/ln]	0.74	10.0	9.66	6.49	3.27	2.53	4.06	9.57	4.58	1.90	0.34
95th-Percentile Queue Length [ft/ln]	18.5	250.	241.	162.	81.7	63.2	101.58	239.26	114.	47.5	8.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.0	34.9	35.1	35.3	18.5	18.3	24.2	24.2	30.8	36.1	32.6	31.3
Movement LOS	D	C	D	D	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	35.31			26.65			29.54			34.87		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	30.56											
Intersection LOS	C											
Intersection V/C	0.687											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	17.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	2	0	0	1
Entry Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	1202	78	161	675	60	347
Base Volume Adjustment Factor	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
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]	54	2	13	32	1	7
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]	1256	80	174	707	61	354
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	314	20	44	177	15	89
Total Analysis Volume [veh/h]	1256	80	174	707	61	354
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissiv	Overlap	Protected	Permissiv	Permissiv	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	81	81	81	81	81	81
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	34	55	16	55	16	37
g / C, Green / Cycle	0.41	0.68	0.20	0.67	0.20	0.46
(v / s)_i Volume / Saturation Flow Rate	0.35	0.05	0.05	0.20	0.03	0.22
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1468	1077	678	2384	353	724
d1, Uniform Delay [s]	21.62	4.38	27.62	5.46	27.02	15.43
k, delay calibration	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
d2, Incremental Delay [s]	1.54	0.03	0.20	0.07	0.23	0.51
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

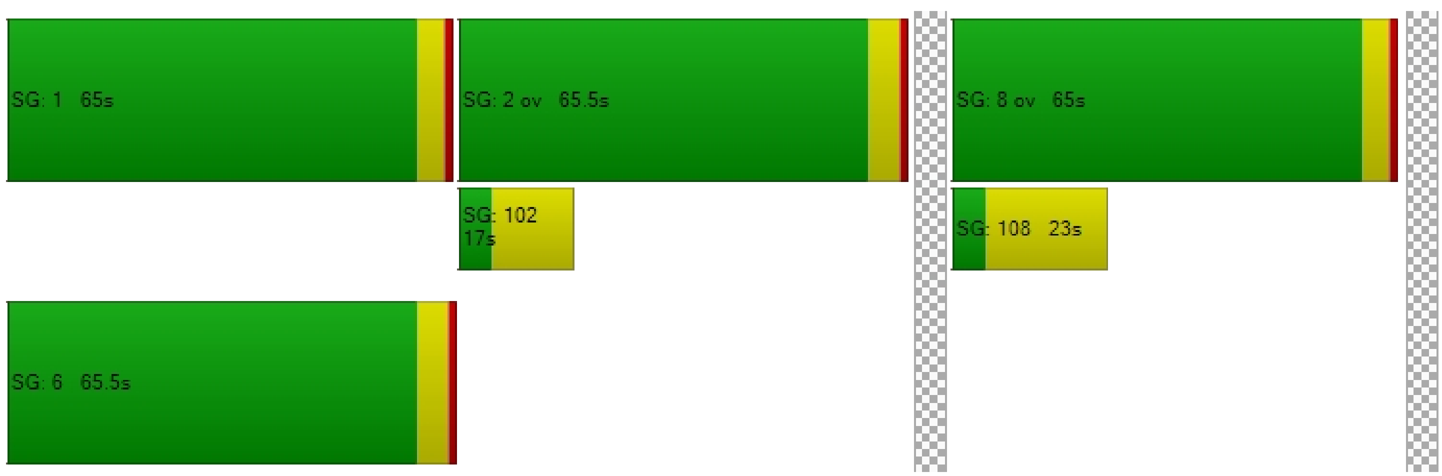
X, volume / capacity	0.86	0.07	0.26	0.30	0.17	0.49
d, Delay for Lane Group [s/veh]	23.16	4.41	27.82	5.53	27.25	15.95
Lane Group LOS	C	A	C	A	C	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	9.70	0.32	1.35	1.71	0.98	4.37
50th-Percentile Queue Length [ft/ln]	242.51	7.90	33.79	42.87	24.54	109.28
95th-Percentile Queue Length [veh/ln]	14.81	0.57	2.43	3.09	1.77	7.80
95th-Percentile Queue Length [ft/ln]	370.20	14.21	60.83	77.16	44.18	194.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.16	4.41	27.82	5.53	27.25	15.95
Movement LOS	C	A	C	A	C	B
d_A, Approach Delay [s/veh]	22.04		9.93		17.61	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	17.29					
Intersection LOS	B					
Intersection V/C	0.651					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	78.7
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.962

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	155.	100.	55.0	400.	100.	50.0	100.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Base Volume Input [veh/h]	34	150	3	320	857	40	7	22	766	87	13	27
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	61	0	8	43	0	2	0	16	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]	34	156	3	328	900	40	9	22	782	87	13	27
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	9	391	1	82	225	10	2	6	196	22	3	7
Total Analysis Volume [veh/h]	34	156	3	328	900	40	9	22	782	87	13	27
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	157	157	157	157	157	157	157	157	157
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	4	60	60	18	74	74	47	47	14
g / C, Green / Cycle	0.02	0.38	0.38	0.11	0.47	0.47	0.30	0.30	0.09
(v / s)_i Volume / Saturation Flow Rate	0.02	0.44	0.00	0.10	0.25	0.03	0.02	0.28	0.07
s, saturation flow rate [veh/h]	177	354	158	344	354	158	1836	2803	1738
c, Capacity [veh/h]	44	135	606	388	166	745	552	842	150
d1, Uniform Delay [s]	76.0	48.4	29.9	68.2	29.4	22.5	39.04	53.24	70.61
k, delay calibration	0.11	0.14	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
d2, Incremental Delay [s]	24.0	71.1	0.00	5.09	0.27	0.03	0.04	5.19	12.05
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

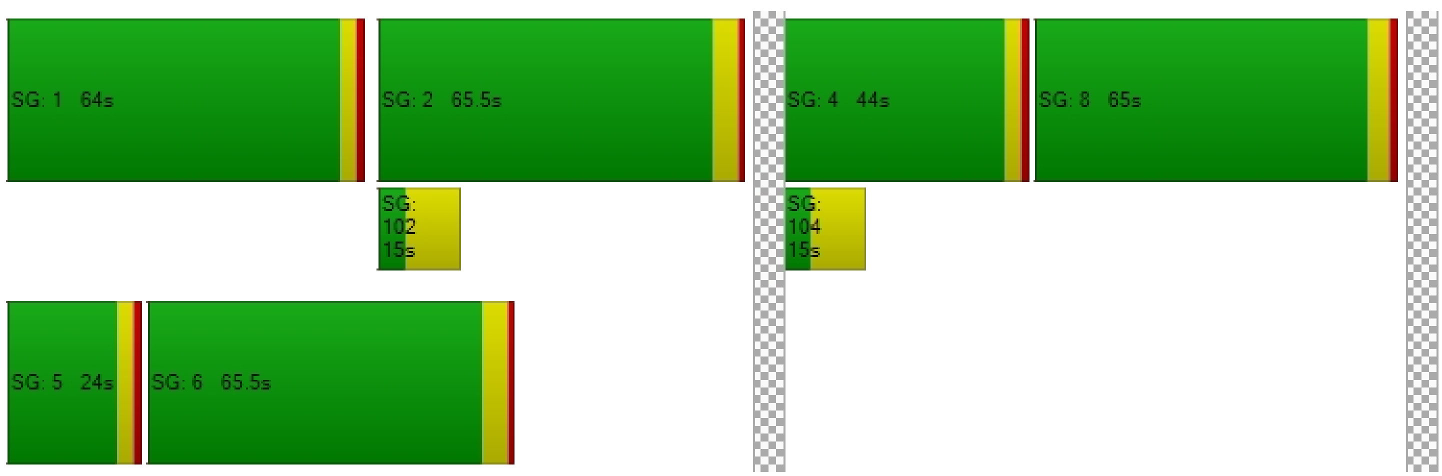
X, volume / capacity	0.77	1.15	0.00	0.85	0.54	0.05	0.06	0.93	0.85
d, Delay for Lane Group [s/veh]	100.	119.	29.9	73.3	29.7	22.6	39.09	58.43	82.66
Lane Group LOS	F	F	C	E	C	C	D	E	F
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	1.67	39.7	0.07	6.75	12.2	0.83	0.88	15.56	5.56
50th-Percentile Queue Length [ft/ln]	41.6	994.	1.82	168.	305.	20.8	21.90	389.12	138.93
95th-Percentile Queue Length [veh/ln]	3.00	55.2	0.13	11.0	17.9	1.50	1.58	22.04	9.42
95th-Percentile Queue Length [ft/ln]	74.9	138	3.27	275.	448.	37.5	39.43	550.88	235.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	100.	119.	29.9	73.3	29.7	22.6	39.0	39.0	58.4	82.6	82.6	82.6
Movement LOS	F	F	C	E	C	C	D	D	E	F	F	F
d_A, Approach Delay [s/veh]	119.03			40.80			57.69			82.66		
Approach LOS	F			D			E			F		
d_I, Intersection Delay [s/veh]	78.67											
Intersection LOS	E											
Intersection V/C	0.962											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	46.8
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.945

Intersection Setup

Name	Re de			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestboun			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	0.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.00	12.0	0.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.	100.	50.0	175.	100.	55.0	425.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Re de			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	123	0	308	5	220	177	122	111	72	4	53	0
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	110	0	0	40	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]	123	0	308	5	231	177	122	115	72	4	53	0
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	31	0	77	1	579	44	31	289	18	1	13	0
Total Analysis Volume [veh/h]	123	0	308	5	231	177	122	115	72	4	53	0
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Prot	Per	Per	Prot	Per	Per	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lea	-	-	Lea	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	190	190	190	190	190	190	190	190	190
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	28	28	1	120	120	15	134	134	10
g / C, Green / Cycle	0.15	0.15	0.01	0.63	0.63	0.08	0.70	0.70	0.05
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.00	0.65	0.11	0.07	0.33	0.33	0.03
s, saturation flow rate [veh/h]	1684	1583	177	354	158	177	186	182	1782
c, Capacity [veh/h]	248	233	11	223	998	142	131	128	89
d1, Uniform Delay [s]	79.74	79.74	94.2	35.1	14.6	86.4	12.4	12.4	88.69
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.11
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]	11.01	11.65	26.1	19.7	0.08	13.5	0.29	0.30	7.35
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

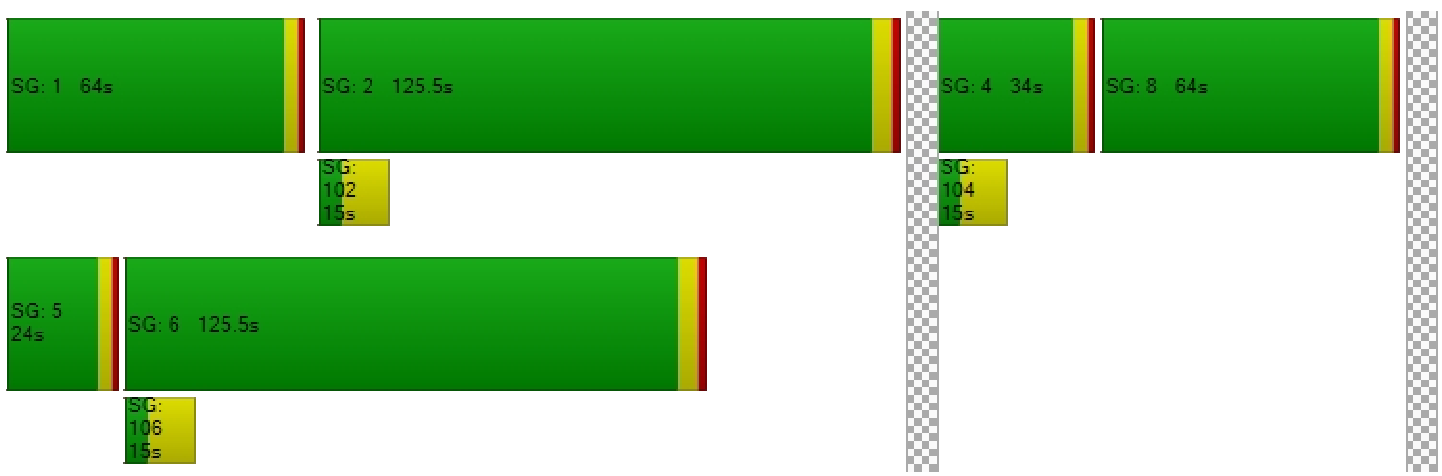
X, volume / capacity	0.90	0.90	0.45	1.03	0.18	0.86	0.47	0.47	0.64
d, Delay for Lane Group [s/veh]	90.75	91.39	120.	54.9	14.7	99.9	12.7	12.7	96.04
Lane Group LOS	F	F	F	F	B	F	B	B	F
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.60	10.96	0.33	54.3	3.20	6.43	11.2	11.1	2.98
50th-Percentile Queue Length [ft/ln]	290.11	274.07	8.14	135	79.9	160.	281.	277.	74.51
95th-Percentile Queue Length [veh/ln]	17.19	16.39	0.59	68.5	5.75	10.5	16.7	16.5	5.36
95th-Percentile Queue Length [ft/ln]	429.78	409.82	14.6	171	143.	264.	419.	414.	134.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	90.7	90.7	91.1	120.	54.9	14.7	99.9	12.7	12.7	96.0	96.0	96.0
Movement LOS	F	F	F	F	F	B	F	B	B	F	F	F
d_A, Approach Delay [s/veh]	91.06			52.22			20.62			96.04		
Approach LOS	F			D			C			F		
d_I, Intersection Delay [s/veh]	46.81											
Intersection LOS	D											
Intersection V/C	0.945											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Route 1 & Linda Mar Blvd./San Pedro Ave.

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.711

Intersection Setup

Name	Route 1			Route 1			Linda Mar Blvd.					
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	2	0	1	0	0	2	1	0	1
Entry Pocket Length [ft]	60.0	100.	100.	290.	100.	100.	100.	100.	205.	210.	100.	170.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Route 1			Route 1			Linda Mar Blvd.					
Base Volume Input [veh/h]	31	430	116	710	659	164	156	78	367	132	117	33
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	5	7	56	3	15	5	12	43	18	13	1
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]	32	435	123	766	662	179	161	90	410	150	130	34
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	8	109	31	192	166	45	40	23	103	38	33	9
Total Analysis Volume [veh/h]	32	435	123	766	662	179	161	90	410	150	130	34
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	5	0	10	0
Maximum Green [s]	30	40	0	40	40	0	0	40	40	0	40	0
Amber [s]	3.0	4.5	0.0	4.0	4.5	0.0	0.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	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	0.0	3.0	3.0	0.0	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	25	0	0	10	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	3.0	3.5	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		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	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	C	R	L	C	R
C, Cycle Length [s]	84	84	84	84	84	84	84	84	84	84	84
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.00	5.50	5.50	5.00	5.00	5.00	5.00	5.00
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]	2.00	3.50	3.50	3.00	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	3	16	16	22	36	36	16	16	10	10	10
g / C, Green / Cycle	0.03	0.19	0.19	0.26	0.43	0.43	0.18	0.18	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.16	0.22	0.19	0.11	0.14	0.15	0.08	0.07	0.02
s, saturation flow rate [veh/h]	177	186	172	344	354	158	1805	2803	177	186	158
c, Capacity [veh/h]	56	354	328	906	153	686	334	518	210	221	188
d1, Uniform Delay [s]	40.2	32.6	32.7	29.4	16.6	15.2	32.51	32.78	35.7	35.1	33.4
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]	8.95	4.55	5.19	2.27	0.19	0.20	3.43	2.76	4.43	2.48	0.46
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

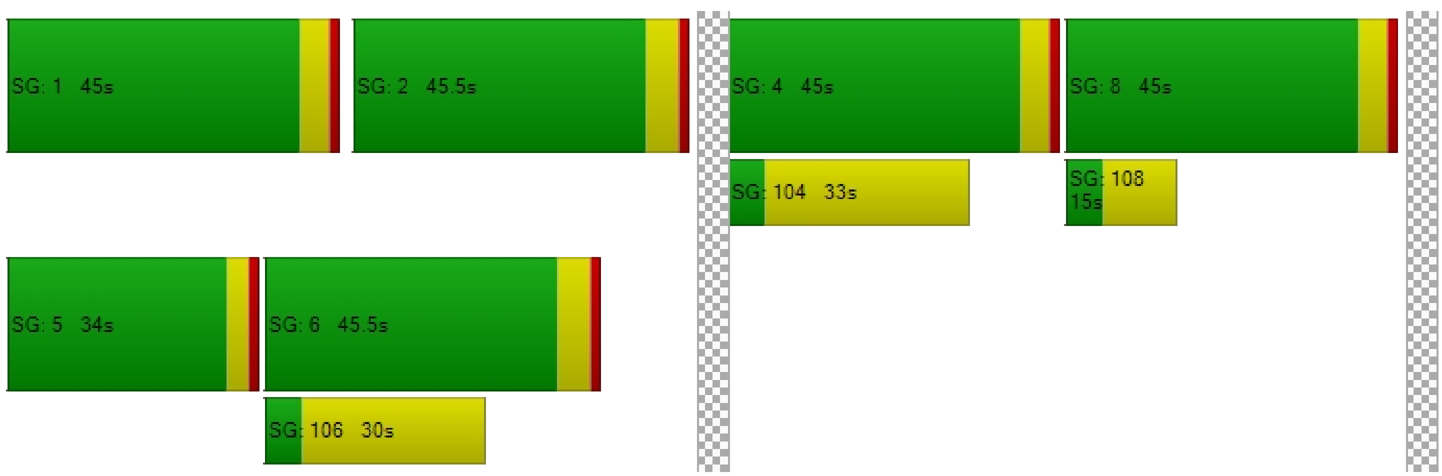
X, volume / capacity	0.57	0.81	0.82	0.85	0.43	0.26	0.75	0.79	0.71	0.59	0.18
d, Delay for Lane Group [s/veh]	49.2	37.2	37.9	31.6	16.8	15.4	35.94	35.55	40.1	37.6	33.9
Lane Group LOS	D	D	D	C	B	B	D	D	D	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.76	5.68	5.39	7.01	3.98	1.99	5.03	4.08	3.16	2.63	0.64
50th-Percentile Queue Length [ft/ln]	19.0	142.	134.	175.	99.4	49.7	125.75	102.00	78.9	65.6	15.9
95th-Percentile Queue Length [veh/ln]	1.37	9.59	9.19	11.3	7.16	3.58	8.71	7.34	5.69	4.73	1.15
95th-Percentile Queue Length [ft/ln]	34.2	239.	229.	283.	179.	89.6	217.71	183.60	142.	118.	28.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.2	37.4	37.9	31.6	16.8	15.4	35.9	35.9	35.5	40.1	37.6	33.9
Movement LOS	D	D	D	C	B	B	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	38.22			23.75			35.70			38.45		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	30.39											
Intersection LOS	C											
Intersection V/C	0.711											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Route 1 & Crespi Dr.

Control Type:	Signalized	Delay (sec / veh):	12.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.673

Intersection Setup

Name	Route 1		Route 1		Crespi Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	2	0	0	1
Entry Pocket Length [ft]	100.00	95.00	155.00	100.00	100.00	140.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Route 1		Route 1		Crespi Drive	
Base Volume Input [veh/h]	877	56	379	1504	59	214
Base Volume Adjustment Factor	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
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]	62	4	13	70	4	21
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]	939	60	392	1574	63	235
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	235	15	98	394	16	59
Total Analysis Volume [veh/h]	939	60	392	1574	63	235
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
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissiv	Overlap	Protected	Permissiv	Permissiv	Overlap
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				1,8
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	10	10	10	10	10
Maximum Green [s]	60	60	60	60	60	60
Amber [s]	4.5	4.0	4.0	4.5	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	5	5	0	5	5	0
Pedestrian Clearance [s]	12	18	0	10	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.0	3.0	3.5	3.0	3.0
Minimum Recall	No	No	No	No	No	No
Maximum Recall	No	No	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
Detector Length [ft]	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	53	53	53	53	53	53
L, Total Lost Time per Cycle [s]	5.50	5.00	5.00	5.50	5.00	5.00
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]	3.50	0.00	3.00	3.50	3.00	0.00
g_i, Effective Green Time [s]	18	33	10	33	10	25
g / C, Green / Cycle	0.33	0.62	0.19	0.62	0.19	0.47
(v / s)_i Volume / Saturation Flow Rate	0.26	0.04	0.11	0.44	0.04	0.15
s, saturation flow rate [veh/h]	3547	1583	3445	3547	1774	1583
c, Capacity [veh/h]	1187	989	646	2185	332	742
d1, Uniform Delay [s]	16.05	3.90	19.85	7.06	18.26	8.84
k, delay calibration	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
d2, Incremental Delay [s]	1.23	0.03	0.92	0.46	0.27	0.24
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

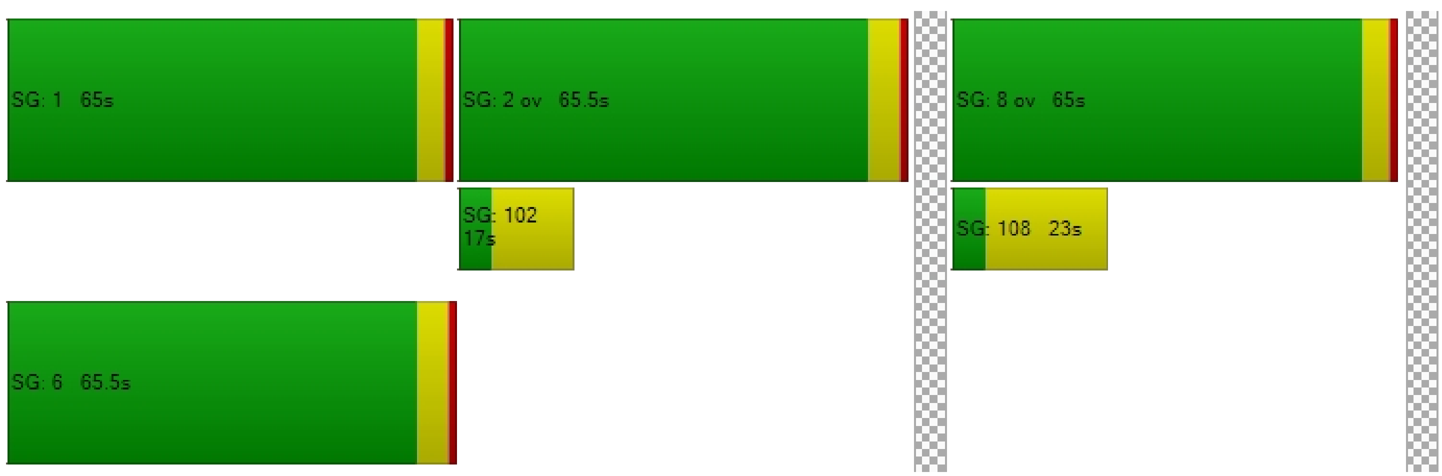
X, volume / capacity	0.79	0.06	0.61	0.72	0.19	0.32
d, Delay for Lane Group [s/veh]	17.27	3.93	20.77	7.52	18.54	9.09
Lane Group LOS	B	A	C	A	B	A
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.21	0.13	1.95	3.14	0.62	1.42
50th-Percentile Queue Length [ft/ln]	105.30	3.27	48.74	78.38	15.54	35.52
95th-Percentile Queue Length [veh/ln]	7.58	0.24	3.51	5.64	1.12	2.56
95th-Percentile Queue Length [ft/ln]	189.45	5.89	87.74	141.08	27.97	63.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.27	3.93	20.77	7.52	18.54	9.09
Movement LOS	B	A	C	A	B	A
d_A, Approach Delay [s/veh]	16.47		10.16		11.08	
Approach LOS	B		B		B	
d_I, Intersection Delay [s/veh]	12.18					
Intersection LOS	B					
Intersection V/C	0.673					

Sequence

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Route 1 & Fassler Ave/Rockaway Beach Ave.

Control Type:	Signalized	Delay (sec / veh):	55.9
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.907

Intersection Setup

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Approach	Northeastbound			Southwestboun			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	1	0	0	0
Entry Pocket Length [ft]	155.	100.	55.0	400.	100.	50.0	100.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			No		

Volumes

Name	Route 1			Route 1			Fassler Ave.			Ro Be		
Base Volume Input [veh/h]	83	101	8	724	173	88	19	27	330	131	42	91
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	75	8	18	78	0	5	0	15	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]	83	108	16	742	181	88	24	27	345	131	42	91
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	21	272	4	186	454	22	6	7	86	33	11	23
Total Analysis Volume [veh/h]	83	108	16	742	181	88	24	27	345	131	42	91
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Prot	Per	Per	Prot	Per	Per	Split	Split	Split	Split	Split	Split
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lea	-	-	Lea	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	10	10	0	0	10	0	0	10	0
Maximum Green [s]	20	60	0	60	60	0	0	60	0	0	40	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	4.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	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	0.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	0.0	3.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		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	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	R	L	C	R	C	R	C
C, Cycle Length [s]	152	152	152	152	152	152	152	152	152
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	5.00	5.00	4.00
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]	2.00	3.50	3.50	2.00	3.50	3.50	3.00	3.00	2.00
g_i, Effective Green Time [s]	9	50	50	36	78	78	21	21	26
g / C, Green / Cycle	0.06	0.33	0.33	0.24	0.51	0.51	0.14	0.14	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.31	0.01	0.22	0.51	0.06	0.03	0.12	0.15
s, saturation flow rate [veh/h]	177	354	158	344	354	158	1820	2803	1716
c, Capacity [veh/h]	103	117	524	821	181	809	257	395	289
d1, Uniform Delay [s]	70.7	49.1	34.4	56.2	37.2	19.2	57.75	64.01	62.17
k, delay calibration	0.11	0.11	0.11	0.11	0.20	0.11	0.11	0.11	0.15
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]	13.2	3.76	0.02	4.07	13.6	0.06	0.38	6.13	14.64
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

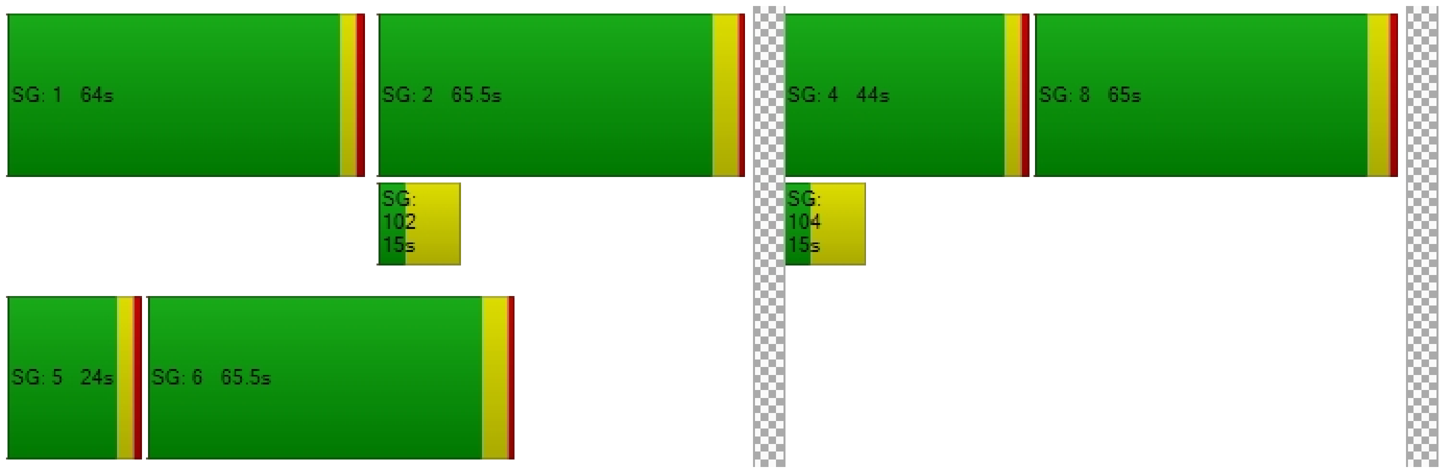
X, volume / capacity	0.80	0.93	0.03	0.90	1.00	0.11	0.20	0.87	0.91
d, Delay for Lane Group [s/veh]	84.0	52.8	34.4	60.3	50.8	19.3	58.13	70.15	76.81
Lane Group LOS	F	D	C	E	F	B	E	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	3.59	20.4	0.41	14.3	36.3	1.67	1.78	6.90	11.23
50th-Percentile Queue Length [ft/ln]	89.7	512.	10.3	357.	907.	41.7	44.46	172.57	280.71
95th-Percentile Queue Length [veh/ln]	6.46	27.9	0.74	20.5	46.2	3.00	3.20	11.21	16.72
95th-Percentile Queue Length [ft/ln]	161.	697.	18.6	512.	115	75.1	80.02	280.30	418.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	84.0	52.8	34.4	60.3	50.8	19.3	58.1	58.1	70.1	76.8	76.8	76.8
Movement LOS	F	D	C	E	F	B	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	54.81			52.44			68.60			76.81		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	55.92											
Intersection LOS	E											
Intersection V/C	0.907											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Route 1 & Reina del Mar Ave.

Control Type:	Signalized	Delay (sec / veh):	26.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.856

Intersection Setup

Name	Re de			Route 1			Route 1			Calera WRP		
Approach	Westbound			Northeastbound			Southwestboun			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ	Left	Thru	Righ
Lane Width [ft]	0.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.00	12.0	0.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	0	0	0
Entry Pocket Length [ft]	100.	100.	50.0	175.	100.	55.0	425.	100.	100.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Re de			Route 1			Route 1			Calera WRP		
Base Volume Input [veh/h]	94	3	125	2	138	82	220	247	4	5	2	14
Base Volume Adjustment 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
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	80	0	0	111	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]	94	3	125	2	146	82	220	258	4	5	2	14
Peak Hour 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
Other Adjustment 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
Total 15-Minute Volume [veh/h]	24	1	31	1	367	21	55	646	1	1	1	4
Total Analysis Volume [veh/h]	94	3	125	2	146	82	220	258	4	5	2	14
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
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	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Prot	Per	Per	Prot	Per	Per	Split	Split	Split
Signal Group	0	8	0	5	2	0	1	6	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lea	-	-	Lea	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	5	10	0	0	10	0
Maximum Green [s]	0	60	0	20	120	0	60	120	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	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
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	3.5	0.0	2.0	3.5	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No		No	No			No	
Maximum Recall		No		No	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	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	C	R	L	C	R	L	C	C	C
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	5.50	5.50	4.00	5.50	5.50	4.00
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]	2.00	2.00	2.00	3.50	3.50	2.00	3.50	3.50	2.00
g_i, Effective Green Time [s]	11	11	0	78	78	18	96	96	5
g / C, Green / Cycle	0.09	0.09	0.00	0.60	0.60	0.14	0.74	0.74	0.04
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.00	0.41	0.05	0.12	0.69	0.70	0.01
s, saturation flow rate [veh/h]	1744	1583	177	354	158	177	186	186	1583
c, Capacity [veh/h]	150	136	5	211	946	250	137	136	65
d1, Uniform Delay [s]	58.11	58.22	64.7	17.9	11.1	54.7	14.9	14.9	60.59
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.29	0.29	0.11
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]	7.83	9.47	49.5	0.41	0.04	9.60	9.44	9.50	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
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

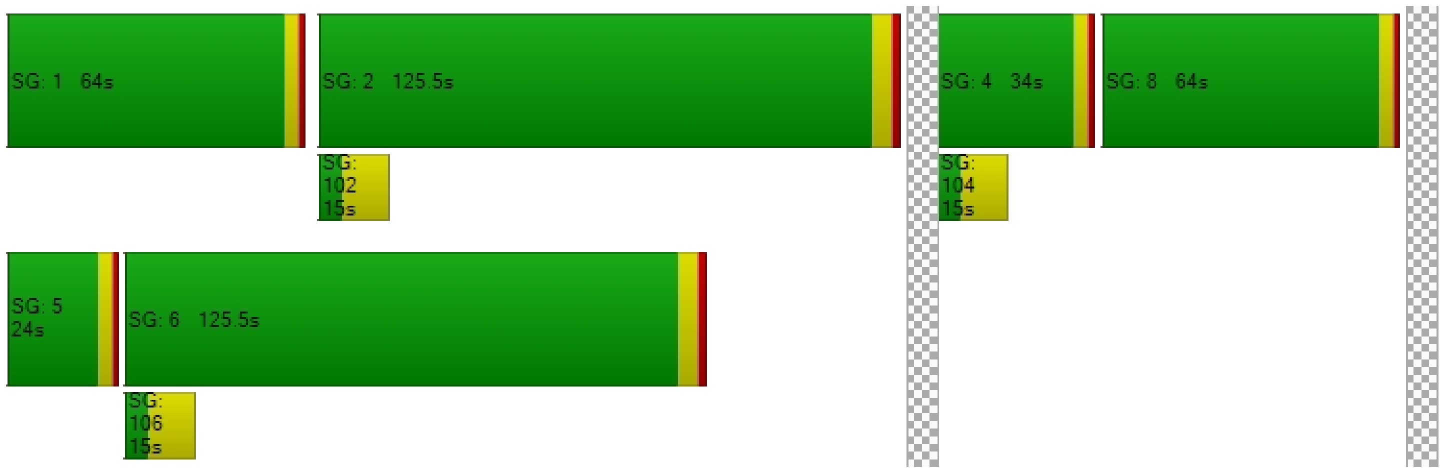
X, volume / capacity	0.76	0.78	0.42	0.69	0.09	0.88	0.94	0.95	0.32
d, Delay for Lane Group [s/veh]	65.94	67.69	114.	18.3	11.1	64.3	24.3	24.4	63.44
Lane Group LOS	E	E	F	B	B	E	C	C	E
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	4.06	3.84	0.13	13.8	0.96	7.56	28.9	29.0	0.73
50th-Percentile Queue Length [ft/ln]	101.40	96.06	3.26	345.	23.9	188.	724.	725.	18.28
95th-Percentile Queue Length [veh/ln]	7.30	6.92	0.23	19.9	1.73	12.0	37.8	37.8	1.32
95th-Percentile Queue Length [ft/ln]	182.52	172.90	5.87	498.	43.1	301.	944.	946.	32.91

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	65.9	65.9	67.4	114.	18.3	11.1	64.3	24.3	24.4	63.4	63.4	63.4
Movement LOS	E	E	E	F	B	B	E	C	C	E	E	E
d_A, Approach Delay [s/veh]	66.79			18.13			27.51			63.44		
Approach LOS	E			B			C			E		
d_I, Intersection Delay [s/veh]	26.41											
Intersection LOS	C											
Intersection V/C	0.856											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



C. Traffic Analysis Worksheets

570 Crespi Drive
Pacifica
Vehicle Trip Generation
November 5, 2021

TZ	LAND USE	ADDRESS	LU CODE	SIZE	UNITS	TRIP GENERATION RATE*						TRIP GENERATION VOLUME					
						A.M. PEAK HOUR			P.M. PEAK HOUR			A.M. PEAK HOUR			P.M. PEAK HOUR		
						IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
	PROJECT																
12	Multifamily Housing (Low Rise)	570 Crespi Drive	220	19	DU	0.12	0.40	0.52	0.45	0.26	0.71	2	8	10	8	5	13
17	Medical Office		720	3.165	KSF	2.55	0.72	3.27	1.13	2.90	4.03	8	2	10	4	9	13
	BACKGROUND																
11	Multifamily Housing (Low Rise)	Adobe Drive	220	7	DU	0.13	0.42	0.54	0.50	0.29	0.79	1	3	4	3	2	6
14	Multifamily Housing (Low Rise)	801 Fassler Ave.	220	24	DU	0.12	0.39	0.51	0.44	0.26	0.69	3	9	12	10	6	17
	CUMULATIVE																
10	Multifamily Housing (Low Rise)	Hillside Meadows	220	36	DU**	0.12	0.39	0.50	0.42	0.24	0.66	4	14	18	15	9	24
13	Single Family Detached	Harmony @ One	210	4	DU	0.19	0.56	0.74	0.62	0.37	0.99	1	2	3	2	1	4
15	Single Family Detached	Oddstad Way	210	3	DU	0.19	0.56	0.74	0.62	0.37	0.99	1	2	2	2	1	3
16	Single Family Detached	Higgins Way	210	125	DU	0.19	0.56	0.75	0.63	0.37	1.01	23	70	94	79	47	126
22	Multifamily Housing (Low Rise)	1300 Danmann Ave	220	6	DU	0.13	0.42	0.55	0.51	0.30	0.80	1	3	3	3	2	5
23	Fast Casual Restaurant		930	3.050	KSF	1.39	0.68	2.07	7.00	5.73	12.73	4	2	6	21	17	39
24	Single Family Detached	Pacifica Highlands	210	54	DU	0.19	0.56	0.74	0.66	0.39	1.04	10	30	40	35	21	56
25	Multifamily Housing (Low Rise)	Cabrillo Highway	220	89	DU	0.11	0.37	0.48	0.38	0.22	0.60	10	33	43	34	20	53
26	Small Office		712	1.760	KSF	1.59	0.33	1.92	0.78	1.67	2.45	3	1	3	1	3	4
27	Multifamily Housing (Low Rise)	930 Oddstad Blvd.	220	70	DU	0.11	0.37	0.49	0.39	0.23	0.61	8	26	34	27	16	43

* Source: ITE Trip Generation, 10th Edition, © 2019

Residential Vehicle Trip Distribution

TZ	AM Peak Hour		GATE 1	2	3	4	5	18	19	20	
10	PURPOSE		Route 1 N	LM School	LMB E	LM SC	Route 1 S	Crespi SC	Pedro Pt. SC	Fassler E	Total
11	Work	47%	44.0%			2.0%	1.0%				47.0%
16	Errands/Shopping	21%	4.0%			10.0%		2.0%	5.0%		21.0%
22	School	19%	5.0%	8.0%	6.0%						19.0%
	Social/Rec.	13%	4.0%			3.0%	3.0%	2.0%	1.0%		13.0%
	Total	100%	57.0%	8.0%	6.0%	15.0%	4.0%	4.0%	6.0%	0.0%	100.0%

TZ	AM Peak Hour		GATE 1	2	3	4	5	18	19	20	
12	PURPOSE		Route 1 N	LM School	LMB E	LM SC	Route 1 S	Crespi SC	Pedro Pt. SC	Fassler E	Total
13	Work	47%	44.0%			2.0%	1.0%				47.0%
14	Errands/Shopping	21%	10.0%			5.0%		4.0%	2.0%		21.0%
15	School	19%	5.0%					8.0%		6.0%	19.0%
24	Social/Rec.	13%	5.0%			2.0%	3.0%	2.0%	1.0%		13.0%
25	Total	100%	64.0%	0.0%	0.0%	9.0%	4.0%	14.0%	3.0%	6.0%	100.0%

TZ	AM Peak Hour		GATE 1	2	3	4	5	18	19	20	
27	PURPOSE		Route 1 N	LM School	LMB E	LM SC	Route 1 S	Crespi SC	Pedro Pt. SC	Fassler E	Total
	Work	47%		7.0%				10.0%		30.0%	47.0%
	Errands/Shopping	21%	10.0%			5.0%		4.0%	2.0%		21.0%
	School	19%								19.0%	19.0%
	Social/Rec.	13%	5.0%			2.0%	3.0%	2.0%	1.0%		13.0%
	Total	100%	15.0%	7.0%	0.0%	7.0%	3.0%	16.0%	3.0%	49.0%	100.0%

TZ	PM Peak Hour		GATE 1	2	3	4	5	18	19	20	
10	PURPOSE		Route 1 N	LM School	LMB E	LM SC	Route 1 S	Crespi SC	Pedro Pt. SC	Fassler E	Total
11	Work	33%	30.0%			2.0%	1.0%				33.0%
16	Errands/Shopping	36%	11.0%			15.0%		5.0%	5.0%		36.0%
22	School	10%		6.0%	4.0%						10.0%
	Social/Rec.	21%	7.0%			5.0%	5.0%	2.0%	2.0%		21.0%
	Total	100%	48.0%	6.0%	4.0%	22.0%	6.0%	7.0%	7.0%	0.0%	100.0%

TZ	PM Peak Hour		GATE 1	2	3	4	5	18	19	20	
12	PURPOSE		Route 1 N	LM School	LMB E	LM SC	Route 1 S	Crespi SC	Pedro Pt. SC	Fassler E	Total
13	Work	33%	30.0%			1.0%	1.0%	1.0%			33.0%
14	Errands/Shopping	36%	16.0%			10.0%		5.0%	5.0%		36.0%
15	School	10%						5.0%		5.0%	10.0%
24	Social/Rec.	21%	6.0%			5.0%	5.0%	5.0%			21.0%
25	Total	100%	52.0%	0.0%	0.0%	16.0%	6.0%	16.0%	5.0%	5.0%	100.0%

TZ	AM Peak Hour		GATE 1	2	3	4	5	18	19	20	
27	PURPOSE		Route 1 N	LM School	LMB E	LM SC	Route 1 S	Crespi SC	Pedro Pt. SC	Fassler E	Total
	Work	47%		3.0%				7.0%		23.0%	33.0%
	Errands/Shopping	21%	16.0%			10.0%		5.0%	5.0%		36.0%
	School	19%						3.0%		7.0%	10.0%
	Social/Rec.	13%	6.0%			5.0%	5.0%	5.0%			21.0%
	Total	100%	22.0%	3.0%	0.0%	15.0%	5.0%	20.0%	5.0%	30.0%	100.0%

Commercial Trip Distribution

TZ	GATE 1	2	3	4	5	18	19	20	
17	Route 1 N	LM School	LMB E	LM SC	Route 1 S	Crespi SC	Pedro Pt. SC	Fassler E	
	55.0%		15.0%		10.0%		5.0%	15.0%	100.0%

TZ	GATE 1	2	3	4	5	18	19	20	
23	Route 1 N	LM School	LMB E	LM SC	Route 1 S	Crespi SC	Pedro Pt. SC	Fassler E	
26	30.0%		30.0%		5.0%	10.0%	5.0%	20.0%	100.0%

	Date Submitted	Location	APN	Project Name	Type	New Housing Units	Project Area	Description	Permits Required	Developer/Agent	Status	Staff
15	12/21/2015	10,11 & 14 Oddstad Way	022-055-140, 022-056-140, and 022-056-150	3 Single-Family homes	Single-Family Residential	3	5,040 s.f., 6,210 s.f., 19,392 s.f.	Construct 3 new units each on separate lot	Site Development Permit	Brian Brinkman (650-922-7993)	Application Incomplete	CM
	11/7/2017	119 Berendos Ave	018-114-140	Single Family Residence Addition	Single-Family Residential	0		Addition to a SFR that would expand a non conformity	Use Permit	Ellis Schorchiot (650-343-3452)	Building Permit issued	RA
	12/5/2018	Bayview Road-Calera Terrace	022-062-550	Benda-Spenker Residence	Single Family Residential	1	26,055 s.f.	Construct a 2878 sf single family residence with a two car garage and a 679 sf accessory dwelling unit with a one car garage	Site Development Permit	Javier Chavarria (650-355-0615)	Reviewing Application for Completeness	RA
	5/7/2018	Vespero Avenue	018-103-070	TBD Vespero	Residential	1	1.34 ac	Construct a 3,411 sf single family residence with a 840 sf attached garage and 178 sf front porch	Permit for Site Development	Brian Brinkman (650-922-7993)	Application Incomplete	RA
	1/24/2020	501 Santa Cruz Terrace	022-052-170, 180,190,250	new SFD	Residential	1	20,700	Construct a new approximately 3500 sf single family residence.	Permit for Site Development	Patrick Mora, Architect (415-431-8601)	Application Incomplete	HG
	12/7/2020	TBD Berendos	022-330-150	New SFR with ADU	Single-Family Residential	2	1.011 acres	New SFR on vacant lot	General Plan Amendment, Use Permit, Site Development Permit	Jose Barba (Brian Brinkman, Mike Panesi)	Application Complete. Public hearing date TBD	CM
	12/28/2020	TBD Amapola	018-160-090	New SFR	Single-Family Residential	1	3.82 acres	New SFR	Site Development Permit, Use Permit	Brian Brinkman (650-922-7993)	Application Incomplete	CM
24	3/9/2021	TBD Coast Highway	018-140-640, 018-140-650, State Parcel 28797	Pacifica Highlands	Single Family Residential	54	61.84 acres	Construct a new 54-unit single family dwelling residential development	Tentative Subdivision Map, Rezoning	Henry Runkhe (831) 649-4642	Reviewing Application for Completeness	BOC
	6/14/2021	500 Old County Road/ 250 Rockaway Beach Ave. (f.k.a. 519 Nick Gust Way)	022-024-290	Fairfield Inn and Suites	Hotel	N/A	.74 acres	New Master Sign Program for a Hotel.	Sign Permit, Site Development Permit, Coastal Development Permit	David Ford (510-387-0546)	Hearing Date Tentatively Scheduled	BOC
25 26	8/30/2021	TBD Coast Highway	018-140-660, 018-140-300, 018-140-220	TBD Cabrillo Highway	Mixed Use Project	89	2.713 acres	Construct a new mixed use building with 89 residential units and 1,760 sf of commercial space	Site Development Permit	Chad Converse (628) 210-7833 ext. 2	Preliminary Application, Pending Standard Application	BOC
	Pacifica State Beach - Pedro Point											
	10/7/2014	505 San Pedro Ave.	023-072-010	Norcal Surf Shop Development of Vacant Lot	Commercial, Mixed Use, Covered Skate Park, Parking and Storage	2	37,273 s.f.; 12,000 sf building; 5,000 s.f. skatepark	Construct 3 Buildings for Retail, Storage and Mixed Use Space, Covered Skate Park, 2 Garage Spaces and Open Parking		Shawn Rhodes (650-207-6508)	Other	RA
	9/20/2017	110 Olympian Way	023-039-010	Erosion Control mesh on Bluff	Single-Family Residential	N/A	7,000 s.f.	Install an erosion control mesh and bluff-top paving	Coastal Development Permit (Emergency)	Jacob Patrick (970-319-9688)	Application Incomplete	CM
	4/12/2018	5200 Coast Hwy	022-191-190	Taco Bell Outdoor Seating with Alcohol Service	Commercial	N/A	1,112 sf	Establish outdoor seating with alcohol service at an existing restaurant	Use Permit	Dan Kramer (415-795-2327)	Building Permit Issued	RA
	6/19/2019	316 San Pedro Ave	023-018-220	Single-family Residence Addition	Single-family Residential	0	5,000 s.f.	Construct a 360 s.f. addition to existing 815 s.f. single-family residence	Coastal Development Permit	Lawton Smith 650-784-9380	Building Permit Issued	CM
22 23	9/13/2019	1300 Danmann	023-013-010 & 023-013-020	1300 Danmann	Mixed Use Project	6	14,551 s.f.	6 new apartments on top of 3,050 s.f. of commercial space	Site Development Permit, Use Permit, Coastal Development Permit, Sign Permit, Parking Exception	San Pedro Valley, LLC	Other	HG
	10/16/2019	277 Kent Road	023-013-030	New Single Family Residence	Single-family residential	1	3,516	Demolisth an existing SFD & one car garage and construct a new SFD with detached one-car garage and carport.	Site Development Permit, Coastal Development Permit	San Pedro Valley, LLC	Building Permit Issued	HG
	12/9/2019	246 Sterling Ave	023-038-360	Addition to Single Family Residence	Single-family Residential	0	5,0000 s.f.	Construct an approximately 500 s.f. addition to an approximately 1000 s.f. single family dwelling.	Coastal Development Permit	David Hirzel Building Design	Pending Building Permit Submittal	CM

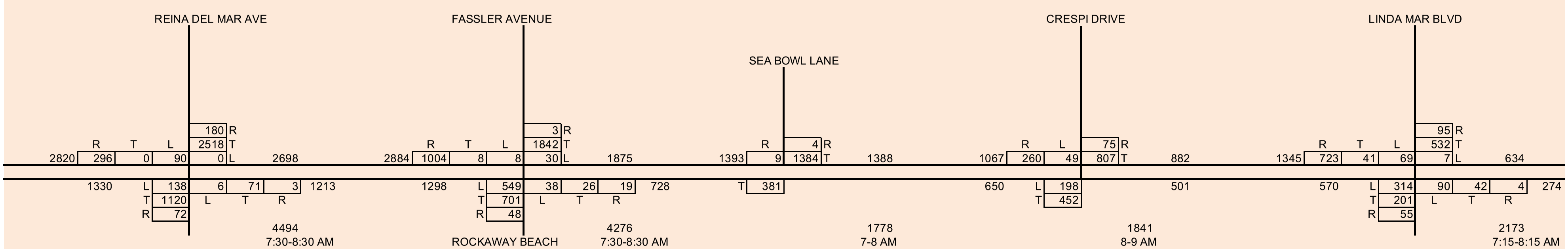
	Date Submitted	Location	APN	Project Name	Type	New Housing Units	Project Area	Description	Permits Required	Developer/Agent	Status	Staff
	1/24/2020	211 Olympian Way	023-038-350	New Single Family Residence with attached ADU	Single-family Residential with ADU	1	12,500 s.f.	Construct an approximately 3,000 s.f. single family dwelling, 600 s.f. 3-car garage and 850 s.f. attached ADU.	Coastal Development Permit	Brian Brinkman (650-922-7993)	Application Incomplete	CM
	2/27/2020	1490B Grand Ave.	023-022-040	Remodel and Addition	Single-family Residential	0		Remodel and addition at front of primary residence	Coastal Development Permit	Brian Brinkman (650-922-7993)	Building Permit Issued	CM
	1/13/2021	110 Blackburn Terrace	023-032-210	New detached ADU	Single Family Residential	1	10,300 s.f.	Replace existing nonconforming cabin with new ADU	Coastal Development Permit	Marana Zeleznock (415-378-8711)	Application Incomplete	BOC
	2/16/2021	1515 Grand Ave.	023-024-290	Addition to Single Family Residence	Single Family Residential	0	7,500 s.f.	Construct a 1,255-sf first-story addition and an 804-sf second-story addition to an existing 1,168-sf one-story single-family residence	Coastal Development Permit	Brian Brinkman (650-922-7993)	Pending Building Permit Submittal	CM
	5/13/2021	204 Olympian	023-039-110	Landscaping	Single Family Residential	0	14,000 s.f.	Construct landscaping on a property with an existing single family residence.	Coastal Development Permit	Mayberry Workshop (415-797-2248)	Reviewing Application for Completeness	JG
	8/13/2019	204 Sterling	023-038-330	Garage Addition to Single Family Residence	Single Family Residence	0	5,000 s.f.	Construct a 2 car garage in front of the existing residence on site.	Coastal Development Permit, Variance	Brian Brinkman (650-922-7993)	Application Incomplete	RA
	7/8/2021	TBD Olympian (100-block)	023-037-030	Single-family residence with Accessory Dwelling Unit (ADU)	Single Family Residential	2	7,289	Construct new three-story 3,372-sf single-family residence with detached garage and 434-sf ADU.	Coastal Development Permit	San Pedro Valley, LLC (650-303-0495)	Reviewing Application for Completeness	JG
	Linda Mar											
11	7/28/2015	1335 Adobe Dr.	023-222-080	Adobe Court Townhomes	Townhome Residential	7	18,750 s.f.	Construct seven townhome units ranging from 2200-2800 s.f. on a vacant lot	Site Development Permit, Use Permit, Tentative Subdivision Map	Bert Martinez of Kotas/Pantaleoni Architects (415-495-4051, x-217)	Pending Building Permit Submittal	CM
	5/13/2019	1320 Adobe Dr.	023-221-110	New Daycare	Daycare	N/A	22,500 s.f.	Convert existing office space into a new childcare daycare	Use Permit	John Ha (408-892-0477)	Application Incomplete	HG
10	9/14/2015	Adobe @ Higgins Way	023-361-160	Hillside Meadows	Single-family (reduced setbacks) with ADUs	18	6.8 acres	Rezone to P-D zoning, subdivide, and develop 18 dwelling units (9 2-unit buildings) with attached ADUs.	Rezoning, Development Permit, Tentative Subdivision Map, Specific Plan	JC Engineering (650-355-0615)	Application Incomplete	CM
12	1/28/2016	570 Crespi Dr.	022-162-310	Mixed Use Project	Condos & Commercial	9	42,773 s.f.	9 condo units on top of 3,191 s.f. of commercial	Site Development Permit, Use Permit, Rezone, Subdivision (Condo)	Stuart Welte, EID Architects (650-793-2856)	Pending Environmental Review	HG
13	2/17/2016	Lot 7, Harmony at One Subdivision	022-150-510	Harmony at One Lot 7	Single-Family Residential	1	56,624 s.f.	Construct one new single-family residence	Specific Plan	Javier Chavarria (650-355-0615)	Application Incomplete	CM
13	2/17/2016	Lot 8, Harmony at One Subdivision	022-150-520	Harmony at One Lot 8	Single-Family Residential	1	90,665 s.f.	Construct one new single-family residence	Specific Plan	Javier Chavarria (650-355-0615)	Application Incomplete	CM
13	2/17/2016	Lot 9, Harmony at One Subdivision	022-150-530	Harmony at One Lot 9	Single-Family Residential	1	82,168 s.f.	Construct one new single-family residence	Specific Plan	Javier Chavarria (650-355-0615)	Application Incomplete	CM
13	7/14/2017	Lot 3, Harmony at One Subdivision	022-150-470	Harmony at One Lot 3	Single-Family Residential	1	62,562 s.f.	Construct a one-story single-family residence with 4,278 sq. ft. floor area	Specific Plan	Javier Chavarria (650-355-0615)	Pending Building Permit Submittal	CM
	3/22/2018	(near) 1307 Redwood Way	023-551-510	Verizon Wireless WCF - Lockhaven Drive	Wireless Facility	N/A	N/A	Install a canister antenna and associated equipment on an existing utility pole in the Public Right of Way	Use Permit	Jacob Olander, Modus LLC (415-989-1102)	Pending Building Permit Submittal	BOC
16	3/23/2020	East of Higgins Way	023-291-040; 023-350-040	Linda Mar Woods	Mix of Housing Types (Single-family, duplex, flats, ADUs)	125	58.3 acres	Subdivide and obtain authorization to construct up to 125 dwelling units of varied types to be determined by future permit applications; annex parcel into City of Pacifica.	Development Permit, Tentative Subdivision Map	JC Engineering (650-355-0615)	Application Incomplete	CM
	3/17/2021	580 Crespi Drive	022-162-390	Crespi Center	Condo conversion	N/A	2.3 acres	Condo conversion of an existing commercial building	Tentative Subdivision Map	Mark Heavey (415) 250-7550	Reviewing Application for Completeness	CM

Date Submitted	Location	APN	Project Name	Type	New Housing Units	Project Area	Description	Permits Required	Developer/Agent	Status	Staff
8/10/2021	Lot 5, Harmony at One Subdivision	022-150-490	Harmony at One Lot 5	Single-Family Residential	1	55,620 s.f.	Construct a one-story single-family residence with 2,950 s.f. floor area and 1,290 s.f. garage	Specific Plan	Adam Libert and Maryanna Saenko (617-480-1546)	Reviewing Application for Completeness	CM
8/17/2021	1219 Galvez Dr.	023-281-290	1219 Galvez Dr.	Single-Family Residential	N/A	5,665 s.f.	Construct a one-story, 373 sf addition to a single-family residence with a reduced rear setback	Minor Modification	David Hirzel (650-201-0440)	Application Incomplete	ZC
Park Pacifica											
2/23/2018	(near) 1450 Terra Nova Blvd	022-310-300	Verizon Wireless WCF-Terra Nova Blvd.	Wireless Facility	N/A	N/A	Install a 4' canister antenna above 7' pole extension, and associate euipment on an existing wooden utility pole in the public row.	Use Permit	Jacob Olander, Modus LLC (415-989-1102)	Pending Building Permit Submittal	RA
9/3/2019	Barton Place	023-710-120	Barton Place Rezone	Vacant Lot	N/A	8.5 Acres	Application to rezone and amend GP land use designation	General Plan Amendment, Rezoning, Subdivision	Jerry Clements (650-964-6172)	Application Incomplete	CM
4/15/2020	930 Oddstad Blvd.	023-672-600	Pacifica School District Workforce Housing Project	Multi-Family Workforce Housing	70	11.4 acres	Rezone to P-D zoning, resubdivide, and develop multi-family workforce housing project for school district employees.	Development Agreement, Rezoning, Development Plan, Specific Plan, Subdivision	Ken Klebanoff (415-720-9236)	Pending Environmental Review	CM
4/2/2021	650 Cape Breton	018-170-060, 022-320-200, 022-320-240	650 Cape Breton	Use Permit	N/A	109 Acres	Use permit for church use.	Use Permit	Raymond Frank (650)387-8307	Other	CM
Fairmont West											
10/1/2019	4000 Palmetto Avenue	009-402-260-250	The Bowl	Vacant Lot	20	4.35	Construct a 20-unit multi-family residental development on a 4.35 acres vacant lot.	Coastal Development Permit, Site Development Permit	Mike Banducci, Warmington Land Association II LP (925)866-6700	Application Incomplete	BOC
11/27/2019	4009 Palmetto Ave	009-402-270	New Apartments	Vacant Lot	4	10,446sf	Construct 4-unit apartment building on vacant lot	Site Development Permit, CDP, Variance	Suren Nayantai sknayantai@yahoo.com	Application Incomplete	BOC
1/13/2020	340 Waterford	009-058-040	Waterford Mixed-use	Vacant Lot	5	9,574 SF	Construct 1,636 SF ground floor commercialarea with 5 condo residential units above in a 3 story bldg.	Site Development Permit, Use Permit, Parking Exception, Varience, Tentative Subdivision map	Marc Ojanen, Ojanen Chiou Architects LLP (415) 398-3002	Pending Building Permit Submittal	CM

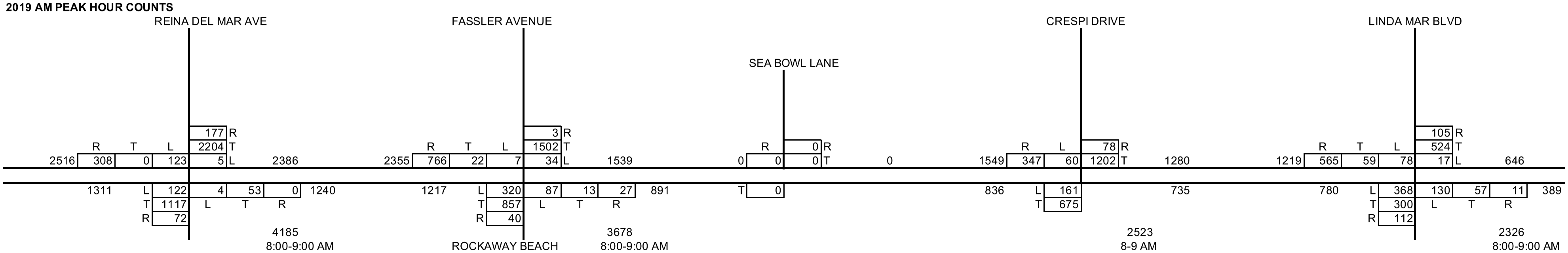
Statuses Explained:

Preliminary Application, Pending Standard Application	A preliminary application for a housing development project seeking vesting rights pursuant to SB 330 (Housing Crisis Act of 2019) was submitted to the Planning Department. Applicant shall provide a complete development application no more than 180 days after the preliminary application to retain vested rights.
Reviewing Application for Completeness	A new application or a resubmittal was received and staff is currently reviewing it for completeness.
Application Incomplete	Staff reviewed the application and it was determined incomplete. The applicant was requested to resubmit additional information.
Application Complete. Public hearing date TBD	Staff reviewed the application and it was determined complete. A public hearing date is to be determined.
Pending Environmental Review	The application is complete and the project is subject to environmental review in accordance with the California Environmental Quality Act. The environmental review process must be substantially completed prior to identifying an appropriate public hearing date.
Hearing Date Tentatively Scheduled	A tentative hearing date has been identified. Email the staff member assigned to the project or call 650-738-7341 for more information.
Pending Appeal Period	The Planning Commission or City Council adopted a resolution on the project and the decision is subject to a local and/or state level appeal period. Email the staff member assigned to the project or call 650-738-7341 for more information.
Appeal Filed. Pending Appeal Hearing	A party has filed an appeal on the action of the Planning Commission. The appeal will be presented to City Council for determination. Email the staff member assigned to the project or call 650-738-7341 for more information.
Pending Building Permit Submittal	The project received its necessary approval(s) and is awaiting for the applicant to submit for a Building Permit.

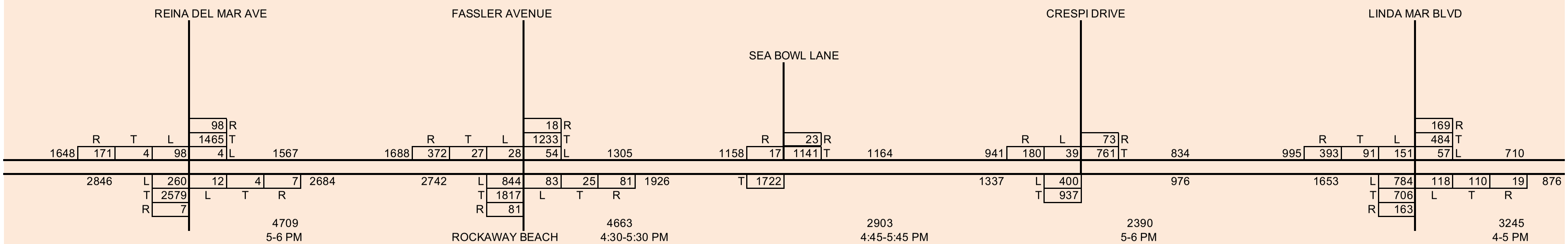
2013 AM PEAK HOUR COUNTS



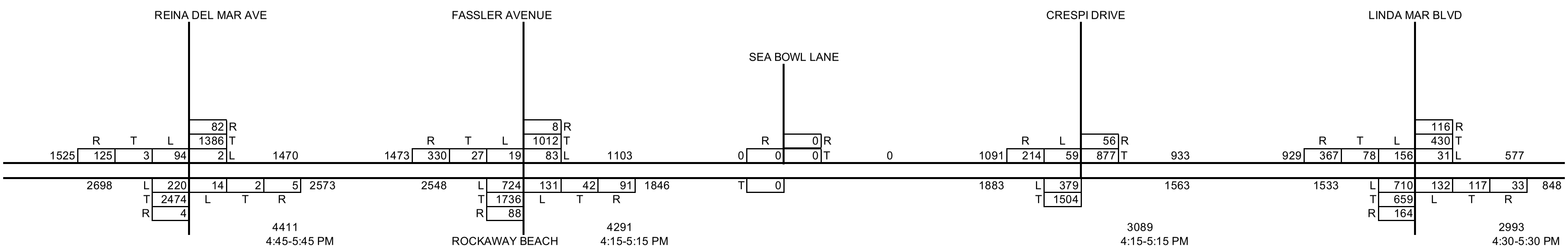
2019 AM PEAK HOUR COUNTS



2013 PM PEAK HOUR COUNTS



2019 PM PEAK HOUR COUNTS



Observations of traffic flow on Route 1 were made by RKH on Wednesday, May 22, 2013, between Reina Del Mar Avenue on the north and Linda Mar Boulevard on the south from 7 a.m. until 9 a.m.

Route 1 & Reina Del Mar Avenue. Signal cycle lengths were on the order of 300 seconds, but queues on Reina Del Mar Avenue cleared each cycle. There was some pedestrian activity crossing Route 1 from the east side to the west side where there is a SamTrans bus stop. Queues of traffic turning left from Route 1 into Reina Del Mar Avenue cleared each cycle.

Route 1 & Fassler Avenue/Rockaway Beach Avenue. Signal cycle lengths were observed at around 140-170 seconds depending on pedestrian activity. There were infrequent pedestrian movements observed crossing Route 1 west to east. Side street and turning queues, with the exception of traffic approaching on Fassler Avenue, appeared to clear each cycle.

Route 1 & Crespi Drive. Signal cycle lengths varied from a low of 52 seconds to a high of 95 seconds with the average around 75 seconds depending on pedestrian and vehicular demand. Queues of traffic on Crespi Drive cleared each cycle as did the dual left turns from southbound Route 1onto Crespi Drive. Heavy right turn traffic northbound Route 1 onto Crespi Drive. (Possible traffic using Roberts Road to get around excessive queues on Route 1.)

Route 1 & Linda Mar Boulevard/San Pedro Avenue. Signal cycle lengths ranged between 65 and 75 seconds with the average being around 65 seconds. Queues on all four approaches to the intersection cleared with each cycle. Pedestrian activity was nil. There was no queue in the northbound direction that backed up from the Crespi Drive intersection.

Queues on northbound Route 1 south of the Fassler/Rockaway intersection varied in length, none ever extending as far back as the Crespi intersection. The average queue length appeared to be on the order of 2,000 feet. There were times during the peak hour that queues from the Reina Del Mar intersection extended through the Fassler/Rockaway intersection.

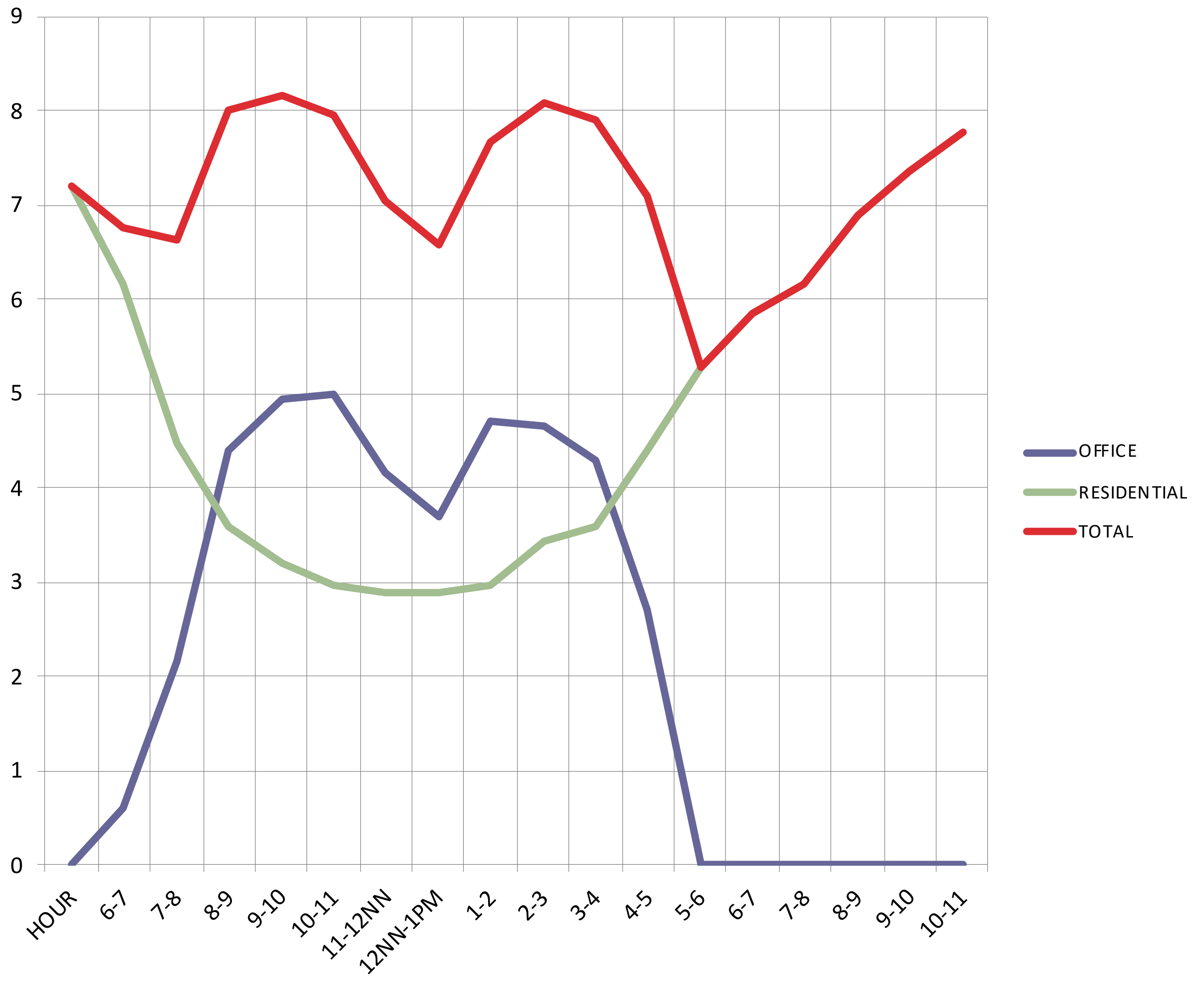
MIXED USE DEVELOPMENT - 570 Crespi Drive, Pacifica
HOURLY ACCUMULATION OF PARKING - WEEKDAYS

LAND USE	LU CODE	
RESIDENTIAL:	220	19 Multifamily units
OFFICE:	720	Medical/Dental Office

COMMERCIAL USE	GLFA, KSF	PEAK DEMAND	
OFFICE	3.165	5	ITE Parking Generation, 5th Ed.

RESIDENTIAL USE	DU	PEAK DEMAND	
MULTI-FAMILY	3	4	ITE Parking Generation, 5th Ed.
GUEST PARKING		4	Zoning Code Required
	Total	8	

	PERCENTAGE OF PEAK HOUR		PARKING ACCUMULATION, SPACES		
HOUR	OFFICE	RESIDENTIAL	OFFICE	RESIDENTIAL	TOTAL
6-7		90%	0	7	7
7-8	12%	77%	1	6	7
8-9	43%	56%	2	4	7
9-10	88%	45%	4	4	8
10-11	99%	40%	5	3	8
11-12NN	100%	37%	5	3	8
12NN-1PM	83%	36%	4	3	7
1-2	74%	36%	4	3	7
2-3	94%	37%	5	3	8
3-4	93%	43%	5	3	8
4-5	86%	45%	4	4	8
5-6	54%	55%	3	4	7
6-7		66%	0	5	5
7-8		73%	0	6	6
8-9		77%	0	6	6
9-10		86%	0	7	7
10-11		92%	0	7	7
11-12MN		97%	0	8	8



9
8
7
6
5
4
3
2
1
0
HOUR
6-7
7-8
8-9
9-10
10-11
11-12NN
12NN-1PM
1-2
2-3
3-4
4-5
5-6
6-7
7-8
8-9
9-10
10-11
OFFICE
RESIDENTIAL
TOTAL